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Cultural Perspectives on Just World Beliefs and Well-being:  
Evidence from 45 sites in Asia and United Kingdom

A thesis submitted for the degree of Doctor of Philosophy

By

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January 2021

### **Declaration**

The research reported in this thesis was conducted while the author was a full-time postgraduate student in the School of Psychology at the University of Kent (September 2016 – January 2021). The theoretical and empirical work herein is the independent work of the author. The author has not been awarded a degree by this or any other university for the work included in the thesis.

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## Abstract

Belief in a just world (BJW) is the belief that people get what they deserve and deserve what they get (Lerner, 1980). Theoretically, this belief supports mental health. However, many studies have distinguished between beliefs that the world is fair to “me” (personal BJW or BJW to the self) versus people in general (general BJW or BJW to the others), and have shown that only self-related BJW is positively related to mental health. Unfortunately, most of these studies relied on Western, Educated, Industrialized, Rich, & Democratic samples (WEIRD: Heinrich et al, 2010). Some non-WEIRD studies suggest that collectivist (vs. individualist) populations may be more inclined to believe that life is fair to others, and benefit more from the belief. The present research examines competing predictions across five studies. These predictions were derived from the cultural generality hypothesis (that irrespective of cultural influence, self-related BJW is endorsed more strongly, and is more relevant to well-being, relative to other-related BJW) vs. the cultural specificity hypothesis (that non-WEIRD cultural influences make endorsement of other-related BJW stronger and more relevant to well-being, and self-related BJW weaker and less relevant to well-being). In Study 1, 177 Thai students completed various scales assessing personal BJW (PBJW), general BJW (GBJW), and well-being (i.e., life satisfaction, depression, positive affect and negative affect). As in previous WEIRD studies, participants endorsed higher PBJW than GBJW, and PBJW but not GBJW positively predicted well-being. Study 2 extended this study by also considering the role of Karma. Students in the UK (n = 345) were asked to complete PBJW, GBJW, belief in Karma and well-being (i.e., life satisfaction and depression). As in Study 1, participants endorsed higher PBJW and PBJW still positively predicted well-being. In addition, belief in Karma positively predicted depression. Study 3 (175 Thai students) further investigated the moderating effect of independent-interdependent self-construal. As in both previous studies, participants endorsed higher PBJW, and PBJW positively predicted well-being. Moderating effects of both

Karma and independent self-construal were found. However, these were not consistent with the cultural specificity hypothesis. The first three studies suffered from lack of statistical power and reliance on single sites. Study 4 remedied these limitations by recruiting 7,304 student participants in 26 sites across Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam. It further examined the relationships between BJW and well-being (i.e., life satisfaction, depression, perceived health status and negative mental health) and also tested the moderating effects of cultural or contextual variables (i.e., multidimensional self-construal, belief in Karma, analytic-holistic cognition, and negative life events). Across all sites, PBJW but not GBJW was reliably associated with higher positive indices and lower negative indices of well-being, even controlling for belief in Karma. Moderating effects of self-construal and variables such as Karma and holistic cognition did not provide coherent support for the cultural specificity hypothesis. Findings were generally similar in Study 5, in which 3,895 students were recruited in 18 sites across mainland China, Hong Kong S.A.R., India, Japan, Macau S.A.R., South Korea, and Taiwan. The results indicate that even in interdependent cultural contexts, believing the world is fair to “me”, but not “others”, is associated with mental health.

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## Forward

I, as a person from the Eastern part of the world, who have visited many countries and have lived in the United Kingdom for years, can sense and notice the cultural differences in various domains such as manners, lifestyles, worldviews and values. I have experienced a clear example of cultural differences in social interaction. Western people I have met in the UK seem to be more straightforward and assertive. They have their own voice to express their thoughts and feelings without considering other people that much. In contrast, people in my country seem to be very passive. They do not say what they think and feel, especially the negative comments because they fear what they will say will hurt other people's feeling and disrupt social relationships and their public image.

From my point of view, Eastern people's worldviews are much different from Westerners'. I started this thesis by taking this point of view on the research literature on just world beliefs. A common finding in this literature is that people have stronger mental health when they perceive outcomes in their own lives, rather than other people's lives, to be fair. This struck me as possibly a bit Westernised. I thought that Eastern cultures' focus on social relationships and collective should affect the psychological functions of belief in justice. Specifically, people in the East should be happy when not only themselves but also others are fairly treated. However, it is just an assumption. Thus, I started my PhD study and conducted research addressing cultural perspectives on just world beliefs and well-being.

## Chapter 1: Introduction

As the scientific study of psychology developed in the twentieth century, scholars began to think about what people need to thrive, over and above the satisfaction of biological survival needs. What, in other words, are the preconditions for mental health. From humanistic psychology came the idea that people need to have coherent self-concepts that are matched to the history and demands of their lives, and the idea that people need to perceive their lives as having some meaning (e.g., Frankl, 1959/1985; May & Yalom, 2005). From social and clinical psychology came the idea that people need to be able to have a sense of control over events (Burger & Cooper, 1979), and to be able to understand and predict them (e.g., Ajzen, 1977; Kruglanski, 1980). In the 1960s, Lerner (1965, 1980) built a theory that people have a fundamental need to feel that outcomes in their lives are just. In turn, this helps people to satisfy other needs, since perceiving events in your life to be just helps you to perceive them as meaningful, predictable, and controllable.

In support of this theory, many research studies have linked this perception of personal justice to well-being. However, they have taken place overwhelmingly in Western countries that tend to emphasise the value of the individual and to see the individual as distinct from others. The present thesis examines whether these findings also hold among people who attach more importance to the collective. Thus, it relates studies examining whether contextual and individual-level differences in the way people understand and evaluate selfhood affect the relationship between just world beliefs and well-being.

This introductory chapter will review research literatures that inform my studies. The first part will start with the introduction to just world theory (Lerner, 1980). Next, experimental research inspired by this theory will be briefly reviewed, followed by correlational studies on just world beliefs as individual differences. The crucial distinction between self versus other-related justices and their consequences (e.g., well-being and harsh social attitudes) will be

reviewed. I will then introduce cultural variables tested in this research (i.e., self-construal, analytic-holistic cognition, belief in Karma and negative life events): these vary between geographical locations (contexts) such as cities, regions, and countries, but also between individuals in any given context. Then, cultural variance in well-being will be discussed. Finally, I discuss whether these cultural variables can be expected to modify the role of just world beliefs as antecedents of well-being. This query can be broken into three more specific questions. First, is the relationship between well-being and beliefs that one personally gets what one deserves unique to Western, Educated, Industrialized, Rich, and Democratic (WEIRD) (Henrich et al., 2010) countries? Second, can differences in this relationship between countries be explained by variables of interest to cultural psychology, especially cultural variation in the way that individuals and collectives are understood? Third, do differences between people, in the extent to which they adopt cultural ways of understanding themselves and collectives, change the relationship between just world beliefs and well-being?

### **1.1 Just world theory**

Lerner's (1980) just world theory has called psychologists' attention to the importance of justice in human life, generated much research, and influenced later theories, including system justification theory (Jost, 2018) and social dominance theory (Pratto et al., 2006). It proposes that early in life, people learn that the unregulated pursuit of immediate gratification is not conducive to their longer-term welfare. For example, they learn that immediately rewarding actions (e.g., taking a delicious candy from another child) are later punished, and immediately unrewarding behaviours (e.g., waiting in line) lead to gratifying outcomes in the long run. Thus, children suspend the pursuit of immediate gratification, in favour of longer-term, more socially acceptable modes of pursuing goals. In exchange, they expect that doing the right thing will be justly rewarded.

Lerner (1980) metaphorically termed this implicit bargain the “personal contract”, and argued that faith that they, personally, will receive justice helps people see life as orderly, controllable, predictable, and meaningful. As a result, it reduces anxiety, depression, improves satisfaction with life, and facilitates the pursuit of long-term goals. On the downside, this faith is threatened by evidence that life is not fair – for example, by the undeserved suffering of innocent victims of misfortune, poverty, and disease. Thus, Lerner proposed that people attempt to minimise injustices behaviourally, for example by compensating victims: or when, this does not seem feasible, to minimise them cognitively, for example by derogating victims.

### ***1.1.1 Experimental research: The motive to see one’s own life as just***

There is much experimental evidence for the basic premise of just world theory (for reviews, see Ellard et al., 2016; Hafer & Rubel, 2015). This work indicates that as the theory predicts, people make an effort to preserve their need to believe in a just world. When they witness injustice, they will try to restore their sense of justice. The early experimental research was started by Lerner and Simmons (1966). They extended Milgram (1963, 1964)’s experiment involving learners being electrically ‘shocked’ when they gave the incorrect answers. The participants did not know that the learners were the confederates and there was no actual electric shock in the experiment. Rather than administering the shocks themselves, participants in Lerner and Simmons (1966)’s experiment witnessed the experimenter administering the purported shocks, and the apparent suffering of the confederates.

The results showed that participants helped when they were led to believe that it was possible and easy for them to do so. Specifically, when participants thought they could change the experimental design by giving rewards for the correct answers instead of shocking confederates, they chose this option, and hence made the situation less unjust behaviourally. In contrast, when they did not have this option, they derogated the victims, and in this way made

the situation seem less unjust. This is an example of a cognitive defence of just world beliefs. Other experimental studies show that people employ a range of these cognitive defences, including victim blame, distancing themselves from victims, and demonising wrongdoers in order to make them seem like anomalies in an otherwise just cosmos (Hafer & Begue, 2005; Hafer & Rubel, 2015; Lerner, 1980).

In a similar vein, Miller (1977) conducted research addressing altruism and threat to a belief in a just world. The results showed that the participants with high BJW helped more than the participants with low BJW when the victim was presented as the only one victim. As Lerner (1980) proposed, this is an example of rational BJW defence mechanism which is victim helping and compensation. In contrast, when the victim is represented as a part of the group or there are other fellow needy victims, the participants tend to derogate the victims instead of helping. Miller (1977) argued that in such situations, people feel unable to offer meaningful help. A problem experienced by many people may seem too difficult for one person to solve, so people fall back on cognitive strategies such as victim derogation to make the situation seem less unjust. However, people with low BJW were not willing to help no matter how many victims in the scenarios. This suggests that helping behaviour was driven by the need to see the world as a just place.

There is prior research addressing justice motive may be preconscious. Hafer (2000a) used a modified Stroop task to detect the activation of justice-related mental processes by measuring the colour identification latencies of both justice-related and neutral words. The results showed that colour identification latencies of justice-related words were higher than of neutral words when the participants watched undeserved or just world threat scenario in the video (i.e., the assailants had not been arrested or punished.). In other words, when facing the just world threat, people were distracted by thoughts related to “justice”. Moreover, this justice-related interference in the modified Stroop task predicted victim dissociation (i.e.,

psychological distancing) and victim derogation when the participants perceived a second undeserved outcome.

Thus, people with high justice motive or need to see the world as a just may make a situation more just by restoring justice behaviourally, for example by compensating victims, but when this option seems too costly or difficult, they make it seem more just by using cognitive defence techniques such as victim dissociation, victim blaming and victim derogation. According to just world theory, the ultimate reason people engage in either strategy is that the injustices happening to the victim threaten their confidence that justice will rule in their own lives. Thus, either rational or non-rational just world belief defence strategies make people feel their lives are more just and they therefore do not have to worry as much about similar injustices happening to themselves. Theoretically, this allows them to preserve all the psychological benefits of just world beliefs (Lerner, 1980; 1998).

Studies have provided evidence that people tend to respond specifically to personal just world threats. In other words, they tend to minimise injustices that affect others to the extent that they share some similarity with the victim suggesting that unjust outcomes may also befall them personally. One of these similarities is a shared social identity. Correia et al. (2007) undertook research addressing how much ingroup (Portuguese) vs. outgroup (Gypsy) victims would threaten people's BJW. The participants were exposed to a videotape telling the story about the handicapped victim suffering from the electric shock accident. Then, they performed an emotional modified Stroop task (Hafer, 2000a). The results showed when the victim was Portuguese (ingroup), the participants took more time to identify the colour of justice-related words than the neutral words which mean the justice-related mental processes were activated and ingroup victim threatened BJW.

In later studies, Correia et al. (2012) addressed the moderating effect of BJW on ingroup identification predicting victim derogation and psychological distancing. They found that BJW

was positively related to victim derogation when the participants strongly identified themselves with the group (student) and BJW was negatively associated with ingroup identification when group salience (women) was activated. Thus, the injustice might befall the ones who share a common ingroup identification (Correia et al., 2007; Correia et al., 2012) supporting the hypothesis that a victim from the ingroup is more threatening than the one from the outgroup.

Further evidence that people minimise the injustice of victim's fates when they are self-relevant comes from a study by Hafer (2000b), which studied the effects of the salience of one's long-term goals on BJW and victim derogation. Hafer asked participants to write an essay about their opinions on university life to prime either long-term (i.e., life after graduation in the future) or short-term (i.e., current university modules and extracurricular activities) orientations. Then, they watched an interview on a video featuring a personal account of a woman who contracted HIV. The video was always the same, but was introduced with a key sentence that differed by condition (the woman contracted HIV because of a broken condom vs. no condom during intercourse). The point of this manipulation was to present the victim as either 'innocent' (impossible for even a motivated perceiver to reasonably blame for her situation) or not. After that, victim blaming, victim derogation, victim association and BJW were measured. The findings showed that when the victim was 'innocent' (contracted HIV because of a broken condom), victim blaming, victim derogation and victim dissociation were higher when long-term focus was primed than the control group (short-term focus). In addition, a correlational study reported in the same paper showed that people higher in just world beliefs reported greater commitment to long-term goals.

Later research also addressed long-term orientation and just world motive. Hafer et al. (2005) assigned the participants to complete the individual difference measures including long-term goal focus and a commitment toward deserving one's outcomes. Approximately one month later, the participants watched a videotaped interview featuring a personal account of a

woman who contracted HIV because of either a broken condom or no condom during intercourse, as employed in Hafer (2000b). After that, the participants were asked to complete measures of blame, derogation, and dissociation from the victim. The results showed that participants with a strong commitment to deserving their outcomes and high level of long-term goal focus blamed, derogated, and dissociated from the victim when the victim contradicted HIV because of a broken condom. In other words, when the situation contradicted just world beliefs, people who invested in long-term goals and deserved outcomes would need to preserve the belief by victim blaming.

Another piece of research by Callan et al (2013) examined the relevance of participants' own long-term goal focus on immanent justice reasoning, which is believing that good or bad outcomes in a person's life are caused by their previous good and bad actions, respectively – even when there is no physically plausible way that the person's deed could have brought about the outcome. It is different from ultimate justice, which is the belief that eventually, perhaps even in an afterlife, good deeds are rewarded and bad deeds are punished (for a review, see Callan et al., 2014b). Participants were primed to think about short term (within 24 hours) vs. long-term goals (starting from 1-5 years). Then, a scenario was presented about a man who was seriously injured from a traffic accident. The man was either a beloved benefactor (e.g., a volunteer swimming coach) or a thief. After that, the participants were asked to rate immanent justice reasoning to the accident as a result of his previous conduct. The results showed an interaction between goal focus and the fictional character's moral worth. In other words, participants showed more immanent justice reasoning or blamed the misfortune on the fictional character's bad (thief) more than good (beloved benefactor) prior actions in both goal focus conditions, but more strongly in the long-term (vs. short-term) goal condition.

Most previous research addressing long-term focus and justice belief treated long-term orientation as either experimental priming or individual differences measured by scale. There

is another study measuring long-term orientation in a different way. Callan et al. (2014a) conducted studies addressing justice, victim derogation and delay discounting. The participants read news article about a man was attacked while walking his dog. According to just world conditions, the attackers were either arrested or not. Then, the participants were asked to rate the victim. Next, they were asked for delay discounting or how long they would delay to receive the rewards which means the longer they delay, the more amount of money they will receive. The results showed that the more the participants derogated the victim, the more they prefer the longer-term rewards in case of just world threat (i.e., the attackers were not punished) or the victim was bad (i.e., drugdealer). This suggests that defence mechanisms are successful in restoring the psychological benefits of faith in justice, despite their adverse social consequences.

### ***1.1.2 Individual differences research inspired by just world theory***

The special importance of perceived justice for the self, and its influence on reactions to the injustices experienced by others, is also suggested by many studies of individual differences. The tradition of research on individual differences in just world belief originally arose as a response to the experimental research. For example, In Lerner and Simmons (1966)'s early experimental research, the participants were asked to write some comments on the experiment. Some of them showed disagreement with the rationale for the study (the punishment by the electric shock) (e.g., "I thought there was no sense in the experiment and it was very cruel."). Thus, these written comments reflected how the participants differently felt about the experiment and the victims. Under the negative reinforcement condition, some subjects giving positive feedback to the research (e.g., "I think it is about the most interesting experiment I have been able to participate in. I enjoyed it very much") were more likely to reject the victims while the others giving disapproval comment were less likely to reject the

victims. A possible factor affecting rejection of these victims was the concept of identification which was not investigated. When the subjects identified themselves with the victims, they were more likely to show compassion and to feel as if they were the subjects (Lerner & Simmons, 1966). Then, they were less likely to reject the victims. Thus, these comments made by the participants might indicate that not only the situational factors (experimental conditions) but also individual differences (identification) determined belief in justice. That is to say, not all people highly endorsed just world belief and blamed victims for their misfortunes (Rubin & Peplau, 1973).

Although the early experimental research by Lerner and Simmons (1966) mainly focused on the situational factors, the participants' comments in this research indicated that individual variable (i.e., identification) was also important to take into account. Then, the experimental research addressing just world belief included identification through experimental manipulation (e.g., Correia et al., 2007; Correia et al., 2012). Apart from identification, the other experimental studies also included another individual variable like long-term goal orientation through either experimental manipulation (Callan et al., 2013; Hafer, 2000b) or individual measure (Callan et al., 2014a; Hafer, 2005). The experimental research suggested and took the individual variables into account. Thus, individual differences in perceived justice are worth studying.

Originally, Rubin & Peplau (1973, 1975) started to research addressing individual differences in just world belief and developed the "Just World Scale" asking participants' agreement-disagreement on a six-point scale. The items address specific domains such as politics, the legal system, business profession, and health. The items vary in their framing, such that half of them address the belief that the world is a just place (e.g., "Basically, the world is a just place") while the other half address the belief that it is an unjust place (e.g., "I've found that a person rarely deserves the reputation he has"). A factor analysis was conducted to see

whether some items might be eliminated. Three items were removed; thus, the final version comprised sixteen items (Rubin & Peplau, 1973). According to early studies collecting data from undergraduate students in USA, the coefficient alpha was .79 (Rubin & Peplau, 1973) which indicates high internal consistency. Further, BJW also correlates with the variables related to the just world theory such as victim derogation, authoritarianism and social and political outcomes. Thus, the scale was possibly reliable and valid.

However, later research found weaknesses. First, some studies found lower internal consistency coefficients (e.g., Ambrosio & Sheehan, 1990; Hellman et al., 2008; Loo, 2002; Whatley, 1993). Studies also observed inconsistent factor structures (Ambrosio & Sheehan, 1990; Hyland & Dann, 1987; Whatley, 1993). Some studies found that the just and unjust items did not load onto the same factor (Connors & Heaven, 1990, Heaven & Connors, 1988). Further, studies suggested that these beliefs in a just and an unjust world might separately work in different domains. For example, negative attitudes toward AIDS victims were positively associated with just world belief whereas negatively associated with unjust world belief (Furnham & Procter, 1992). Moreover, the items were weakly correlated with each other and predicted different criterion variables (e.g., Couch, 1998; Dalbert et al., 2001; Furnham, 1995; Loo, 2002). Since just and unjust world beliefs are not clearly opposite, researchers developed new General BJW scales consisting of general items without reversed statements referring to the unjust world (Dalbert et al. 1987; Lipkus, 1991). In general, General BJW scales showed better reliability.

Early research findings often suggested that people who endorse the belief in a just world (BJW) - the belief that people get what they deserve and deserve what they get – tend to be more authoritarian (Connors & Heaven, 1987; Lambert et al., 1999; Rubin & Peplau, 1973). Moreover, BJW is also related to many variables such as belief in God (e.g., Agrawal & Dalal, 1993), religiosity (Rubin & Peplau, 1973) internal locus of control (Lipkus, 1991; Rim, 1981;

Rubin & Peplau, 1973, 1975; Witt, 1989; Zuckerman & Gerbasi, 1977), social and political ideology such as conservatism (Dittmar & Dickinson, 1993; Lambert & Raichle, 2000), attitudes toward capital punishment (Butler & Moran, 2007) and prejudice toward groups such as Blacks (Rubin & Peplau, 1973), women (Rubin & Peplau, 1973; Smith et al., 1975), the poor (Furnham & Gunter, 1984; Harper et al., 1990; Rubin & Peplau, 1973), the elderly (Lipkus & Siegler, 1993), immigrants and foreign workers (Dalbert & Yamauchi, 1994), and AIDS sufferers (Connors & Heaven, 1990).

Of particular interest to this thesis, many studies have also shown that despite its negative social connotations, individual differences in BJW are positively associated with well-being. Previous studies have found that BJW is positively related to well-being including life satisfaction (Correia et al., 2009a; Dalbert & Katona-Sallay, 1996; Keller & Siegrist, 2010; Lipkus & Bissonnette, 1996; Schlenker et al., 2012), self-esteem (Feather, 1991; Jiang et al., 2017; Ramos et al., 2014; Steensma & van Dijke, 2006), psychological adjustment, coping and resilience (Kim et al., 2015; Littrell & Beck, 1999; Park et al., 2008; Tomaka & Blascovitch, 1994), better physical health and recovery (Agrawal & Dalal, 1993; Jensen et al., 1998; Levine et al., 2017; Lucas et al., 2018), more positive and less negative emotions and affect (Brown & Grover, 1998; Hafer & Correy, 1999; Lucas, 2009; Sirois & Iyer, 2018), and low levels of depression and grief (Dalbert, 1997; Ferrari, 1990; Papa & Maitoza, 2013; Ritter et al., 1990).

Some researchers argued that BJW was not possibly seen as a unitary construct or BJW is not general at all because this belief is influenced by self-related variables such as ingroup identification (Correia et al., 2007; Correia et al., 2012) and people's long-term goals (Callan et al., 2013; Callan et al., 2014a; Hafer, 2000b; Hafer et al., 2005; Miller, 1977). This is consistent with Lerner's (1980) "the world of the self" indicating self-interest. Thus, just world

belief may be a multidimensional concept which can be distinguished by different domains including the perspectives of self vs. others.

This idea was first tested by Lipkus et al (1996). They decomposed BJW into the belief in a just world for others (BJW-Others) (e.g., “I feel that people get what they deserve.”), and for the self (BJW-self) (e.g., “I feel that I get what I deserve.”). Lipkus et al also reported that BJW-self (BJW-S) most strongly and consistently predicted low levels of depression and stress, and high level of life satisfaction while BJW-Others (BJW-O) only predicted life satisfaction. In parallel, there is another main measure used to define these concepts. Dalbert (1999) proposed that BJW consists of Personal BJW (PBJW) developed by Dalbert (1993) (e.g., “I believe that I usually get what I deserve.”) and General BJW (GBJW) developed by Dalbert et al, 1987 (e.g., “I believe that, by and large, people get what they deserve.”). The results showed that PBJW predicted high levels of life satisfaction and self-esteem which are overall consistent with Lipkus et al. (1996)’s findings. In general, these two operationalisations of self-related (i.e., BJW-S and PBJW) and other-related BJW (i.e., BJW-O and GBJW) are used interchangeably in the literature (Hafer & Sutton, 2016). Research employing both of these operationalisations has shown that though they are positively correlated with each other, self- and other-related BJW serve different functions.

Dalbert (2001) proposes BJW as a personal resource promoting “adaptive reactions and the maintenance of well-being” through assimilation, motive and trust functions. (for a review, see Dalbert & Donat, 2015). First, the assimilation function of self-related BJW helps people to cope with the sufferings by many ways including finding meaning, downplaying, justification (Dalbert, 2001), or view the treatment by others as just (Dalbert & Filke, 2007; Dalbert & Stoeber, 2005). For example, imagine a student who receives an unsatisfactory score on an assignment. If the student endorses high level of self-related BJW, the student may deal with the injustice by attribution, “I must have handed in bad work, the bad mark is not an

injustice but a reflection of the quality of my work, the world remains a just place”, or the student may downplay it: “this mark is not so bad; the world is still a fair place”. Second, the motive function of self-related BJW enables people to preserve a just world by engaging in moral and just actions such as keeping away from cheating (Alt, 2004), delinquency (Donat et al., 2014), and engaging in prosocial behaviour (Bartholomaeus & Strelan, 2016; Bègue, 2014; Sutton et al., 2017). Lastly, the trust function of self-related BJW enables people to believe that in life they will get what they deserve. Thus, self-related BJW is related to people expecting deserved rewards (Correia & Dalbert, 2007) and being confident to invest in long-term goals (Hafer, 2000b; Sutton & Winnard, 2007) (for a review, see Bartholomaeus & Strelan, 2019).

According to the empirical findings, self-related BJW was distinctive predictor of well-being when compared with other-related BJW (Dalbert, 1999; Lipkus et al., 1996). Then, many studies specifically focused on only self-related BJW without controlling for other-related BJW. The results consistently showed that self-related BJW is uniquely related to well-being (Christandl, 2013; Correia et al., 2009a; Correia et al., 2009b; Dzuka & Dalbert, 2006, 2007; Fatima & Suhail, 2010; Otto & Schmidt, 2007; Xie et al., 2011). When taking both self- and other-related BJW into account simultaneously, self-related BJW is still a unique predictor of indices of well-being and positive mental health (Bègue & Bastounis, 2003; Correia & Dalbert, 2007; Dalbert, 1999; Khera et al., 2014; Megías et al., 2019; Nartova-Bochaver et al., 2019; Otto et al., 2006; Sutton & Douglas, 2005; Sutton et al., 2008; Sutton et al., 2017). Thus, self-related BJW relates to positive mental health and well-being in line with just world theory.

On the contrary, BJW-Others is generally related with harsh social attitudes including Americans’ desire for revenge after the attacks on September 11, 2001 mediated by terrorism-related distress (Kaiser et al., 2004). When controlling for BJW-Self, BJW-Others is still uniquely associated with negative attitudes linked to just world defence mechanisms such as

prejudice toward the elderly and the poor (Bègue & Bastounis, 2003; Sutton & Douglas, 2005) and refugee workers (Khera et al., 2014).

Apart from previous findings showing the different functions of both just world belief domains (self vs. other), some research also found psychometric distinction between both dimensions. Bègue and Bastounis (2003) performed test-retest reliability analysis and found the correlations between BJW scores across the two testing sessions which showed satisfactory reliability. Later, Sutton and Douglas (2005) conducted factor analyses on BJW-S and BJW-O constructs. They found both the two and three factor solutions with the total 15 of the 16 items loaded. However, the third factor was marginally significant. Thus, the two-factor solution provided better results and it also confirmed conceptual distinction between both constructs (Lipkus et al., 1996).

## **1.2 Cultural or Contextual Variables**

Just world belief research is heavily biased toward Western countries, especially among Western, Educated, Industrialized, Rich, & Democratic samples (WEIRD: Heinrich et al., 2010). Specifically, most prior studies into just world belief and well-being were conducted in the United States followed by the United Kingdom and Germany, respectively. This is unfortunate, because just world theory was not intended to be culture-specific. Instead it was built on assumptions about the inherent features of moral agency, including conflicts between self-interest and guiding moral principles. Testing it comprehensively requires that it is not only tested in WEIRD cultural contexts.

More generally, social and personality psychologists increasingly acknowledge that since cultural and psychological processes influence each other (Lehman et al., 2004; Markus & Hamedani, 2019), culture (and other contextual factors) may profoundly moderate

psychological processes (e.g., Pettigrew, 2018). In particular, and of particular interest to just world theory, cultures shape the conceptualisation of the self.

According to classic theories of cultural difference, most cross-cultural psychological differences are broadly dichotomised according to two big concepts. The first concept, *individualism*, focuses on autonomy, uniqueness, distinctiveness, and separateness from others. These values are common in Western cultures, in contrast to the second big concept, *collectivism*, which focuses on interdependent, highly interconnected relations with others and is more common in non-Western cultures (e.g., Hampton & Varnum, 2020; Oyserman et al., 2002). In parallel, many equivalent terms are used to define these concepts. As well as individualism and collectivism (Hofstede, 2001; Triandis, 1995), scholars have written about independent and interdependent self-construals (Markus & Kitayama, 1991), idiocentrism and allocentrism (Triandis et al., 1985), and *Gemeinschaft* and *Gesellschaft* (Greenfield, 2013). However, they are referred to, these concepts have implications for basic psychological functioning, including well-being (Oyserman et al., 2002).

### ***1.2.1 Self-construal***

Markus and Kitayama (1991) focused on how people in different cultural context differently construe themselves in terms of the relationship between the self and the others. The term “self-construal” was introduced to define and distinguish the way people view their selves and the others. An “independent view of self” was theorised to be typical of Western cultures, and people with this view were theorised to be autonomous, egocentric, individualist, self-contained, unique and separate from others. In contrast, an “interdependent view of self” was theorised to be typical of non-Western cultures, and involves seeing oneself in allocentric, collective, contextualised, relational terms in which one is closely interconnected with others.

Moreover, self-construal was argued to mediated between cultural context and cognition, emotion and motivation (Markus & Kitayama, 1991; Matsumoto, 1999).

Some scholars claimed that self-construal and individualism-collectivism share similarities. Although self-construal theory did not directly state any connection with individualism-collectivism, the theories' background is reasonably related to each other. Some scholars stated that both concepts overlap with each other (Cross et al., 2011; Smith et al., 2013; Vignoles et al., 2016) and also seem to be interchangeable (Oyserman et al., 2002). Further, looking at cultural measures or scales, the same statements or items can be found from both individualism-collectivism and self-construal measures (Owe, 2013)

On the other hand, others disputed the idea of similarities between self-construal and individualism-collectivism. There are some differences between self-construal and individualism-collectivism, but these can be understood as differences in levels of analysis. Self-construal can be seen as an individual-level outcome (Smith, 2011) of individualism-collectivism, which refers to culture-level beliefs, values, and norms (Gudykunst et al., 1996; Park & Levine, 1999; Singelis & Brown, 1995).

Setting aside these conceptual disagreements and ambiguities, survey instruments have been developed to measure self-construal. Kuhn and McPartland (1954) developed the "Twenty Statement Test" or "TST." This test asks the open-ended question "Who am I?" to participants, who then freely list twenty answers without hesitation. After that, content analyses and coding are used to interpret individualism-collectivism and self-construal (Bond & Cheung, 1983; Smith et al., 2013; Triandis et al., 1990). Some research found that TST was valid among Americans versus East Asians (Triandis et al., 1990, Trafimow et al., 1991). However, the other research uncovered concerns about the inconsistencies of findings (Cross et al., 2011; Levine et al., 2003). Some possible reasons why there were some flaws in TST are such as variation in subjective coding (Smith et al., 2013; Trafimow et al., 1991) and errors in

the interpretation of the statements' importance and weights (Smith et al., 2013; Triandis, 1995).

Then, Likert-type Self-construal Scales based on Markus and Kitayama (1991)'s bi-dimensional concept (independence vs. interdependence) were introduced (Gudykunst et al., 1996; Singelis, 1994) and widely used. Some studies provided supporting results showing that Americans endorsed higher independent view of self while East Asians endorsed higher interdependent view of self (Kwan et al., 1997; Singelis, 1994; Singelis & Sharkey, 1995). In contrast, most research did not provide as consistent results as were expected (Matsumoto, 1999; Smith et al., 2013), including a meta-analysis (Levine et al., 2003). Measurement problems were also found. First, self-construal scales were found not to fit the bi-dimensional model well (i.e., independent and interdependent self-construals) and to lack convergent validity (Levine et al., 2003). Moreover, self-construal did not predict cultural variation in cognition, emotion and motivation as hypothesised (Matsumoto, 1999). Further, the samples were not drawn from a sufficiently diverse range of locations and world cultures (Cross et al., 2011).

To overcome these criticisms, Vignoles et al. (2016) conducted a large cross-cultural study among high school students from 16 countries (Study 1). They constructed an item pool based on the original and adapted items representing independence and interdependence from previous measures. Self-construal in prior studies have been related with communication styles (e.g., Gudykunst et al., 1996) and communication styles differences were possibly associated with acquiescent response bias (Smith, 2004) which can affect scores across all subscales or facets (Gudykunst et al., 1996; Smith, 2004). Thus, to eliminate the acquiescent response bias, the self-construal scores were ipsatized by subtracting each participant's mean score across all items from the score for each item (Vignoles et al., 2016) as is common in conceptually similar scales (e.g., Schwartz, 1992). Then, principal component analysis (PCA) was used to conceptualise and develop self-construal measure containing both positive and negative

statements. PCA was used instead of exploratory factor analysis (EFA) because the assumptions of EFA were violated by the ipsative data. They did not ignore the fundamental basis of independence and interdependence; thus, each dimension of self-construal is bi-polar. High scores indicate high tendency to endorse independent view. They found a 7-component rotation was most interpretable:

- *self-reliance* (e.g., “I prefer to be self-reliant rather than depend on others”) vs. *dependence on others* (e.g., “I prefer to turn to other people for help rather than solely rely on myself”)
- *self-containment* (e.g., “I consider my happiness separate from the happiness of my friends and family”) vs. *connection to others* (e.g., “If a person hurts someone close to me, I feel personally hurt as well”)
- *difference* (e.g., “Being a unique individual is important to me”) vs. *similarity* (e.g., “I avoid standing out among my friends”)
- *self-interest* (e.g., “You value personal achievements more than good relations with the people close to you.”) vs. *commitment to others* (e.g., “My relationships with others are more important than my personal accomplishments”)
- *consistency* (e.g., “I always see myself in the same way, independently of who I am with”) vs. *variability* (e.g., “I sometimes feel like a different person when I am with different groups of people”)
- *self-direction* (e.g., “I should decide my future on my own”) vs. *receptiveness to influence* (e.g., “Other people’s wishes have an important influence on the choices I make”)
- *self-expression* (e.g., “I prefer to be direct and forthright when discussing with people”) vs. *harmony* (e.g., “It is important to maintain harmony within my group”)

Next, Vignoles et al. (2016) improved the earlier version of the items and also tested a seven-dimensional model both at the individual level and culture level among adults from 55 cultural groups in 33 nations (Study 2). The model provided a good fit and the related values (e.g., Root Mean Square Error of Approximation or RMSEA and Comparative Fit Index or CFI) were acceptable and better than the values reported in prior self-construal studies. In addition, this model confirmed both individual-level and culture-level discriminant validity. In summary, across all analyses, seven-factor model showed significantly better fit when compared with other alternative models such as a single-factor model, two-factor model (independence vs. interdependence), three-factor model (individual, relational, and collective self-construals by Kashima & Hardie, 2000), and six factor models (Hardin et al., 2004; Hardin, 2006)

Further, Vignoles et al. (2016) performed measure invariance or multigroup confirmatory factor analysis (CFA) across the six world regions based on geographical location and culture (i.e., Western, Eastern European, Middle Eastern, Southern and Eastern Asian, Sub-Saharan African and Latin American). The results showed most items were comprehensible. Moreover, they compared self-construal score across world regions (Western vs. non-Western). They found Western samples scored above the midpoint toward the independent pole of some self-construal dimensions (i.e., difference, self-expression and self-direction) but scored above the midpoint toward the interdependent pole of the dimension called commitment to others. Thus, the common views of independent-interdependent self-construal across world regions (Western vs. Non-Western) were partially supported.

Additionally, Vignoles et al (2016) compared self-construal score across cultural dichotomies (individualism vs. collectivism). They used four indicators of cultural dichotomies to create a latent variable. Two of them were retrieved from two published secondary sources which were *individualism values* (Hofstede et al., 2010) and *in-group collectivism practices*

(House et al., 2004). The other two were measured from the participants which were autonomy (vs. embeddedness) values (Schwartz, 2006) and contextualism (Owe et al., 2013). They found individualist samples scored above the midpoint toward the independent pole of some self-construal dimensions (i.e., difference, self-direction, self-expression, and self-containment) whereas collectivist samples scored above the midpoint toward the interdependent pole of some self-construal dimensions (i.e., similarity, receptiveness to influence, harmony, and connection to others). However, individualist samples scored above the midpoint toward the interdependent pole of the dimension called commitment to others. Thus, the common views of independent-interdependent self-construal across cultural dichotomies (individualism vs. collectivism) were partially supported.

Further, Vignoles et al (2016) tested models of selfhood in ecocultural contexts by investigating the effects of socioeconomic development and religious heritage on self-construal dimensions. Findings showed that samples from more developed nations scored above the midpoint toward the independent (vs. interdependent) pole of some self-construal dimensions (i.e., difference, self-reliance, self-direction and self-expression) but scored above the midpoint toward the interdependent pole of commitment to others. Thus, the common views of the positive association between socioeconomic development and independence were partially supported. In addition, religious heritage had complex effects on the scores on self-construal dimensions. For example, Muslim samples scored above the midpoint toward the interdependent pole of some self-construal dimensions (i.e., similarity, connection to others, and harmony) but scored above the midpoint toward the independent pole of self-reliance and consistency.

In summary, the results showing not all self-construal dimensions scored above the midpoint toward independent or interdependent pole in any specific features or context as predicted. Vignoles et al (2016)'s self-construal measure provided much more complex

findings which did not fit the general cultural models (Western vs. non-Western, individualism vs. collectivism, socioeconomic development and religious heritage). Although Vignoles et al. (2016)'s self-construal scale is not a perfect instrument, it is much better than other scales in previous research. In addition, it is one of the most up-to-date measures with multiple dimensions which could provide better understanding of culture. Thus, this research used this measure to assess the cultural variables.

### ***1.2.2 Analytic-Holistic Cognition***

Perceptual and cognitive processes have largely been considered as universal psychological phenomena all over the world. However, Nisbett et al. (2001) proposed that the way people perceive and process information about the world is influenced by culture. People in the West tend to endorse *analytic cognition* which is possibly influenced by ancient Greek philosophy. Analytic cognition focuses on rules and categories. It also attends to focal objects and dispositional causal explanations but ignore the context or the surroundings. On the other hand, *holistic cognition*, possibly influenced by Chinese philosophies, tends to be common in East Asia which engage in situational attribution and also consider the relationship between the objects and the context.

Research soon provided support for these predicted differences between East Asians and Westerners. Masuda and Nisbett (2001) conducted research addressing analytic-holistic cognition among American and Japanese participants by conducting recognition tasks focusing on focal objects and context such as background and surroundings. The results showed, as predicted, Americans were better at recognizing focal objects and Japanese better at recognizing background features. Later, Miyamoto et al. (2006) randomly assigned both Japanese and American participants to see Japanese or American scenes used as primes. After that, recognition tasks focusing on changes in focal objects and context were measured. The

results consistently showed that Japanese were better at recognizing background features. Moreover, after being primed with Japanese scenes, both Japanese and American participants detected more changes in context than after being primed with American scenes. Thus, the cultural effects based on either cultural background (Masuda & Nisbett, 2001) or cultural priming (Miyamoto et al., 2006) influence perceptual processes (i.e., Western analytical cognition vs. East Asian holistic cognition).

Apart from variations in perception, there is some research addressing cultural influences on attributional styles. Peng and Knowles (2003) conducted research addressing causal explanations among American and Chinese participants by attributing physical events to either dispositional or contextual factors. The results showed, as predicted, Americans endorsed more dispositional factors and Chinese endorsed more contextual factors. Further, in Study 2, only the Chinese American students were recruited and primed by being asked to write about their experience which is relevant to their ethnic identity (Asian vs. American) and answer the relevant questions. After being primed with cultural identity reflection, Asian-primed participants attributed the events more to contextual factors and less to dispositional factors when compared with American-primed participants. After that, Lee et al. (2017) conducted another attribution study among European Canadian and Japanese participants. The results consistently showed that European Canadians were more likely to spontaneously infer traits while Japanese were more likely to spontaneously infer situations that cause the target person's behaviour. Therefore, cultural effects based on either cultural background (Lee et al., 2017; Peng & Knowles, 2003) or cultural priming (Peng & Knowles, 2003) can influence attributional styles.

Shifting the focus from attribution, Ji et al. (2004) studied how analytic and holistic cognition might be manifested in categorisation processes. The researchers presented sets of three words to participants. Then, participants were asked to match two of three words together.

These were used to calculate analytic and holistic cognition tendencies. For example, categorizing *shampoo* and *conditioner* is considered as *categorical* grouping or *analytic cognition* because shampoo and conditioner are both hair products. In contrast, categorizing *shampoo* and *hair* together is *relational* grouping or *holistic cognition* because the function of shampoo is to wash and clean the hair. This research was conducted among European American, native Chinese and Chinese bilingual students from mainland China, Hong Kong, Singapore and Taiwan. They found that European Americans showed more category-based responses than Chinese participants. Moreover, when the tasks were presented in different languages (i.e., Chinese vs. English), the responses were different. When Chinese participants from the mainland and Taiwan completed the tasks in Chinese, they provided more relational matching when compared to English. However, Chinese participants from Hong Kong and Singapore responded equally relationally when they were presented in either Chinese or English. The authors reasoned that responses from Chinese bilinguals were different from the responses from Chinese from the mainland and Taiwan because stipulating English as one of the official languages in Hong Kong and Singapore possibly facilitates the early age of both learning English and Westernised cultural mindsets. The link between cultural frames of reference and languages may be less strong in these countries than in Taiwan and in the mainland China. Thus, this research found that individual cultural endorsement and cultural priming affect analytic and holistic cognition. This confirmed Nisbett et al. (2001) theoretical model and corroborated the results of other empirical studies (e.g., Lee et al., 2017; Masuda & Nisbett, 2001; Miyamoto et al., 2006; Peng & Knowles, 2003).

Thus far, I have reviewed research showing that analytic and holistic cognition is relevant to basic cognitive and perceptual processes. Of crucial interest to the central research questions of this thesis, it is also relevant to social and political attitudes. Not only thoughts but also political ideologies are influenced by cultural differences. Talhelm et al. (2015)

collected data from both US and Chinese samples. They found that the liberals demonstrated more analytical cognition while conservatives were more holistic. Previous research has found that BJW is related to conservatism (Dittmar & Dickinson, 1993; Lambert & Raichle, 2000). Moreover, conservative ideology is associated with holistic cognition (Talhelm et al., 2015). Thus, these findings together suggested that holistic cognition may be associated with higher levels of BJW – and in particular, other-related BJW which tends to be more associated with socio-political attitudes than self-related-BJW.

### ***1.2.3 Belief in Karma***

Karma is a specific spiritual belief common to some Eastern religious traditions such as Buddhism, Hinduism and Jainism (Reichenbach, 1988; White et al., 2017). Karma is literally defined as “act” or “deed” and also defined as the result of one’s action. Thus, the law of Karma seems consistent with the cause-and-effect law of the universe (Anand, 2009), or the law of universal causation (Reichenbach, 1988) because the law of universal causation also explains that any actions, events or phenomena are caused by some prior actions, events or phenomena. However, when considering the features of the law of Karma in detail, some features of the law of Karma are unique and different from features of the causal law. First, the causal law explains the cause and the effect of every event or phenomenon regardless of any specific conditions whereas the law of Karma is rooted in ethical and moral considerations. In other words, the law of Karma only focuses on the ethical and moral actions and the consequences resulting from these actions. Next, the causal law explains every event leads to any outcomes while Karma holds that if a wrong act is unintentional, it will not be punished by supernatural force. Moreover, the timing of the law of universal causation is immediate whereas the law of Karma has delayed timing. That is to say, the law of Karma explains that the result of one’s

past moral or immoral actions can occur in the future either in this life or in the hereafter through rebirth or reincarnation (Reichenbach, 1988).

**1.2.3.1 Karma and just world beliefs** Karma is an impersonal and supernatural force that monitors moral behaviour, rewarding good and punishing bad or wrong actions unlike any theistic beliefs focusing on the legitimacy of powerful and moralizing gods (Bronkhorst, 2011; White et al., 2016). In contrast, belief in Karma, as a religious morality, is driven by a supernatural conception of justice (Baumard & Boyer, 2013) emphasizing the idea that good/bad deeds will later result in consistent outcomes. According to belief in Karma, two unrelated events can be identified as cause and effect (Reichenbach, 1988). For example, the law of Karma may explain the scenario describing that a man injures in a freak car accident because he steals other people's belongings. In other words, the traffic accident is a negative consequence which consistently results from stealing behaviour as a bad action although these two events are not logically related and there are some other possible causes of a car accident such as bad weather, bad traffic conditions, bad vehicle conditions and drivers' bad physical conditions. In this respect, the law of Karma is consistent with both immanent justice reasoning and ultimate justice reasoning (Callan et al., 2014b). Moreover, previous empirical studies showed that belief in Karma was related to belief in a just world (Agrawal & Dalal, 1993). More specifically, Karma was correlated with belief in a just world to the self among both Canadian and Indian samples but more strongly among Indians than Canadians (White et al., 2019). Thus, belief in Karma appears to overlap with just world beliefs highlighting deservingness, especially in cultures where Karma is important.

**1.2.3.2 Karma and well-being** At first glance, Karma might seem to be a psychologically beneficial coping mechanism like belief in a just world. Some previous studies

showed that belief in Karma is associated with well-being, physical and mental recovery, and healthy coping among patients and victims of the accident, natural disaster and major life crises (Agrawal & Dalal, 1993; Anand, 2009; Dalal & Pande, 1988; Priya, 2004). However, belief in Karma may not only lead to positive outcomes but also has a dark side because previous studies found that belief in Karma threatened physical and mental health (Davidson et al., 2005; Levy et al., 2009). These findings also make some sense, because belief in Karma may decrease well-being because though its affinity with pessimistic explanatory style: it refers to stable (long-lasting) and global (affecting all life aspects) causes of negative life events (Levy et al., 2009) and so it may reduce physical and psychological well-being (Scheier & Carver, 1992; Scheier et al., 2001).

When considering the inconsistent results of previous research, Levy et al (2009) claimed that Karma is negatively related to physical health because Karma diminishes positive health behaviours. In other words, if people believe that Karma determines their lives, they do not have an internal health locus of control or take good care of health by themselves. Levy et al (2009) also claimed that different psychological mechanisms may simultaneously link Karma to psychological well-being in different directions. It may negatively affect well-being because it relates to an external locus of control, with the feeling that that people's lives cannot be determined by oneself and bad fortune is unavoidable, but on the other hand, it may make some people feel comfortable because they feel that the world is orderly, meaningful, and well-balanced in accord with just world theory (Lerner, 1980; White et al., 2019).

Because of the close and still under-researched links between Karma and just world beliefs, and its close association with Asian culture, Karma is a crucial variable to consider in the present research. The lack of findings and established theory mean that its role in the present research is necessarily exploratory. It is certainly useful as a control variable, since apparent benefits of just world beliefs may be spurious in some cultures and individuals who endorse

Karma: that is, Karma, rather than just world beliefs, may be the true source of well-being. Seen in this way, just world beliefs may mediate between Karma and well-being. Karma may also reduce the need to endorse just world beliefs because it already provides the basis for seeing life as meaningful and orderly. Its impersonal and cosmic nature would seem to suggest that Karma should be more related to other-related BJW than self-related BJW.

#### *1.2.4 Negative Life Events*

One of the supposed functions of just world beliefs is that they help people come to terms with negative events in their lives. As painful as the events may be, just world beliefs allow people to find meaning in them; people generally find it easier to cope with events if they think they understand what caused them (Folkman, 2011). Counterintuitively, it may even be easier to cope with events if we perceive ourselves, and particularly our behaviour, to have caused them. In the stress and coping literature, negative life events are considered as stressors: antecedents of stress that requires response, adjustment, or adaptation (Holmes & Rahe, 1967). Moreover, whether any life events could be interpreted as the threats or not, it would be up to the individual cognitive and emotional resources (Rahe & Arthur, 1978) and cognitive appraisal which refers to considering the stressor and appropriate coping styles (Lazarus & Folkman, 1984). Life events leading to stress are related to well-being such as life satisfaction, positive affect and negative affect (e.g., Suh et al., 1996) and are also associated with psychiatric symptoms (Andrews & Tennant, 1978) such as depression (e.g., Chong et al., 2001; Golden-Kreutz & Andersen, 2004; Low et al., 2012), psychotic disorder (e.g., Beards et al., 2013), schizophrenia (e.g., Cullen et al., 2014). Further, life events are correlated with physical symptoms (Tosevski & Milovancevic, 2006) such as cardiovascular reactivity (e.g., Low et al., 2009) and HIV disease progression (Leserman, 2008).

When facing with negative life events, it might challenge BJW. Dalbert (2001) suggests BJW, as a personal resource, plays an important role on dealing with adverse life circumstances. Adverse life circumstances, though, may threaten BJW. People may construe their lives as unjust, decreasing endorsement of BJW endorsement (Dalbert et al., 2001; Janoff-Bulman & Morgan, 1994; You & Ju, 2020). On the other hand, Corey et al. (2015) argue that some negative life events – especially unfair ones – may actually boost commitment to a just-world, especially when they are grossly unjust, precisely because finding some kind of meaning and justice in these events can bring psychological benefits. These authors propose two primary types of injustices: major injustices and threshold injustices. Major injustices refer to overwhelmingly intense and severe negative life events (i.e., the death of a child) whereas threshold injustices are less severe but still difficult and impactful (i.e., being attacked, assaulted, robbed, or burglarised). The results confirmed the hypothesised associations that major injustices were related to higher BJW while threshold injustices were related to lower BJW. Thus, the types and the seriousness of life events are relevant to BJW endorsement.

Although life events can be seen as stressors and seem to generally impact on well-being, this may still be influenced by culture. Life events can be differently interpreted and prioritised across cultures. Some previous cross-cultural studies showed some differences in attitudes toward life events among French speaking nationalities in Western Europe (i.e., Belgian, French and Swiss) (Harmon et al., 1970), Japanese (Masuda & Holmes, 1967), Malaysians (Woon et al., 1971), and New Zealanders (Isherwood & Adam, 1976) when compared with Americans. Specifically, although some life events seem to equally matter to individuals across cultures such as death of spouse (e.g., Isherwood & Adam, 1976; Masuda & Holmes, 1967), there are other life events which have greater effects among specific cultural groups. For example, a Japanese sample reported imprisonment and minor violations as more critical life events when compared with an American sample because they cared more about

how these events might affect family reputation and public image (Masuda & Holmes, 1967). Second, life events are often experienced collectively which means life events can happen to many people who belong to the same cultural groups or live in the same cultural regions at the same time such as poverty and natural disasters. Thus, life events may have a cultural or at least collective component. Finally, although BJW is a kind of belief which may buffer stress stemming from responding to adverse life circumstances, the buffering effect may depend on which kind of BJW is valuable in different cultures. For example, according to some previous research, GBJW is related to well-being in collectivistic cultures such as China (Wu et al., 2009; Wu et al., 2011; Wu et al., 2013). For all of these reasons, it is important to examine negative life events in cross-cultural studies of BJW.

### **1.3 Cultural variation in well-being**

Many psychologists propose that well-being is similar across different cultures because the sources of well-being are universal, including locus of control (Spector et al, 2001) and basic needs fulfilment and satisfaction such as Self-Determination Theory's basic psychological needs---autonomy, competence, and relatedness (Deci & Ryan, 2000)---and universal needs---for autonomy, growth, relationships, purpose in life, environmental mastery, and self-acceptance (Ryff, 1989). In contrast, many prior studies found that well-being is different across cultural groups. Kang et al. (2003) conducted a study with four cultural groups-- Euro-American, Asian American, Korean and Chinese--- and found that mean levels of Euro-Americans' life satisfaction and self-esteem were the highest, followed by Asian American and Asians, respectively. Previous studies also confirmed that the U.S. sample reported higher life satisfaction and emotional pleasantness than Asian sample (Mesquita & Karasawa, 2002; Park & Huebner, 2005). That is to say, levels of well-being were different across cultures and were

higher among people in Western countries (e.g., USA) compared to people in Eastern countries (e.g., China, Japan and Korea).

Although some sources of well-being seem to be universal or similar across cultures, various studies have examined differences in predictors of well-being across different cultural groups (Diener et al., 2003). They found that many factors were more strongly related to well-being among people in individualist cultures compared to people in collectivist cultures including self-discrepancies (Heine & Lehman, 1999), the presence of positive emotions and the absence of negative emotions (Kuppens et al., 2008; Suh et al., 1998), self-esteem (Diener & Diener, 1995; Kang et al., 2003), marital status and quality (Diener et al., 2000; Gohm et al., 1998), perceived personal control (Sastry & Ross, 1998), and self-efficacy (Chen et al., 2006; Kwan et al., 1997).

Individualism and collectivism have implications for basic psychological functioning, including well-being (Oyserman et al., 2002). Life satisfaction among people in individualist countries is associated with individualism itself (Arrindell et al., 1997; Diener & Diener, 1995; Diener et al., 1995) and related constructs emphasizing self-benefit such as independent concern (Mesquita & Karasawa, 2002), independent self-construal (Dinnel et al., 2002; Kleinknecht et al., 1997; Okazaki, 1997, 2000; Sato & McCann, 1998), and satisfaction with esteem needs (e.g., the self and freedom) (Oishi et al., 1999).

On the contrary, individualism does not universally promote happiness because people in different cultures construe happiness differently. European Americans focus on individual achievement orientation (e.g., autonomy and self-esteem) while East Asians define happiness in term of relationships (e.g., interdependence and social support) (Kang et al., 2003; Uchida & Ogihara, 2012). Further, research findings suggest that there is a negative effect of self-related variables on well-being among people in collectivist countries like Japan and South Korea such as individualism (Ogihara & Uchida, 2014) and self-focused relational self (Park

et al., 2017). Thus, pursuing and achieving individual goals may facilitate well-being in individualist cultures (Oyserman et al, 2002) but not in collectivist cultures where these are not as strongly valued or seen as the basis of happiness. In other words, self-related factors seem to facilitate well-being among people from individualist cultures but to diminish happiness in the East. Thus, cultural factors moderate the relationships between individual differences and well-being such as individualism (Diener & Diener, 1995), allocentrism (Lay et al., 1998) and values (Oishi et al., 1999). Cultural variation, in sum, affects not only the levels of well-being across cultures but also can change how other variables support or undermine well-being. This suggests that cultural variation could, in principle, affect relationships between just world beliefs and well-being.

#### **1.4 Cultural variation in just world beliefs**

Taken together, the results of experimental and individual differences research on just world beliefs suggest that people are particularly motivated to believe that their own lives are just, and benefit psychologically when they do so. This is in keeping with Lerner's (1980) just world theory which rooted the motivations and benefits of just world beliefs in processes that may be culturally general. Many theories argue, explicitly or implicitly, that certain psychological processes are culturally general, and that human well-being has universal sources, including the satisfaction of autonomy, competence, and relatedness needs posited by Self-Determination Theory (Deci & Ryan, 2000), and other universal needs, including growth, purpose in life, and self-acceptance (Ryff, 1989). However, as so often in social and personality psychology, much of the research on just world theory has been conducted in WEIRD contexts. This leaves an important question unanswered: whether the relative strength and functions of self-related BJW and other-related BJW are culturally bound or culturally universal. In the following sections, I consider these questions.

#### ***1.4.1 Are the functions of self- and other-related BJW culturally general?***

There are theoretical reasons to suppose that self-related BJW is conducive to mental health, and that the predictions of just world theory hold more generally, across cultural contexts. For example, evolutionary accounts suggest that a preference for justice is found not only among humans but other animals (Baumard & Chevallier, 2012; Pierce & Bekoff, 2012; Proctor et al., 2013). Just world theory does not propose that people are biologically predisposed to value or believe in justice. Nonetheless, its analysis of the origin of the personal contract is rooted in universal dynamics of moral agency: specifically, conflicts that arise between untrammelled pursuit of one's personal interests and the need to abide by moral codes (see also Bandura, 1999).

These considerations suggest that self-related BJW may be relatively less adaptive in collectivist cultural contexts. Also, other-related BJW may be relatively more adaptive in such contexts, in which favourable perceptions of relationships and collectives may be more important for well-being (Park & Huebner, 2005; Tam et al., 2012). Further, self-related BJW and other-related BJW may have less distinct implications for well-being in collectivist cultures, since the self is less distinct from others and the two constructs may therefore overlap more strongly.

Theoretical considerations therefore lend credence to two broad and contrasting hypotheses about the role of culture. These are the *cultural generality* hypothesis that self-related BJW is uniquely associated with well-being across cultures, and the *cultural specificity* hypothesis that in non-WEIRD, relatively collectivist contexts, self-related BJW is less strongly associated, and other-related BJW more strongly associated, with well-being. In the last decade, researchers have begun in earnest to study just world beliefs in non-WEIRD contexts, and have begun to bring evidence to bear on these hypotheses.

The evidence returned by these studies is mixed. Some studies appear to support the cultural specificity hypothesis in relation to other-related BJW. Specifically, studies have observed positive relationships between other-related BJW and well-being in China (Tian, 2019) and South Korea (Kim & Kim, 2017). A limitation of these studies by Kim and Kim (2017) and Tian (2019) is that they did not adjust for self-related BJW. In other words, they did not test both BJW constructs simultaneously. As a result, they cannot exclude the possibility that other-related BJW was related to well-being merely because it overlaps with self-related BJW. Other researchers, though, have adjusted for self-related BJW and found the same effect, including Wu et al. (2011) among residents of rich, poor, and disaster-struck areas of China, and again by Wu et al. (2013) among Beijing middle school students and Chinese disaster survivors. This effect is seldom obtained in non-WEIRD contexts. Other findings appear to support the cultural specificity hypothesis in relation to self-related BJW: in Wu's samples of residents of relatively poor (Wu et al., 2011) and disaster-struck (Wu et al., 2013) Chinese areas, self-related BJW was unrelated to well-being. Since well-being is seldom related to other-related BJW but reliably related to self-related BJW in WEIRD contexts, these findings provide some evidence that the psychological functions of BJW may be shaped by cultural context.

On the other hand, other evidence is consistent with the cultural generality hypothesis. Some studies have found positive association between self-related BJW and well-being in non-WEIRD contexts but there are some limitations. First, these studies included only self-related BJW but not other-related BJW (India: Correia et al., 2009; Donat et al., 2016, Pakistan: Fatima & Suhail, 2010, and South Korea: Kim & Park, 2018, July). Further, some studies included both BJW constructs but they were separately analysed (China: Tian, 2019 and South Korea: Kim & Kim, 2017). However, some research in non-WEIRD contexts still showed that self-related BJW was positively associated with well-being when controlling for other-related BJW.

(China: Wu et al., 2011; Wu et al., 2013 and India: Kamble & Dalbert, 2012). Thus, the findings are consistent with results obtained in WEIRD contexts.

Previous studies have not only returned mixed evidence, but also share certain limitations that make it hard to interpret that evidence. For example, they have not included measures of cultural variables (e.g., self-construal), and so cannot directly test hypotheses about their role. Also, they have sampled from one non-WEIRD location at a time, or relied on comparisons between two locations. This leaves open the possibility that instead of cultural context, other differences between locations may explain different findings. For example, there is some evidence that chronic adversity, such as experienced by disaster survivors, may heighten the psychological importance of other-related BJW (Wu et al., 2011; Wu et al., 2013; also McParland & Knussen, 2010). Thus, the greater psychological importance of other-related BJW in some locations may be explained by ecological factors such as toughness or difficulty of life, rather than cultural forces *per se*.

#### ***1.4.2 Is self-related BJW stronger than other-related BJW across cultural contexts?***

Culture and context may shape the strength of self-related and other-related BJW, as well as their psychological outcomes. Scores on BJW scales are often interpreted as measures of how much people *want* to believe in justice (Dalbert, 1999). In this perspective, it makes sense that self-related BJW is generally endorsed more strongly than other-related BJW (at least in WEIRD contexts), since people derive more psychological benefits from self-related BJW, and thus could be more motivated to believe it. This perspective, together with the cultural hypothesis on the psychological functions of BJW I explained earlier, would also suggest that in relatively collectivist contexts, people may endorse other-related BJW more strongly (since it may be more adaptive), and self-related BJW less strongly (since it may be less adaptive). Moreover, Hafer et al. (2020) conducted a meta-analysis on the correlation

between self-related and other-related BJW. The results interestingly show that the relationship was moderated by language of scale, language of publication and the country of data collection. Specifically, English or non-English scales, non-English publications and Asian (i.e., China, India) samples produced the stronger associations between self- and other-related BJW when compared with German scales, English publications, and Western/non-Asian samples, respectively. Thus, cultural factors possibly moderate the strength of the correlation between self-related and other-related BJW.

Though intuitively compelling, this perspective is beset with theoretical and empirical problems. In just world theory, the motive to believe in justice is preconscious and affects explicit judgements about situations, including the deservingness of victims, rather than the world as a whole. For this reason, scholars have argued against interpreting high scores on BJW scales as evidence of this motivation (e.g., Hafer & Rubel, 2015; Lerner, 1998; 2003). Consistent with this reasoning, Sutton and Winnard (2007) found that among a group of relatively disadvantaged young Westerners, self-related BJW was not endorsed any more strongly than other-related BJW, even though it remained uniquely associated with well-being. Further, Sutton et al. (2008) found that British university students believed the world to be more just to them compared to other people in general, but not compared to their university peers specifically—peers who presumably shared their relative protection from injustices that afflict other populations. Also, Callan et al. (2013) found that participants whose long-term goals were made salient experimentally did not report increased BJW, even though they reported an increased desire to believe in justice, and an increased tendency to see the outcomes of specific experimental scenarios as just.

In light of these findings, and Lerner's (1998, 2003) argument that responses on BJW scores reflect rational and normative expectations, Sutton et al. (2008) proposed that such scores are more or less realistic: people from more privileged demographics evaluate their lives

as more just, for example, because they are objectively less afflicted by injustice. This perspective is in keeping with ecological theories of social cognition in which thinking is constrained and afforded by environmental factors (Dawtry et al., 2015; Galesic et al., 2018; Nisbett & Miyamoto, 2005; Uskul & Oishi, 2018). If your own life is more adverse than others around you, you are not likely to endorse self-related BJW more strongly than other-related BJW. If life is adverse in your entire social milieu, you are likely to endorse both self-related and other-related BJW less strongly than people living in areas in which life is less difficult.

### **1.5 The present research**

In the literature review, BJW predicted both positive (e.g., well-being) and negative (e.g., prejudice) variables. Later, BJW can be distinguished by the perspectives of self vs. others which are BJW-Self vs. BJW-Others (Lipkus et al., 1996) and PBJW vs. GBJW (Dalbert, 1999). Both self- and other-related BJW are conceptually and psychometrically distinct. For example, self-related BJW related to well-being while other-related BJW is associated with harsh social attitudes.

However, most BJW studies have been heavily biased toward Western countries, especially among Western, Educated, Industrialized, Rich, & Democratic samples (WEIRD: Heinrich et al., 2010). As known, cultural context influences psychological variables including cognition, affect and behaviour. Thus, in this thesis I examined whether the levels and functions of BJW are the same (*cultural generality*) or different (*cultural specificity*) across cultures.

Previous research on this question has generally been small-scale (mostly sampling from a single location, often with small samples), has found mixed findings (e.g., the role of other-related BJW on well-being among Chinese samples (Wu et al., 2009; Wu et al., 2011; Wu et al., 2013), has not consistently controlled one subscale of BJW (e.g., personal or general) while examining the other. In the present research, I tried to address most flaws emerging in

the previous research. I used both subscales (self vs. other) of BJW simultaneously. I also recruited participants from various locations to enhance sufficient sample size and sample diversity. I mainly focused on Asia which has been understudied.

Thus, I mainly tested the cultural generality vs. specificity hypotheses about the strength and function of just world beliefs. Regarding the functions of BJW, the cultural *generality* hypothesis is that self but not other-related BJW would be related to well-being even in Asian cultural contexts. On the other hand, the cultural *specificity* hypothesis is that individuals' well-being would be more strongly related to other-related BJW, and less strongly related to self-related BJW, especially in sites which hold East Asian cultural characteristics including interdependence, holistic cognition, and/or belief in Karma. Apart from cultural variables, negative life events were also included in the present research. This enabled me to test certain *reality hypotheses*, for example whether BJW is lower among those experiencing tougher lives. More particularly, I was able to test whether self-related BJW is lower as a function of personal adversity, while other-related BJW is lower as a function of collective (regional) adversity (because life events may have a cultural or at least collective component). Thus, individual and city-level moderation effects of cultural or contextual variables (self-construal, holistic cognition, belief in Karma, and negative life events) on the associations between individuals' BJW and well-being were tested.

Regarding the strength of BJW, the cultural specificity hypothesis is that other-related BJW is endorsed more strongly, in more collectivist contexts. The cultural generality hypothesis is that self-related BJW would be endorsed more strongly no matter which culture the participants belong to. Further, I also tested whether individual and city-level cultural or contextual variables (self-construal, holistic cognition, belief in Karma, and negative life events) predicted the strength of BJW.

This thesis includes three empirical chapters consisting of five studies. Study 1-3 are based on questionnaire studies. Study 4 and 5 are based on large-scale multinational survey, with the research collaborators from 44 sites in Asia. The overviews of three empirical chapters are described below.

In Chapter 2, there are three questionnaire studies. Study 1 aimed to examine the differences between personal and general BJW and the relationships between of PBJW/GBJW and well-being among a Thai sample. Study 2 is a replication study in the United Kingdom. This study included belief in Karma considered to be culture-specific BJW; thus, the moderation effects of belief in Karma on the associations between PBJW/GBJW and well-being were tested. Study 3 is another replication study in Thailand. This study included independent-interdependent self-construal and also aimed to test the moderation effects of self-construal on the associations between PBJW/GBJW and well-being among a Thai sample.

In Study 4 (Chapter 3), I recruited participants from 26 sites in 7 Southeast Asian nations (Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam). This study aimed to investigate the strength and the function of PBJW and GBJW in well-being across 26 sites. This study also included relevant cultural or contextual variables which are multidimensional self-construal, analytic-holistic cognition, belief in Karma and negative life events. I tested whether both individual-level and city-level cultural variables predicted the strength of PBJW/GBJW and moderated the relationships between PBJW/GBJW and well-being.

In Study 5 (Chapter 4), I replicated and extended by previous study across 18 sites in 7 Asian nations (mainland China, Hong Kong, India, Japan, Macau, South Korea, and Taiwan). This study employed two widely used BJW scales (i.e., Dalbert, 1999 and Lipkus et al., 1996). All aims and tests were as in Study 4. Therefore, the present research is by a long way the largest and most comprehensive study to date of cultural variation in BJW.

## **Chapter 2: Just World Beliefs as the Predictors of Well-being in Thailand and United Kingdom: The moderation effects of belief in Karma and independent-interdependent self-construal**

As I saw in Chapter 1, just world beliefs and well-being are often studied in the West but are still understudied in Asia. Some studies have been done in Asian countries including mainland China (e.g., Jiang et al., 2016; Jiang et al., 2017; Lucas et al., 2016; Tian, 2019; Wu et al., 2009; Wu et al., 2011; Wu et al., 2013; Xie et al., 2011; Zhang & Zhang, 2015), Hong Kong S.A.R. (Poon & Chen, 2014), India (e.g., Agrawal & Dalal, 1993; Correia et al., 2009; Donat et al., 2016; Ferguson & Kamble, 2012; Kamble & Dalbert, 2012; Lucas et al., 2016), Japan (e.g., Nakajima & Yoshida, 2008), Pakistan (Fatima & Suhail, 2010), and South Korea (e.g., Kim & Kim, 2017; Kim & Park, 2018, July). As seen, most studies including BJW research in Asia relied on East Asian samples. Thus, many countries in Asia have not been touched by any just world research. One of these countries is Thailand, located in the understudied Southeast Asia and often considered as a highly collectivistic country (Hofstede, 2001; Oyserman et al., 2002). Further, when comparing self-construal, one of the cultural indicators, between the US and Thailand, Thais endorse significantly more interdependent self-construal than Americans (Christopher et al., 2010; Neff et al., 2008).

However, Thailand differs from the other East Asian countries in some critical ways. First, the majority of Thai people are Theravada Buddhist (Central Intelligence Agency, 2019; Morgan, 1964) while the majority of most East Asian samples is traditional folk religions (Central Intelligence Agency, 2019). Next, some research found that Thailand might not be a completely collectivist country (Smith et al., 2016; Vignoles et al., 2016). Further, some cultural values endorsement is different from some other East Asian countries (e.g., Japan). For

example, a Japanese sample endorsed horizontal individualism, horizontal collectivism and vertical collectivism more than a Thai sample (McCann et al., 2010).

Paradoxically, studies conducted in non-WEIRD countries have been motivated by the assumption that cultural variables may alter the psychological function of just world beliefs – but have not included any measure of those cultural variables. In this chapter, I present three studies that together address these limitations. One of these studies is conducted in the UK, and two are conducted in Thailand. All studies include measures of cultural variables including belief in Karma and self-construal. These studies represent the first attempt not only to examine the psychological functions of just world beliefs in Thailand, but also directly test whether cultural variables moderate these functions.

In Study 1, I examine the relationships between personal and general belief in a just world and well-being in Thailand. According to the cultural generality hypothesis, the results will show that PBJW will be positively related to well-being, while GBJW will not, as is typical in WEIRD countries. According to the cultural specificity hypothesis, this result may not hold, and instead GBJW can be expected to be related to well-being, while PBJW may not, since perceptions of the collective, rather than the self, may be more germane to well-being in collectivist cultures.

In Study 2, I examine the same relationships in the UK. According to the cultural generality and specificity hypothesis and previous findings, PBJW not GBJW should be positively related to well-being in the UK. Although just world beliefs are often studied in the UK, belief in Karma is tested in this study, making it the first study of the relationship between just world beliefs and well-being to take belief in Karma into account.

In Study 3, I replicated Study 2 by conducting this study in Thailand again. According to the cultural specificity hypothesis, GBJW but not PBJW is expected to be related to well-being in Thailand. This study should re-consider belief in Karma because the majority of the

population in Thailand is Buddhist (Central Intelligence Agency, 2019) involving with belief in Karma (Reichenbach, 1988; White et al., 2017). In Study 3 as in Study 2, I was able to make some exploratory predictions based on the newly emerging literature about Karma and the just world literature. Since Karma may fulfil the same functions as BJW (e.g., conferring life with meaning) (Levy et al., 2009), it may be directly associated with increased well-being. It may also moderate the effect of BJW on well-being. If Karma already fulfils the functions of BJW, it may reduce psychological dependency on BJW, making its effects on well-being weaker (this entails a negative interaction between Karma and BJW). On the other hand, belief in Karma but not BJW may be cognitively inconsistent, leading to a confused world-view that impairs well-being (this entails a positive interaction). In Study 3, one of the most up-to-date multidimensional measurements of independent-interdependent self-construal was added. According to the cultural specificity hypothesis, interdependent self-construal should moderate the associations between BJW and well-being.

## 2.1 Study 1

In Study 1, the first aim was to examine the relationship between of BJW and well-being. The second aim was to investigate the differences between personal and general BJW in a Thai sample. According to the cultural generality hypothesis, Thai participants will endorse PBJW more strongly than GBJW, and their PBJW, rather than GBJW, will predict their well-being. In contrast, the cultural specificity hypothesis asserts that GBJW may be as or even more strongly endorsed, and as or even more relevant to well-being, than PBJW.

Based on the theory and previous research, I tested the following hypotheses:

(1) The cultural generality hypotheses:

(a) Thai participants will endorse PBJW more strongly than GBJW.

- (b) PBJW, rather than GBJW, will positively predict well-being.
- (2) The cultural specificity hypotheses:
- (a) Thai participants will endorse GBJW more strongly than PBJW
  - (b) GBJW, rather than PBJW, will positively predict well-being.

## **2.1.1 Method**

### ***2.1.1.1 Participants***

The sample consisted of 177 undergraduate students from the university located in the Bangkok Metropolitan Region which is the urban region surrounding the capital of Thailand. They were invited to participate in class and received course credit (135 or 76.3% were women), aged between 18-27 years ( $M = 20.49$ ,  $SD = 1.45$ ).

### ***2.1.1.2 Procedure***

The paper-based questionnaires containing a variety of different measures, including the measures relevant for the present research. I decided to omit some measures (e.g., belief in a just treatment and immanent justice reasoning) because they are not the main variables related to the present study. The questionnaires were distributed to collect data from undergraduate students studying social psychology introductory module. The students were given a course credit in exchange for the participation. The sampling was based on convenience. The questionnaire took about 30 minutes to complete, after which the participants were thanked and debriefed.

### ***2.1.1.3 Measures***

**Just world beliefs.** A thirteen-item *Belief in a Just World Scale (BJW)* consists of a six-item General Belief in a Just World scale (GBJW) developed by Dalbert et al (1987) (e.g.,

“I believe that, by and large, people get what they deserve.”,  $\alpha = .74$ ) and a seven-item Personal Belief in a Just World scale (PBJW) developed by Dalbert (1993, 1999) (e.g., “I believe that I usually get what I deserve.”,  $\alpha = .82$ ) (1 = *strongly disagree*, 6 = *strongly agree*).

**Life satisfaction.** A five-item *Satisfaction With Life Scale (SWLS)*, developed by Diener et al. (1985), was used to assess this construct (e.g., “I am satisfied with my life”, 1 = *strongly disagree*, 7 = *strongly agree*),  $\alpha = .85$ .

**Depression.** The eleven-item *Rasch-derived short form of the Center for Epidemiological Studies Depression scale (CES-D)*, developed by Cole et al. (2004) asked how often the respondents felt and behaved during the past week (e.g., “I feel depressed”, 0 = *rarely or none of the time (less than 1 day)*, 3 = *most or all of the time (5-7 days)*).  $\alpha = .74$ .

**Positive and negative affect.** A fourteen-item *Affect scale* were adapted from *Affect Valuation Index* (Tsai et al., 2006) (Positive affect items e.g., calm, relaxed, satisfied,  $\alpha = .74$ ) *psychological discomfort* measure (Elliot & Devine, 1994) (Negative affect items e.g., unhappy, sad, tense,  $\alpha = .85$ ) asked how often the respondents have had each feeling during the last month (1 = *never*, 4 = *all of the time*).

These scales were included among the other measures unrelated to the present study and all measures were translated from English into Thai language. They were then independently back-translated, as described by Brislin (1970). The two English versions were compared for any inaccuracies, which were resolved through discussion with translators.

### 2.1.2 Results

My key hypotheses concerned the differences between personal and general BJW and the relationship between BJW and well-being. Descriptive statistics and correlations between variables are presented in Table 1. They show that at zero-order, PBJW was significantly

correlated with all components of well-being (i.e., life satisfaction, depression, positive affect, and negative affect). On the other hand, GBJW was just related to life satisfaction and positive affect.

Table 1 Descriptive statistics and correlations between all variables

| Variables            | <i>M (SD)</i> | 1       | 2       | 3       | 4       | 5      | 6 |
|----------------------|---------------|---------|---------|---------|---------|--------|---|
| 1. Life Satisfaction | 3.92 (1.01)   | -       |         |         |         |        |   |
| 2. Depression        | 1.17 (0.45)   | -.52*** | -       |         |         |        |   |
| 3. Positive Affect   | 3.23 (0.59)   | .46***  | -.39*** | -       |         |        |   |
| 4. Negative Affect   | 2.79 (0.64)   | -.37*** | .71***  | -.38*** | -       |        |   |
| 5. PBJW              | 3.78 (.61)    | .60***  | -.47*** | .47***  | -.33*** | -      |   |
| 6. GBJW              | 3.51 (.74)    | .30***  | -.11    | .21**   | -.03    | .46*** | - |

*Note.* Table shows Pearson's correlations (*r*). †  $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , and \*\*\* $p < .001$

### 2.1.2.1 Just world beliefs as predictors of well-being

I conducted multiple linear regression analyses to determine whether PBJW and/or GBJW predicted well-being. Table 2 shows the regression coefficients and statistics after predictors (i.e., PBJW and GBJW) were entered. Consistent with typical findings in WEIRD countries and with the cultural generality hypothesis, all four indices of well-being were significantly predicted by PBJW, and none were significantly predicted by GBJW. The model for life satisfaction explained 36% of the variance,  $F(2, 165) = 47.55, p < .001$ . The model for depression explained 24% of the variance;  $F(2, 167) = 25.65, p < .001$ . The model for positive affect explained 23% of the variance;  $F(2, 166) = 25.28, p < .001$ . The model for negative affect explained by 12% of the variance;  $F(2, 166) = 12.02, p < .001$ .

Table 2 Summary of multiple linear regression analyses for BJW predicting well-being

| Variable | Life Satisfaction |             |         |           |      | Depression |             |         |           |      |
|----------|-------------------|-------------|---------|-----------|------|------------|-------------|---------|-----------|------|
|          | <i>B</i>          | <i>SE B</i> | $\beta$ | Tolerance | VIF  | <i>B</i>   | <i>SE B</i> | $\beta$ | Tolerance | VIF  |
| PBJW     | .97               | .12         | .59***  | .79       | 1.27 | -.39       | .06         | -.53*** | .80       | 1.25 |
| GBJW     | .05               | .10         | .04     | .79       | 1.27 | .07        | .05         | .12     | .80       | 1.25 |

| Variable | Positive Affect |             |         |           |      | Negative Affect |             |                  |           |      |
|----------|-----------------|-------------|---------|-----------|------|-----------------|-------------|------------------|-----------|------|
|          | <i>B</i>        | <i>SE B</i> | $\beta$ | Tolerance | VIF  | <i>B</i>        | <i>SE B</i> | $\beta$          | Tolerance | VIF  |
| PBJW     | .47             | .07         | .49***  | .79       | 1.27 | -.42            | .09         | -.40***          | .79       | 1.27 |
| GBJW     | .01             | .06         | .01     | .79       | 1.27 | .13             | .07         | .15 <sup>†</sup> | .79       | 1.27 |

Note. Life Satisfaction:  $R^2 = .36$ ;  $\Delta R^2 = .04$  ( $p < .001$ ).

Depression:  $R^2 = .24$ ;  $\Delta R^2 = .06$  ( $p < .001$ ).

Positive Affect:  $R^2 = .23$ ;  $\Delta R^2 = .03$  ( $p < .001$ ).

Negative Affect:  $R^2 = .12$ ;  $\Delta R^2 = .04$  ( $p < .001$ ).

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

### 2.1.2.2 Difference between personal and general belief in a just world

I conducted a paired sample t-test which showed that mean score of rated belief in a just world were different between self and others conditions. There are significant differences in belief in a just world;  $t(171) = 5.07$ ,  $p < .001$ . Participants believed the world to be much more just to the self than to others.

Table 3 Summary of the findings for Study 1

| Hypotheses   | Results  |
|--|----------|
| <i>(1) The cultural generality hypotheses</i>                    |          |
| (a) Thai participants will endorse PBJW more strongly than GBJW. | Accepted |
| (b) PBJW, rather than GBJW, will positively predict well-being.  | Accepted |
| <i>(2) The cultural specificity hypotheses</i>                   |          |
| (a) Thai participants will endorse GBJW more strongly than PBJW  | Rejected |
| (b) GBJW, rather than PBJW, will positively predict well-being.  | Rejected |

### 2.1.3 Discussion

Consistent with prior research, PBJW significantly predicted all indices of well-being (i.e., life satisfaction, depression and negative affect) and GBJW did not predict well-being in the present sample. This is inconsistent with some previous findings in other East Asian collectivist countries showing that other-related BJW predicted well-being (e.g., in China: Wu et al, 2011; Wu et al, 2013). However, it is consistent with findings in some previous studies that self-related BJW predicted well-being (Tian, 2019) which were consistent with the present research. In addition, Thai participants endorsed higher level of PBJW than GBJW which was inconsistent with previous research in collectivist country like China (Wu et al., 2011; Wu et al., 2013).

According to the cultural specificity hypothesis, GBJW should be higher and more important to well-being among collectivist samples when compared with PBJW but the present results were inconsistent with the hypothesis. The failure of the results to confirm this hypothesis, irrespective of the reasons why, shows that the cultural specificity hypothesis cannot be applied simply to all Asian or all non-WEIRD cultural contexts. In this way, the present results show no different patterns than studies that have been conducted in the UK, Europe, or North America (for a review, see Hafer & Sutton, 2016).

The present results should not be seen as disconfirming the view that collectivism, specifically, changes the psychological functions of BJW. Even though Thailand is often described as a highly collectivist (Hofstede, 2001; Oyserman et al., 2002) or interdependent country (Christopher et al., 2010; Neff et al., 2008), there are some prior studies indicating that Thailand is not completely collectivist country. When considering self-construal by Vignoles et al (2016), Thailand's scores in two of the seven dimensions indicated independent self-construal which were inconsistent with the scores in all dimensions of the participants in China as another highly collectivist country indicating interdependence. Moreover, when compared with relationship harmony, self-efficacy was a stronger predictor of well-being (high life satisfaction and low depression) among Thai samples (Smith et al, 2016) which was consistent with samples in the US (Chen et al., 2006). Thus, the recent cultural findings indicated that Thailand does not seem to be classical collectivist country. This might have influenced the present results.

Further, a limitation of the present study – and those reported throughout this thesis – is its reliance on student samples. Previous research in some non-WEIRD contexts such as China indicates that GBJW may not be important to well-being among student samples, but may be more important to rural or community samples that experience high levels of adverse life circumstances (e.g., Wu et al, 2009; Wu et al, 2011; Wu et al, 2013).

## 2.2 Study 2

Although belief in a just world and well-being has been examined in Western contexts for many years, belief in Karma, in terms of another kind of belief relating to just world belief, influencing well-being is still understudied. Moreover, the religious factor was not clearly considered in our previous study. Thus, belief in Karma was added in Study 2

In study 2, the first aim was to examine the relationship between of BJW and well-being. The second aim was to investigate the differences between personal and general BJW in a sample in the UK. The third aim was to investigate the relationship between Karma and well-being when controlling for BJW. The fourth aim was to examine the moderating role of belief in Karma on the associations between just world beliefs and well-being.

Since the present sample is based in the UK, both the cultural generality and specificity hypotheses predict that PBJW but not GBJW will positively predict well-being. In addition, both hypotheses entail that participants would endorse higher levels of PBJW than GBJW. I included the variable Karma in the present study to prepare for my later studies, and to allow some exploratory predictions. Since this construct is conceptually related to BJW and may fulfil the same functions (Levy et al., 2009), it can be expected to be associated with higher levels of well-being. Some scholars however, have suggested that it is associated with fatalism and external locus of control which might mean that it is associated with lower levels of well-being. Similarly opposing predictions can be made about causal moderation. Since Karma overlaps with BJW, it may make BJW less important to well-being (implying a negative interaction). In contrast, since it may be inconsistent to have high levels of one type of belief (e.g., Karma) and low levels of the other (BJW), people may benefit more from higher levels of BJW when they also have stronger beliefs in Karma (implying a positive interaction). Since there has been little or no research to examine the correlates of BJW and Karma simultaneously,

and since Karma is not a strong or formal belief in UK culture, these hypotheses were made tentatively.

Based on the theory and previous research, I tested the following hypotheses:

(1) The cultural generality and specificity hypotheses:

(a) UK participants will endorse PBJW more strongly than GBJW.

(b) PBJW, rather than GBJW, will positively predict well-being.

(2) Exploratory predictions:

(a) Belief in Karma will predict well-being when controlling for BJW.

(b) Belief in Karma will moderate the relationships between BJW and well-being.

## **2.2.1 Method**

### **2.2.1.1 Participants**

The sample consisted of 476 undergraduate students in a university in the UK. They received an invitation online through research participation scheme (RPS) and participated for course credit. However, this study includes only the responses from the participants who have lived in the UK since birth. Thus, the final number is 345 (288 or 83.5% are women), aged between 18-55 years ( $M = 19.32$ ,  $SD = 3.64$ ).

### **2.2.1.2 Procedure**

Online questionnaires containing a variety of different measures, including those relevant for the present research I decided to omit some measures (e.g., belief in a just treatment) because they are not the main variables related to the present study. The questionnaires were distributed to collect data from a convenience sample of undergraduate

students through research participation scheme (RPS). The questionnaire took about 20 minutes to complete, after which the participants were debriefed.

### 2.2.1.3 Measures

Exactly the same measures were used as in Study 1 for Life Satisfaction (Diener et al., 1985) ( $\alpha = .86$ ), Depression (Cole et al., 2004) ( $\alpha = .86$ ), and Belief in a Just World (Dalbert, 1999): ( $\alpha = .84$  for PBJW and  $\alpha = .81$  for GBJW). The additional scale was a seven-item *Belief in Karma Scale* was developed by Kopalle et al. (2010) (e.g., “I believe in Karma”, 1 = *strongly disagree*, 7 = *strongly agree*),  $\alpha = .74$ .

### 2.2.2 Results

Descriptive statistics and correlations between variables are presented in Table 4. They show that at zero-order, PBJW had stronger correlation with life satisfaction, compared with GBJW. Moreover, PBJW had stronger association with depression.

Table 4 Descriptive statistics and correlations between all variables

| Variables            | <i>M (SD)</i> | 1       | 2                | 3      | 4     | 5 |
|----------------------|---------------|---------|------------------|--------|-------|---|
| 1. Life Satisfaction | 4.50 (1.25)   | -       |                  |        |       |   |
| 2. Depression        | 1.00 (.60)    | -.52*** | -                |        |       |   |
| 3. PBJW              | 4.12 (.73)    | .55***  | -.31***          | -      |       |   |
| 4. GBJW              | 3.28 (.85)    | .23***  | -.14*            | .25*** | -     |   |
| 5. Belief in Karma   | 4.22 (1.08)   | .14*    | .10 <sup>†</sup> | .16**  | .16** | - |

*Note.* Table shows Pearson’s correlations (*r*). <sup>†</sup> $p < .10$ , \* $p < .05$ , \*\*  $p < .01$ , and \*\*\*  $p < .001$ .

### ***2.2.2.1 Just world beliefs as predictors of well-being***

I conducted multiple linear regression analyses to determine whether PBJW and/or GBJW predicted well-being. Table 5 shows the regression coefficients and statistics after predictors (i.e., PBJW and GBJW) were entered. Life satisfaction was significantly predicted by both PBJW and GBJW ( $\beta = .53, p < .001$ ;  $\beta = .10, p = .041$ , respectively). The model for life satisfaction explained 31% of the variance;  $F(2, 342) = 78.39, p < .001$ . Depression was significantly predicted by PBJW only ( $\beta = -.30, p < .001$ ) The model for depression explained 10% of the variance;  $F(2, 342) = 19.19, p < .001$ .

### ***2.2.2.2 Difference between personal and general belief in a just world***

I conducted a paired sample t-test which showed that mean score of rated belief in a just world were different between self and others conditions. There are significant differences in belief in a just world;  $t(344) = 16.10, p < .001$ . Participants believed the world to be much more just to the self than to others.

### ***2.2.2.3 Belief in Karma as predictor of well-being***

I conducted hierarchical regression analyses to test possible moderation effect of belief in Karma on the relationships between PBJW/GBJW and well-being. In the first model, PBJW and GBJW were entered. In the second model, belief in Karma was added. In the third model, belief in Karma X PBJW/GBJW were entered. Table 5 shows the regression coefficients and statistics after predictors were added.

Accounting for belief in Karma, added 9% to the explained variance in the prediction of life satisfaction;  $\Delta F(3, 341) = 54.21, p < .001$ . Belief in Karma significantly predicted life satisfaction. PBJW was still a significant predictor whereas GBJW became marginally significant. Accounting for belief in Karma X just world beliefs to test the possible moderation

effect added 4% to the explained variance in the prediction of life satisfaction;  $\Delta F(5, 339) = 33.19, p < .001$ . PBJW was still significant whereas GBJW and belief in Karma were marginally significant. However, belief in Karma did not moderate the relationship between PBJW/GBJW and life satisfaction.

Accounting for belief in Karma added 2% to the explained variance in the prediction of depression;  $\Delta F(3, 341) = 15.00, p < .001$ . Belief in Karma significantly predicted depression. Moreover, PBJW was still a significant predictor. Accounting for belief in Karma X just world beliefs to test the possible moderation effect added 1% to the explained variance in the prediction of depression;  $\Delta F(5, 339) = 9.38, p < .001$ . PBJW and belief in Karma were still significant. Further, GBJW became marginally significant. However, belief in karma did not moderate the relationship between PBJW/GBJW and depression.

Table 5 Summary of hierarchical regression analyses for BJW and belief in Karma predicting well-being

| Variable        | Life Satisfaction |             |                  |           |      | Depression |             |          |           |      |
|-----------------|-------------------|-------------|------------------|-----------|------|------------|-------------|----------|-----------|------|
|                 | <i>B</i>          | <i>SE B</i> | $\beta$          | Tolerance | VIF  | <i>B</i>   | <i>SE B</i> | <i>B</i> | Tolerance | VIF  |
| <u>Model 1</u>  |                   |             |                  |           |      |            |             |          |           |      |
| PBJW            | .92               | .08         | .53***           | .94       | 1.07 | -.24       | .04         | -.30***  | .94       | 1.07 |
| GBJW            | .14               | .07         | .10*             | .94       | 1.07 | -.05       | .04         | -.06     | .94       | 1.07 |
| <u>Model 2</u>  |                   |             |                  |           |      |            |             |          |           |      |
| PBJW            | .91               | .08         | .53***           | .94       | 1.07 | -.25       | .04         | -.30***  | .94       | 1.07 |
| GBJW            | .12               | .07         | .08 <sup>†</sup> | .92       | 1.09 | -.06       | .04         | -.08     | .92       | 1.09 |
| Belief in Karma | .11               | .05         | .09*             | .98       | 1.03 | .07        | .03         | .13*     | .98       | 1.03 |
| <u>Model 3</u>  |                   |             |                  |           |      |            |             |          |           |      |

|                        |      |     |                  |     |      |      |     |                   |     |      |
|------------------------|------|-----|------------------|-----|------|------|-----|-------------------|-----|------|
| PBJW                   | .93  | .08 | .54***           | .90 | 1.12 | -.25 | .04 | -.31***           | .90 | 1.12 |
| GBJW                   | .12  | .07 | .08 <sup>†</sup> | .90 | 1.11 | -.07 | .04 | -.09 <sup>†</sup> | .90 | 1.11 |
| Belief in Karma        | .10  | .05 | .09 <sup>†</sup> | .95 | 1.05 | .07  | .03 | .12*              | .95 | 1.05 |
| Belief in Karma X PBJW | .11  | .07 | .08              | .81 | 1.24 | -.01 | .04 | -.02              | .81 | 1.24 |
| Belief in Karma X GBJW | -.06 | .06 | -.05             | .81 | 1.24 | -.03 | .03 | -.06              | .81 | 1.24 |

*Note.* Life Satisfaction:  $R^2 = .31$  at Model 1;  $\Delta R^2 = .09$  at Model 2;  $\Delta R^2 = .06$  ( $p < .001$ ).

Depression:  $R^2 = .10$  at Model 1;  $\Delta R^2 = .02$  at Model 2;  $\Delta R^2 = .01$  ( $p < .001$ ).

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\*\* $p < .001$

Table 6 Summary of the findings for Study 2

| Hypotheses  | Results  |
|---|--|
| <i>(1) The cultural generality and specificity hypotheses</i>                   |  |
| (a) UK participants endorse PBJW more strongly than GBJW.                       | Accepted   |
| (b) PBJW, rather than GBJW, will positively predict well-being.                 | Accepted   |
| <i>(2) Exploratory predictions</i>  |  |
| (a) Belief in Karma will predict well-being when controlling for BJW.           | Belief in Karma positively predicted depression. |
| (b) Belief in Karma will moderate the relationships between BJW and well-being. | Rejected   |

### 2.2.3 Discussion

The results provide further evidence that PBJW significantly predicted higher life satisfaction and lower depression and UK participants endorsed higher level of PBJW than GBJW. They confirmed the cultural generality hypothesis and supported previous findings (Bègue & Bastounis, 2003; Correia & Dalbert, 2007; Dalbert, 1999; Dzuka & Dalbert, 2006, 2007; Lipkus et al., 1996; Otto et al., 2006; Sutton & Douglas, 2005; Sutton et al., 2008; Sutton et al., 2017) in line with just world theory. Further, GBJW was not related to well-being among student sample in this study because GBJW is possibly important for coping mechanism among the samples facing with negative life events (e.g., Kim & Kim, 2017; McParland & Knussen, 2010; Wu et al, 2009; Wu et al, 2011; Wu et al, 2013).

Moreover, I expected Karma might not either directly predict increased well-being or moderate the association of GBJW and well-being among the UK sample. However, when controlling for BJW, Karma positively predicted both life satisfaction and depression but weaker when predicting life satisfaction. When belief in Karma X BJW were added, we found Karma was still a predictor of depression while became non-significant predictor of life satisfaction. There are possible reasons explain this apparent “dark side” of Karma. First, Karma is similar to fatalistic or pessimistic thinking (Levy et al, 2009) which is associated with worse physical and psychological well-being (Scheier & Carver, 1992; Scheier et al., 2001). Moreover, Karma is related to an external locus of control, with the feeling that that people’s lives cannot be determined by oneself and bad fortune is unavoidable (Levy et al., 2009). Further, the majority of the populations in the UK is Christian (Central Intelligence Agency, 2019). Thus, Karma which is common to some Eastern religions, might not be important among non-believers. Specifically, Karma was associated with negative mental health among Christians (Davidson et al., 2005)

Moreover, we did not find Karma moderated any relationships between BJW and well-being. According to both previous and present results, PBJW predicted well-being. Although White et al. (2019) did not conduct the research addressing BJW, Karma and well-being, they found Karma was related to BJW-Self but weaker among Canadian Christian samples. Thus, it is possible that the moderation effect of Karma on the associations between BJW and well-being would not be salient among non-Eastern religions.

### 2.3 Study 3

Thus far, my studies have not returned clear evidence that the levels or functions of personal and general just world beliefs vary according to culture. Their results have, therefore, been more consistent with the cultural generality rather than the cultural specificity hypothesis. However, I have not included cultural variables to see whether individual differences in cultural endorsement may moderate the functions of just world beliefs. To address this limitation, I included a measure of self-construal in Study 3, which like Study 1 was conducted with a Thai sample. This study therefore aimed to test whether the findings of Studies 1 and 2 would replicate in this sample (i.e, according to the cultural generality hypothesis, PBJW is endorsed more strongly than GBJW and is uniquely associated with well-being). It also aimed to see if the results for Karma from Study 2 would differ because Karma is possibly matter to the participants in Thailand where the majority of the population is Buddhist (Central Intelligence Agency, 2019) (i.e., Karma may either directly predict increased well-being or positively moderate the association of GBJW and well-being among Thai sample.) Finally, it aimed to test whether self-construal would moderate relationships between BJW and well-being. Specifically, it was predicted that weaker relationships between well-being and PBJW, and stronger relationships between well-being and GBJW, would be observed among participants scoring toward the interdependent poles of the various dimensions of self-construal.

Based on the theory and previous research, I tested the following hypotheses:

(1) The cultural generality hypotheses:

- (a) Thai participants will endorse PBJW more strongly than GBJW.
- (b) PBJW, rather than GBJW, will positively predict well-being.

(2) The cultural specificity hypotheses:

- (a) Thai participants will endorse GBJW more strongly than PBJW.
- (b) GBJW, rather than PBJW, will positively predict well-being.
- (c) Independent self-construal will negatively predict well-being when controlling for BJW.
- (d) Independent self-construal will positively moderate the relationships between PBJW and well-being.
- (e) Independent self-construal will negatively moderate the relationships between GBJW and well-being.

(3) Exploratory predictions:

- (a) Belief in Karma will predict well-being when controlling for BJW
- (b) Belief in Karma will moderate the relationships between BJW and well-being.

## **2.3.1 Method**

### ***2.3.1.1 Participants***

The sample consisted of 175 undergraduate students from the university located in the Bangkok Metropolitan Region which is the urban region surrounding the capital of Thailand. They were invited to participate in class and received course credit (130 or 74.3% are women), aged between 18-29 years ( $M = 19.82$ ,  $SD = 1.52$ ).

### 2.3.1.2 Procedure

The paper-based questionnaires containing a variety of different measures, including the measures relevant for the present research. I decided to omit some measures (e.g., belief in a just treatment) because they are not the main variables related to the present study. The questionnaires were distributed to collect data from undergraduate students studying psychology modules. The students were given a course credit in return. The sampling was based on convenience. The questionnaire took about 30 minutes to complete, after which the participants were thanked and debriefed.

### 2.3.1.3 Measures

Most measures were the same as those employed in Study 2, including the *Satisfaction With Life Scale (SWLS)* (Diener et al., 1985) ( $\alpha = .85$ ), *Rasch-derived short form of the Center for Epidemiological Studies Depression scale (CES-D)* (Cole et al., 2004) ( $\alpha = .80$ ), *Belief in a Just World Scale (BJW)* (Dalbert, 1999): ( $\alpha = .77$  for PBJW and  $\alpha = .69$  for GBJW), and *Belief in Karma Scale* (Kopalle et al., 2010) ( $\alpha = .79$ ).

The additional scale was the 72-item *Self-construal Scale* developed by Vignoles et al. (2016), asked how well each statement describe the respondent (1 = *doesn't describe me at all*, 5 = *describes me exactly*) consisting of seven dimensions which are *difference vs. similarity* (e.g., “You like being different from other people”,  $\alpha = .82$ ), *self-containment vs. connectedness to others* (e.g., “your happiness is unrelated to the happiness of your family”,  $\alpha = .58$ ), *self-direction vs. receptiveness to influence* (e.g., “You prefer to do what you want without letting your family influence you”,  $\alpha = .81$ ), *self-reliance vs. dependence on others* (e.g., “You prefer to rely completely on yourself rather than depend on others”,  $\alpha = .71$ ), *consistency vs. variability* (e.g., “You behave in the same way even when you are with different groups of people”,  $\alpha = .75$ ), *self-expression vs. harmony* (e.g., “You prefer to say what you are thinking,

even if it is inappropriate for the situation”,  $\alpha = .64$ ), and *self-interest vs. commitment to others* (e.g., “You usually give priority to your personal goals, before thinking about the goals of others.”,  $\alpha = .63$ ). Some statements adapted from Contextualism Scale developed by Owe et al. (2013) were added and this additional dimension is called *de-contextualized vs. contextualized self* (e.g., “Someone could understand who you are without needing to know which social groups you belong to”,  $\alpha = .70$ ). Higher score indicates a more independent view of each dimension. Self-construal in prior studies has been related to communication styles (e.g., Gudykunst et al., 1996) and communication styles differences are possibly indicated by acquiescent response bias (Smith, 2004). Thus, the self-construal scores were ipsatised by subtracting each participant’s mean score across all items from the score for each item to eliminate the acquiescent response bias (Vignoles et al., 2016).

These scales were included among the other measures unrelated to the present study and all measures were translated from English into Thai language. They were then independently back-translated, as described by Brislin (1970). The two English versions were compared for any inaccuracies, which were resolved through discussion with translators.

### **2.3.2 Results**

Descriptive statistics and correlations between variables are presented in Table 7. They show that PBJW had stronger correlation with life satisfaction, compared with GBJW. Moreover, PBJW was significantly associated with depression.

Table 7 Descriptive statistics and correlations between all variables

| Variables            | <i>M (SD)</i> | 1                | 2      | 3      | 4      | 5      |
|----------------------|---------------|------------------|--------|--------|--------|--------|
| 1. Life Satisfaction | 4.25 (1.02)   | -                |        |        |        |        |
| 2. Depression        | 1.10 (0.45)   | -.33***          | -      |        |        |        |
| 3. PBJW              | 3.93 (0.59)   | .42***           | -.22** | -      |        |        |
| 4. GBJW              | 3.71 (0.66)   | .20**            | -.05   | .49*** | -      |        |
| 5. Belief in Karma   | 4.80 (1.01)   | .08              | .08    | .15*   | .29*** | -      |
| 6. Independence      | 3.02 (.29)    | .13 <sup>†</sup> | -.22** | .20**  | .07    | -.22** |

*Note.* Table shows Pearson's correlations (*r*). <sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , and \*\*\* $p < .001$

Our key hypotheses concerned the differences between personal and general belief in a just world, the relationship between of BJW and well-being and the possible moderation effect of belief in Karma and independent self-construal on the relationships of PBJW/GBJW and well-being.

### ***2.3.2.1 Just world beliefs as predictors of well-being***

I conducted multiple linear regression analyses to determine whether PBJW and/or GBJW predicted well-being. Table 8 shows the regression coefficients and statistics after predictors (i.e., PBJW and GBJW) were entered. Life satisfaction was significantly predicted by PBJW only. The model of life satisfaction explained 17% of the variance;  $F(2, 172) = 18.65$ ,  $p < .001$ . Depression was significantly predicted by PBJW only. The model for depression explained 4% of the variance;  $F(2, 167) = 4.79$ ,  $p = .009$ .

### ***2.3.2.2 Difference between personal and general belief in a just world***

I conducted a paired sample t-test which showed that mean score of rated belief in a just world were different between self and others conditions. There are significant differences

in belief in a just world;  $t(174) = 4.64, p < .001$ . Participants believed the world to be much more just to the self than to others.

### ***2.3.2.3 Belief in Karma as moderator between BJW and well-being***

I conducted hierarchical regression analyses to test possible moderation effect of belief in Karma on the relationship(s) of PBJW/GBJW and well-being. In the first model, PBJW and GBJW were entered. In the second model, belief in Karma was added. In the third model, belief in Karma X PBJW/GBJW were entered. Table 8 shows the regression coefficients and statistics after predictors were added.

Life satisfaction was significantly predicted by PBJW only, explaining 17% of the variance in life satisfaction;  $\Delta F(2, 172) = 18.65, p < .001$ . Accounting for belief in Karma added 0% to the explained variance in the prediction of life satisfaction;  $\Delta F(3, 171) = 12.41, p < .001$ . Belief in Karma did not predict life satisfaction. PBJW was still a significant predictor. Accounting for belief in karma X just world beliefs to test the possible moderation effect added 3% to the explained variance in the prediction of life satisfaction;  $\Delta F(5, 169) = 8.67, p < .001$ . PBJW was still significant whereas GBJW and belief in Karma were marginally significant. Moreover, belief in Karma significantly moderates the relationship between GBJW and life satisfaction.

Depression was significantly predicted by PBJW only, explaining 4% of the variance in life satisfaction;  $\Delta F(2, 167) = 4.79, p = .009$ . Accounting for belief in Karma added 1% to the explained variance in the prediction of depression;  $\Delta F(3, 166) = 3.87, p = .010$ . Belief in Karma did not predict depression. However, PBJW was still a significant predictor. When accounted for belief in Karma X just world beliefs to test the possible moderation effect, adding 1% to the explained variance in the prediction of depression;  $\Delta F(5, 164) = 2.61, p = .027$ .

PBJW was still significant. However, belief in Karma did not moderate the relationship between PBJW/GBJW and depression.

Table 8 Summary of hierarchical regression analyses for BJW and belief in Karma predicting well-being

| Variable               | Life Satisfaction |             |         |           |      | Depression |             |         |           |      |
|------------------------|-------------------|-------------|---------|-----------|------|------------|-------------|---------|-----------|------|
|                        | <i>B</i>          | <i>SE B</i> | $\beta$ | Tolerance | VIF  | <i>B</i>   | <i>SE B</i> | $\beta$ | Tolerance | VIF  |
| <u>Model 1</u>         |                   |             |         |           |      |            |             |         |           |      |
| PBJW                   | .75               | .14         | .43***  | .76       | 1.32 | -.20       | .07         | -.26**  | .75       | 1.34 |
| GBJW                   | -.03              | .12         | -.02    | .76       | 1.32 | .05        | .06         | .08     | .75       | 1.34 |
| <u>Model 2</u>         |                   |             |         |           |      |            |             |         |           |      |
| PBJW                   | .75               | .14         | .43***  | .76       | 1.32 | -.20       | .07         | -.26**  | .75       | 1.34 |
| GBJW                   | -.04              | .13         | -.02    | .71       | 1.41 | .03        | .06         | .05     | .70       | 1.43 |
| Belief in Karma        | .03               | .07         | .03     | .92       | 1.09 | .05        | .04         | .11     | .92       | 1.09 |
| <u>Model 3</u>         |                   |             |         |           |      |            |             |         |           |      |
| PBJW                   | .71               | .14         | .41***  | .75       | 1.34 | -.21       | .07         | -.27**  | .74       | 1.35 |
| GBJW                   | -.02              | .13         | -.01    | .70       | 1.42 | .03        | .06         | .05     | .70       | 1.44 |
| Belief in Karma        | .08               | .08         | .08     | .82       | 1.22 | .06        | .04         | .14     | .82       | 1.22 |
| Belief in Karma X PBJW | -.16              | .12         | -.10    | .80       | 1.25 | .02        | .06         | .03     | .80       | 1.25 |
| Belief in Karma X GBJW | .21               | .09         | .19*    | .72       | 1.39 | .04        | .04         | .08     | .72       | 1.39 |

*Note.* Life Satisfaction:  $R^2 = .17$  at Model 1;  $\Delta R^2 = .00$  at Model 2;  $\Delta R^2 = .03$  ( $p < .001$ ).

Depression:  $R^2 = .04$  at Model 1;  $\Delta R^2 = .01$  at Model 2;  $\Delta R^2 = .01$  ( $p < .05$ ).

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

After finding a significant moderating effect of belief in Karma on the relationship between GBJW and life satisfaction in the hierarchical regression, the moderation effect was specifically re-tested one at a time by Hayes (2017) PROCESS. The results show that GBJW and GBJW X Karma positively predicted life satisfaction.

After that, the significant interaction was plotted with ModGraph (Jose, 2008) presented in Figure 1. The plot of GBJW X Karma interaction for life satisfaction illustrated the relationships between GBJW and life satisfaction for those who endorse belief in Karma in medium and high levels (low slope = .12,  $t(171) = .88$ ,  $p = .382$ ; medium slope = .27,  $t(171) = 2.20$ ,  $p = .029$ ; high slope = .49,  $t(171) = 3.26$ ,  $p = .001$ ).

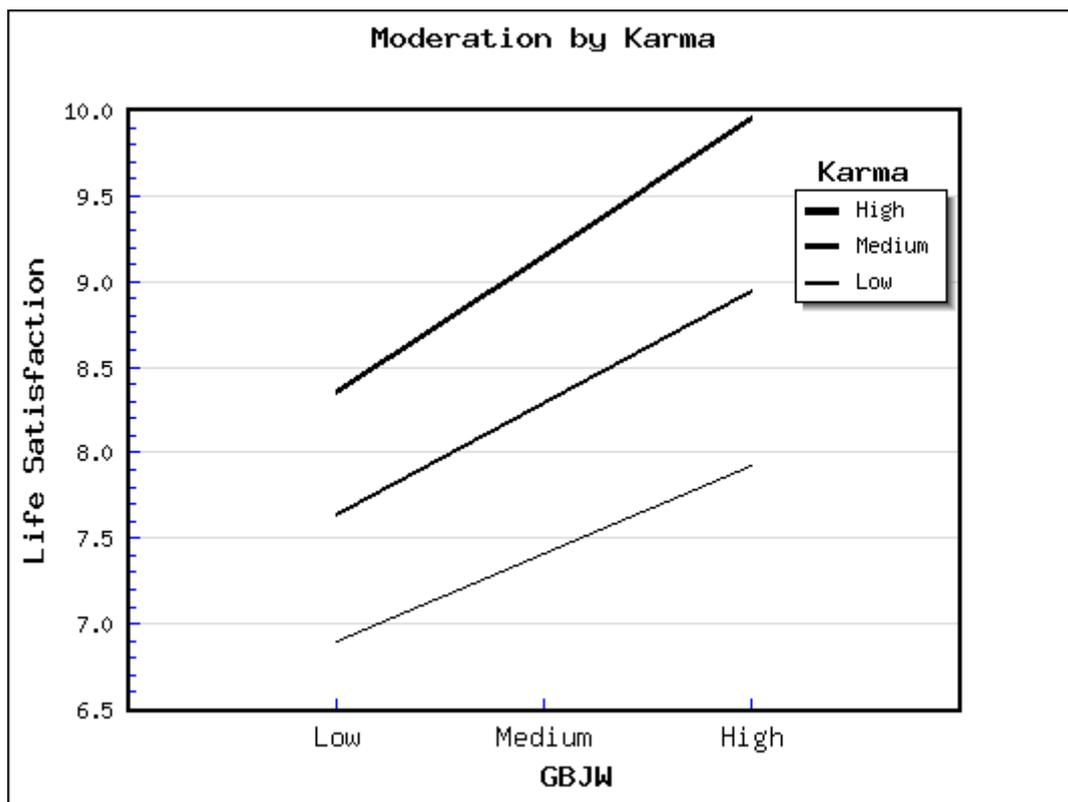


Figure 1 The moderating effect of belief in Karma on the relationship between GBJW and life satisfaction

#### ***2.3.2.4 Cultural variable (independent self-construal) as moderator between BJW and well-being***

Although the state-of-art multidimensional self-construal scale (Vignoles et al., 2016) was employed in this study, this study has some limitations including insufficient sample size which affect data analyses. Thus, all seven dimensions cannot be simultaneously entered in the hierarchical linear regression. If all dimensions were entered as both independent and moderating variables, they would create multiple tests which were more likely to produce incorrectly significant results because of Type I errors. Thus, all dimensions were simply collapsed to be “independence” for data analysis. Higher score indicates higher independent self-construal.

I conducted hierarchical regression analyses to test possible moderation effect of independence on the relationship(s) of PBJW/GBJW and well-being. In the first model, PBJW, GBJW, and independence were entered. In the second model, independence X PBJW/GBJW were entered. Table 9 shows the regression coefficients and statistics after predictors were added.

Life satisfaction was significantly predicted by PBJW only, explaining 19% of the variance in life satisfaction;  $\Delta F(2, 163) = 20.35, p < .001$ . Accounting for independence added 0% to the explained variance in the prediction of life satisfaction;  $\Delta F(3, 162) = 13.65, p < .001$ . PBJW was still a significant predictor. Accounting for independence X just world beliefs to test the possible moderation effect added 4% to the explained variance in the prediction of life satisfaction;  $\Delta F(5, 160) = 10.36, p < .001$ . PBJW was still significant (. Moreover, independence significantly moderates the relationship between PBJW/GBJW and life satisfaction.

Depression was significantly predicted by PBJW only, explaining 5% of the variance in life satisfaction;  $\Delta F(2, 158) = 5.60, p = .004$ . Accounting for independence added 3% to the

explained variance in the prediction of depression;  $\Delta F(3, 157) = 5.44, p = .001$ . Independence significantly predicted depression. Moreover, PBJW was still a significant predictor ( $\beta = -.26, p = .005$ ). Accounting for independence X just world beliefs to test the possible moderation effect added 0% to the explained variance in the prediction of depression;  $\Delta F(5, 155) = 3.27, p = .008$ . PBJW and independence were still significant. However, independence did not moderate the relationship between PBJW/GBJW and depression.

Table 9 Summary of hierarchical regression analyses for BJW and independent self-construal predicting well-being

| Variable            | Life Satisfaction |             |         |           |      | Depression |             |         |           |      |
|---------------------|-------------------|-------------|---------|-----------|------|------------|-------------|---------|-----------|------|
|                     | <i>B</i>          | <i>SE B</i> | $\beta$ | Tolerance | VIF  | <i>B</i>   | <i>SE B</i> | $\beta$ | Tolerance | VIF  |
| <u>Model 1</u>      |                   |             |         |           |      |            |             |         |           |      |
| PBJW                | .73               | .14         | .43***  | .72       | 1.39 | -.19       | .07         | -.26**  | .71       | 1.41 |
| GBJW                | .03               | .12         | .02     | .75       | 1.34 | .07        | .06         | .10     | .74       | 1.36 |
| Belief in Karma     | .05               | .07         | .05     | .96       | 1.04 | -.08       | .04         | -.17*   | .96       | 1.05 |
| <u>Model 2</u>      |                   |             |         |           |      |            |             |         |           |      |
| PBJW                | .78               | .14         | .46***  | .70       | 1.43 | -.20       | .07         | -.26**  | .69       | 1.45 |
| GBJW                | -.05              | .13         | -.03    | .71       | 1.41 | .08        | .06         | .11     | .70       | 1.42 |
| Independence        | .10               | .07         | .09     | .89       | 1.12 | -.08       | .04         | -.18*   | .90       | 1.11 |
| Independence X PBJW | -.31              | .15         | -.16*   | .79       | 1.27 | .01        | .07         | .02     | .79       | 1.27 |
| Independence X GBJW | .39               | .14         | .22**   | .81       | 1.23 | -.03       | .07         | -.04    | .82       | 1.22 |

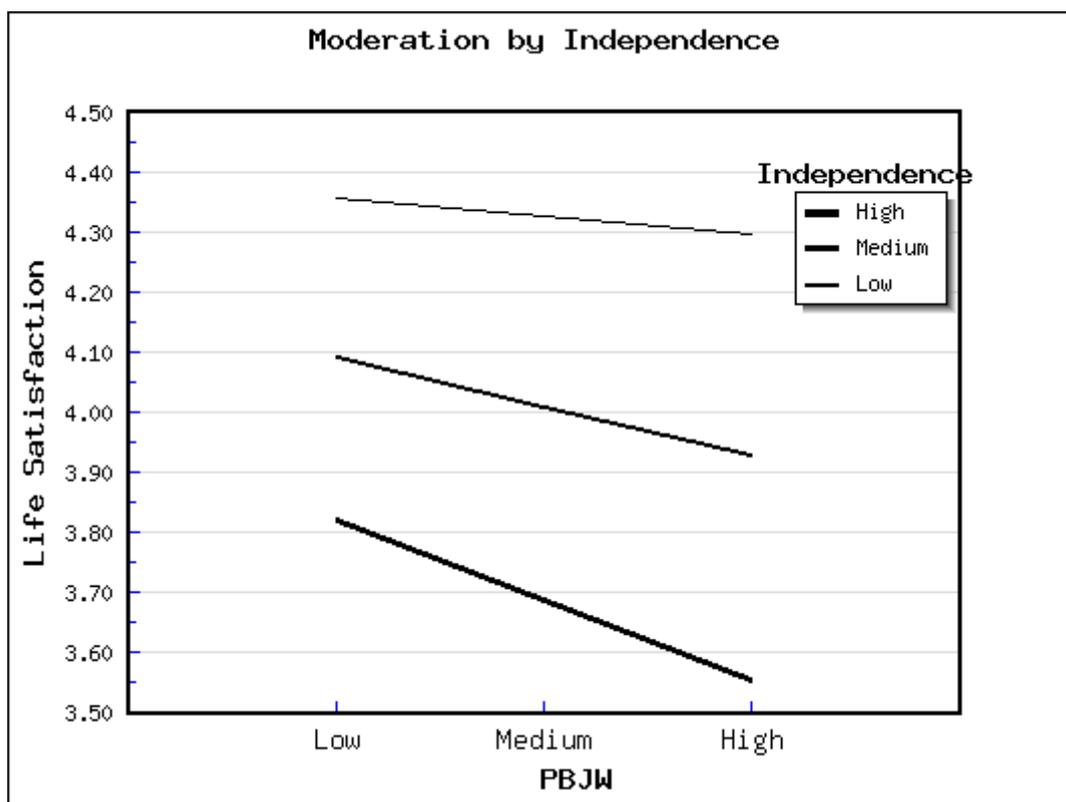
*Note.* Life Satisfaction:  $R^2 = .19$  at Model 1;  $\Delta R^2 = .00$  at Model 2;  $\Delta R^2 = .04$  ( $p < .001$ ).

Depression:  $R^2 = .05$  at Model 1;  $\Delta R^2 = .03$  at Model 2;  $\Delta R^2 = .00$  ( $p < .01$ ).

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

After finding a significant moderating effect of independence on the relationships between PBJW/GBJW and life satisfaction in the hierarchical regression, the moderation effects were specifically re-tested one at a time by Hayes (2017) PROCESS. The results show that GBJW and GBJW X independence positively predicted life satisfaction whereas only PBJW but not independence and PBJW X independence predicted life satisfaction.

After that, the significant interaction was plotted with ModGraph (Jose, 2008) presented in Figure 2. The plot of GBJW X independence interaction for life satisfaction illustrated the relationships between GBJW and life satisfaction for those who endorse independence in medium and high levels (low slope = .09,  $t(162) = .51$ ,  $p = .610$ ; medium slope = .30,  $t(162) = 2.47$ ,  $p = .015$ ; high slope = .56,  $t(162) = 3.48$ ,  $p = .001$ ).



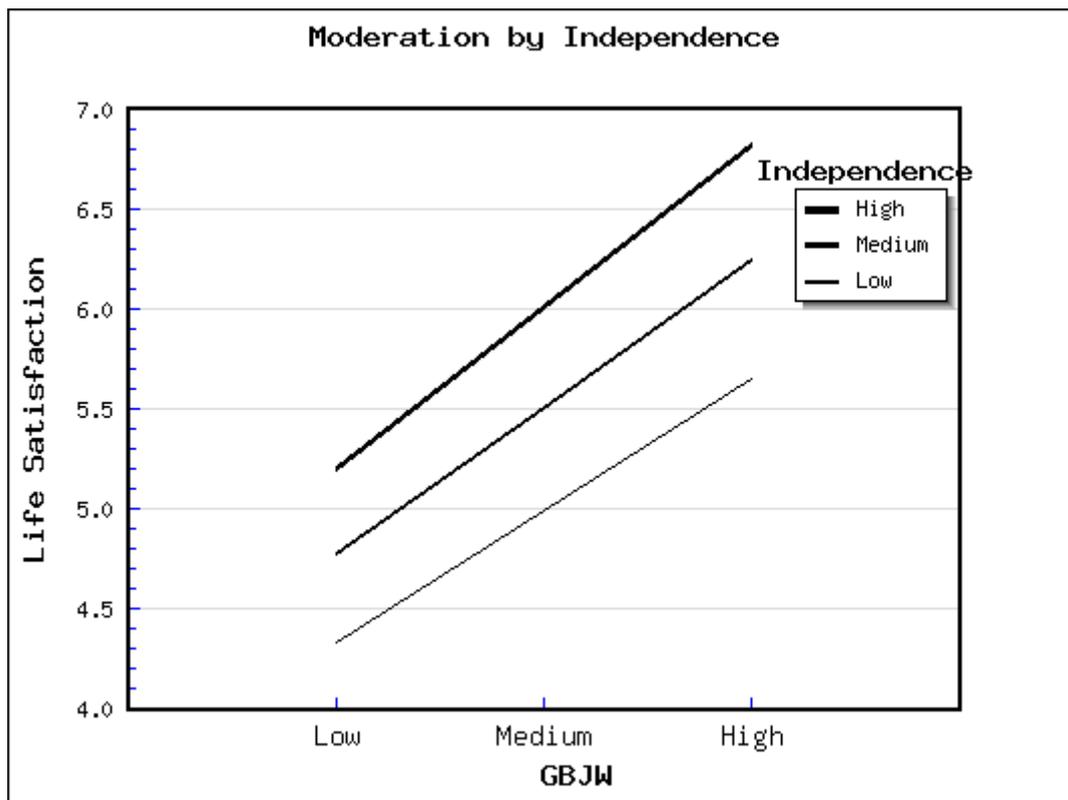


Figure 2 The moderating effects of independent self-construal on the relationship between just world beliefs and life satisfaction.

Table 10 Summary of the findings for Study 3

| Hypotheses   | Results  |
|--|----------|
| <i>(1) The cultural generality hypotheses</i>                    |          |
| (a) Thai participants will endorse PBJW more strongly than GBJW. | Accepted |
| (b) PBJW, rather than GBJW, will positively predict well-being.  | Accepted |

---

(2) *The cultural specificity hypotheses*

- |  |          |
|--|----------|
| (a) Thai participants will endorse GBJW more strongly than PBJW.                                       | Rejected |
| (b) GBJW, rather than PBJW, will positively predict well-being.  | Rejected |
| (c) Independent self-construal will negatively predict well-being when controlling for BJW.            | Rejected |
| (d) Independent self-construal will positively moderate the relationships between PBJW and well-being. | Rejected |
| (e) Independent self-construal will negatively moderate the relationships between GBJW and well-being. | Rejected |

(3) *Exploratory predictions*

- |   |   |
|---|---|
| (a) Belief in Karma will predict well-being when controlling for BJW.           | Rejected  |
| (b) Belief in Karma will moderate the relationships between BJW and well-being. | Belief in Karma positively moderated the relationship between GBJW and life satisfaction. |
- 

### 2.3.3 Discussion

Consistent with the previous results in the present research in Thailand and the UK, the results provide further evidence that PBJW significantly predicted higher life satisfaction and lower depression and Thai participants endorsed higher level of PBJW than GBJW.

As expected, belief in Karma positively moderated the relationship between GBJW and life satisfaction among Thai sample. There are possible discussions explaining why Karma promoted the function of GBJW for positive mental health. Karma may have overlapping meaning and functions. Some empirical studies confirmed Karma was related to just world belief (Agrawal & Dalal, 1993). Further, Levy et al. (2009) claimed that Karma may make some people feel comfortable because they feel that the world is orderly, meaningful, and well-balanced in accord with just world theory (Lerner, 1980). Moreover, White et al. (2019) found Karma was related to BJW-Self but stronger among Indian Hindu samples. Although the majority of the populations in Thailand is Buddhist (Central Intelligence Agency, 2019), it cannot be denied that Karma is common to Eastern religions including Buddhist and Hindu (Reichenbach, 1988; White et al., 2017) Thus, it is possible that the moderation effect of Karma on the association between BJW and well-being would be salient among Eastern religions. In other words, Karma, as justice-related religious/spiritual belief, which may have overlapping meaning and functions with just world belief, could uniquely facilitate BJW to enhance positive mental health among the believers.

According to the cultural specificity hypothesis, interdependent self-construal should moderate the associations between BJW and well-being. Contradict to the hypothesis, the results showed that higher independent self-construal appeared to weaken the association between PBJW and life satisfaction while higher independent self-construal appeared to strengthen the positive relationship between GBJW and well-being. Interpretations of this result must be made with caution because they are post-hoc and rely on a relatively small sample size. One possibility is that the construct of BJW is inherently social and relational. PBJW, for example, depends on the belief that one will receive just treatment from others. This may be less important to people who are highly independent. On the other hand, a highly independent person may benefit from GBJW because it suggests their own efforts to reward

and others may be effective. In the next study, self-construal will be unpacked into multiple dimensions which should give clearer answers about the moderating role of culture on the associations between BJW and well-being.

## **2.4 General Discussion**

This chapter provides the main results in all three studies showing PBJW predicted well-being in both Thailand and United Kingdom. In addition, belief in Karma positively moderated the association between GBJW and life satisfaction in Thailand (Study 3), but not in the United Kingdom (Study 2). Moreover, independent self-construal differently moderated the relationships between PBJW/GBJW and life satisfaction. Although all three empirical studies in this chapter were conducted in a single territory per study, they provided encouraging findings showing that PBJW is also important to well-being among Thai samples. Thus, I proceeded to conduct a much more systematic and large-scale study. This is reported in the next chapter.

## **Chapter 3: When life is fair for “me” and not “others”, my well-being prospers:**

### **Evidence from 26 sites in Southeast Asia**

#### **3.1 Study 4**

The previous studies (Study 1-3) were conducted in a single territory per study. Thus, the findings were not sufficient to generalise to other societies. Moreover, much prior research in social and cultural psychology has been based on the common views of cultural dichotomies (e.g., individualism vs. collectivism). In other words, previous research heavily relied on North America and East Asia (e.g., Markus & Kitayama, 1991; Nisbett et al., 2001). To increase sample size and sample diversity and to move beyond these common views, the researchers are recommended to explore other cultures and study diverse cultural groups not only across nations but also within nations (Vignoles, 2018). Thus, I sampled the participants from Southeast Asia which is possibly one of the interesting regions and should stimulate scholars' curiosity because of its diversity in domains such as religion, culture and ethnicity, and yet is underrepresented in the literature.

In the present study, I examine whether and how just world beliefs and their psychological implications are shaped by culture and context. The present study builds upon previous research and advances upon it in several important ways:

First, whereas previous studies on BJW have been confined to between one and three sites, I sampled participants from 26 cities in Southeast Asia. Across these cities, over 7,000 participants completed measures of both PBJW and GBJW to assess their independent relationships with well-being. This makes the present study easily the largest, highest-powered study of just world beliefs to have been conducted.

Second, I included state-of-the-art measures of relevant cultural differences in self-construal (Vignoles et al., 2016), and analytic-holistic cognition (Nisbett & Miyamoto, 2005).

Thus, it builds on Study 3 to be only the second study (to my knowledge) to measure cultural variables theorised to affect the psychological functions of just world beliefs, and to be the first study to assess their affects across multiple sites.

Third, it also included an indicator of adverse life circumstances. Measuring adverse life circumstances is useful for several reasons. One is that according to some theory and research, the negative effects of adverse life circumstances on mental health is supposed to be buffered by just world beliefs. Just world beliefs, and PBJW in particular, are meant to give people a sense that they can understand and find meaning in negative life events. Another is some studies seem to suggest that adverse life circumstances may alter the functions of BJW for well-being. For example, McParland and Knussen (2010) found that among chronic pain sufferers in Scotland, GBJW rather than PBJW weakened the association between pain intensity and psychological distress (though PBJW was positively associated with well-being). Wu et al. (2011) found that GBJW positively predicted life satisfaction and psychological resilience among post-earthquake survivors and people from poor region in China.

Fourth, the present study is the first BJW study to use multilevel analyses to distinguish individual (Level 1) and contextual (Level 2) variation in just world beliefs. This multilevel analytic strategy confers specific advantages. First, it removes confounds between individual- and contextual-level effects that may arise when data are collected from multiple sites, including the ecological fallacy, that may lead to erroneous conclusions (Cheung & Au, 2005). For example, I could imagine that people are psychologically healthier in cities in which GBJW is higher. Analyzing this effect only at a between-city level (Level 2) without accounting for individual effects (Level 1), might lead to the false conclusion that GBJW promotes well-being – whereas within each city the relationship may be null or even negative. Conversely, I might find that individuals who construe themselves in broadly collectivist terms score more highly on GBJW, but when I compare across cities, I might find no difference between collectivist

and individualistic locations. This would suggest that personality factors that may be confounded with self-construal among individuals, rather than cultural forces per se, shape GBJW. Second (and related), it permits a sharper theoretical understanding of the role of genuinely contextual factors, versus individual factors, in the strength and meaning of just world beliefs. Some individual factors may strengthen or weaken just world beliefs, and some of these relationships are fairly well-understood (Furnham, 2003; Hafer & Sutton, 2016). On the other hand, cultural and other contextual factors that bear on just world beliefs, are less well-understood.

Taking advantage of multilevel analyses of a large sample collected in multiple cities, I examine the role of individual and contextual factors that might shape the strength and psychological functions of just world beliefs. Our study paid particular attention to personal and general BJW, and their relationship with well-being. I used cities rather than countries as the contextual unit of analysis because in the Southeast Asian context this afforded more statistical power (there are only 7 Southeast Asian countries, but I was able to sample from 26 cities). Further, research has shown that cultural factors, including tightness and looseness (Harrington & Gelfand, 2014), self-construal (Vignoles et al., 2016), holistic cognition (Nisbett & Miyamoto, 2005), and honour (Uskul et al., 2019) can vary significantly between even geographically proximal locations within the same countries.

Within these parameters, I tested the cultural generality vs. specificity hypotheses about the strength and function of just world beliefs. Regarding the strength of BJW, the *cultural specificity* hypothesis is that PBJW is endorsed less strongly, and GBJW is endorsed more strongly, in more collectivist contexts. The *cultural generality* hypothesis I tested is that regardless of cultural variation between cities, PBJW would be endorsed more strongly than GBJW. Further, our data and analysis allowed us to conduct a unique test of a particular culturally general hypothesis: namely, the *reality hypothesis* according to which just world

beliefs reported on such scales are informed by rational reflections on available information (Hafer & Sutton, 2016; Sutton et al., 2008). If just world beliefs are shaped by the experience of adversity, it follows that negative life events at the individual level will be negatively associated with PBJW but not GBJW because when compared with other people in the societies, people may perceive and interpret that their own lives is more adverse and the world is specifically unfair to them but not others. It also follows that a high frequency of life events within a city will be negatively associated with both PBJW and GBJW because when adverse life events happen to everyone in the same city, they may enable people to think that without any exception, the world is generally unfair to everyone including to oneself and other people.

Regarding the functions of BJW, the *cultural generality* hypothesis is that PBJW but not GBJW would be related to well-being across Southeast Asian cities. In contrast, the *cultural specificity* hypothesis is that individuals' well-being would be more strongly related to GBJW, and less strongly related to PBJW, in cities characterised by salient cultural differences from WEIRD locales. These differences include more interdependent modes of self-construal (Vignoles et al., 2016), holistic modes of thought (Nisbett & Miyamoto, 2005), and more adverse life circumstances (Gudjonsson et al., 2009). Critical to these hypotheses are cross-level interaction effects in which Level 2 – contextual level – variations in cultural variables moderate the relationship between individuals' BJW and well-being. Since individuals differ in the extent to which they internalise and reproduce culture, I also tested the hypothesis that level 1 variations in cultural values and life circumstances have analogous moderating role.

Based on the theory and previous research, I tested the following hypotheses:

- (1) Well-being will be varied across cities.
- (2) The associations between self and other-related BJW will be varied across cities.

(3) The cultural or contextual variables will moderate the relationship between self and other-related BJW at both Level 1 and Level 2

*Strength of BJW*

(4) The cultural specificity hypotheses

(a) Independent self-construal dimensions will positively predict self-related BJW relative to other-related BJW at both Level 1 and Level 2

(b) Holistic cognition will positively predict other-related BJW relative to self-related BJW at both Level 1 and Level 2

(5) The reality hypotheses

(a) Negative life events will negatively predict BJW

(6) Exploratory prediction

(a) Belief in Karma will predict BJW.

*Functions of BJW*

(7) The cultural generality hypotheses

(a) Self-related BJW, rather than other-related BJW, will positively predict well-being (also when controlling for Belief in Karma).

(8) The cultural specificity hypotheses

(a) Other-related BJW, rather than self-related BJW, will positively predict well-being.

(b) Independent self-construal dimensions will positively moderate the relationships between self-related BJW and well-being while negatively moderate the relationship between other-related BJW and well-being at both Level 1 and Level 2.

(c) Holistic cognition will positively moderate the relationships between other-related BJW and well-being at both Level 1 and Level 2.

(9) The interactions between negative life events and BJW

(a) Negative life events will moderate the relationship between BJW and well-being at both Level 1 and Level 2.

(10) Exploratory prediction

(a) Belief in Karma will moderate the relationship between BJW and well-being at both Level 1 and Level 2.

### **3.1.1 Method**

#### ***3.1.1.1 Participants***

The sample consisted of 8,898 students in a variety of universities in 26 sites across 7 Southeast Asian countries (Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam). Following local circumstances, they were invited to participate either in class or online through participant pool system. However, this study includes only the responses from the participants who have lived in these countries since birth. This has decreased the sample size to 7,304 (5,444 women or 74.5%), aged over 18 ( $M = 20.24$ ,  $SD = 2.67$ ) (see Table 11).

#### ***3.1.1.2 Procedure***

All study measures were translated from English to the target languages (see Table 11). They were then independently back-translated, as recommended by Brislin (1970). The two English versions were compared for any inaccuracies, which were resolved through discussion with translators.

The sampling was administered either online or using pen and paper<sup>1</sup>. Participants completed questionnaires which also contained the measures unrelated to the present study.

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<sup>1</sup> The sampling was administered using pen and paper in 2 out of 26 sites. I tested the main hypothesis whether PBJW or GBJW would be related to well-being. Overall, the results showed that when compared with GBJW, PBJW was a stronger predictor of well-being across

These measures were not intended for use in this thesis but were included for collaborative projects (e.g., honor ideology for manhood). Thus, they were excluded before data analyses. However, I also needed to exclude Ryff (1989)'s psychological well-being after data analyses because the multi-group CFA did not support metric invariance (for data analyses, see Appendix A).

Following local conventions of data collection, some participants were given course credit for participation. The questionnaire was broken into four parts, each of which took about 15-18 minutes to complete. After each part, there was a break before proceeding to the next part. Depending on local circumstances, this break varied from 10 minutes to a week. The participants were debriefed after completing the last part.

### 3.1.1.3 Measures

Most of the measures employed in Study 3 were also used in Study 4, including *Satisfaction With Life Scale (SWLS)* (Diener et al., 1985) ( $\alpha = .81$ ), *Rasch-derived short form of the Center for Epidemiological Studies Depression scale (CES-D)* (Cole et al., 2004) ( $\alpha = .80$ )<sup>2</sup>, *Belief in a Just World Scale (BJW)* (Dalbert, 1999): ( $\alpha = .80$  for PBJW and  $\alpha = .75$  for GBJW), *Belief in Karma Scale* (Kopalle et al., 2010) ( $\alpha = .79$ ), and *Self-construal Scale* ( $\alpha = .69$  for difference vs. similarity,  $\alpha = .67$  for self-containment vs. connectedness to others,  $\alpha = .65$  for self-direction vs. receptiveness to influence,  $\alpha = .77$  for self-reliance vs. dependence on others,  $\alpha = .73$  for consistency vs. variability,  $\alpha = .62$  for self-expression vs. harmony,  $\alpha = .61$

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both administration modes (online vs. pen and paper). Moreover, I also tested whether there were any differences in scores between both administration modes. I found 8 out of 18 variables (i.e., PBJW, GBJW, self-reliance, self-expression, holistic cognition, belief in Karma, negative life events, and negative mental health) were different across both methods of completion. Since no sites used both pen-and-paper and online methods, these differences are impossible to interpret: they may have arisen from differences in sites or method.

<sup>2</sup> The item "I felt that everything that I did was an effort" was excluded from the analyses because effort has distinctive positive value in East Asia (Hau & Ho, 2010).

for self-interest vs. commitment to others, and  $\alpha = .70$  for de-contextualized vs. contextualized self).

Additional scales included other indices of well-being (i.e., *perceived health status* and *negative mental health*) and other cultural or contextual variables (i.e., *negative life events* and *analytic-holistic cognition*).

*Perceived health status.* I used one item from the *Health-Related Quality of Life Scale* (EQ-5D-5L) (Herdman et al., 2011) asking to rate one's health "We would like to know good or bad your health is today. The scale is numbered from 0 to 100. Mark an X on the scale to indicate how your health is today. Please write the number you marked on the scale in the box below".

*Negative mental health.* *The Mental Health Inventory 5* (MHI5) (Berwick et al., 1991) includes 5 items in which participants rate the frequency of positive and negative mental states (e.g., "How much of the time, during the past month, have you felt downhearted and blue?", 0 = *none of the time*, 5 = *all of the time*,  $\alpha = .74$ , items coded such that high scores indicate negative mental health).

*Negative life events.* A twelve-item *Negative Life Events Scale* (Gudjonsson et al., 2009) (e.g., "You have experienced a serious accident") asked the following events happening in one's life (yes/no). One original item was excluded (i.e., you have been expelled from school) because all participants were at school at the time of data collection. Moreover, I added a new item to capture difficulties in financial domain (i.e., "You have had serious financial problems"),  $\alpha = .66$ .

*Analytic-holistic cognition.* cognitive processing style was measured by using the *Triad Categorization Tasks* (Ji et al., 2004) presenting participants 18 triads of three objects (e.g., pictures of gloves, scarf, and hand) and asking them to indicate which two of the three objects went together. In all cases, two of the three objects shared either a functional/contextual relationship (e.g., glove and hand), and two of the three objects shared a category (e.g., glove and scarf). For each participant, I subtracted the number of categorical groupings from the number of functional/contextual groupings to yield a measure of holistic cognition.

*Demographic details.* include age, gender, country, places (where the participants grew up and are currently living), nationality, ethnic group, subjective socioeconomic status, subjective financial wealth, and religion.

The cultural and contextual variables (i.e., self-construal, belief in Karma, holistic cognition and negative life events) at Level 2 (city-level) were calculated from the city-level mean scores of participants' individual-level responses. This calculation strategy is fairly common to specific variables which cannot be obtained from the secondary data such as group-level collectivism and group potency (Chu & Chu, 2010), peer group-level gender identity (Drury et al., 2013), and provincial annual household income and index of education (Takemura et al., 2016).

#### **3.1.1.4 Data analyses**

Measure invariance was conducted to validate most scales by comparing factor loadings and mean levels across groups. Then, I performed multilevel analyses. Before testing the main hypotheses (i.e., the strength and functions of BJW), I needed to ensure whether the results would not be significant by chance alone. I started to test the variation in all variables,

especially dependent variables (i.e., indices of well-being) across cities. Next, variation in BJW and the associations at Level 2 were examined. After that, I tested the moderation effects of the cultural or contextual variables (i.e., self-construal, holistic cognition, belief in Karma, and negative life events) on the association between self and other-related BJW at both Level 1 and Level 2. Next, I examined the strength of BJW by treating the cultural or contextual variables as predictors of self and other-related BJW and BJW gaps across cities at both Level 1 and Level 2. After that, I tested the functions of BJW by predicting well-being by both spheres of BJW simultaneously. Next, city-level variation in the relationships between BJW and well-being. Finally, I tested the moderation effects of the cultural or contextual variables on the associations between BJW and well-being at both Level 1 and Level 2.

Table 11 Sample demographic details (Study 4)

|           | Site of data collection      | N   | Mean Age | SD   | %females | Language for<br>Administration | Religious<br>Majority | Ethnic<br>Majority |
|-----------|------------------------------|-----|----------|------|----------|--------------------------------|-----------------------|--------------------|
| Brunei    | Gadong                       | 154 | 22.31    | 2.29 | 74.7     | English                        | Muslim                | Malay              |
| Indonesia | Banjarbaru, South Kalimantan | 391 | 19.13    | 1.78 | 75.2     | Indonesian                     | Muslim                | Banjar             |
|           | Denpasar, Bali               | 277 | 19.48    | 1.54 | 61.7     | Indonesian                     | Hindu                 | Bali               |
|           | Jakarta                      | 187 | 19.58    | 1.91 | 72.7     | Indonesian                     | Christian             | Chinese            |
|           | Jatinangor, West Java        | 218 | 19.04    | .96  | 83.0     | Indonesian                     | Muslim                | Sunda              |
|           | Makassar, South Sulawesi     | 312 | 19.51    | 1.62 | 77.6     | Indonesian                     | Muslim                | Bugis              |
|           | Samarinda, East Kalimantan   | 738 | 19.40    | 1.64 | 70.3     | Indonesian                     | Muslim                | Jawa               |
|           | Surabaya, East Java          | 231 | 19.84    | 1.11 | 80.5     | Indonesian                     | Muslim                | Jawa               |
|           | Yogyakarta                   | 261 | 19.14    | 1.34 | 77.0     | Indonesian                     | Muslim                | Jawa               |
| Malaysia  | Bangi, Selangor              | 245 | 23.16    | 3.98 | 62.0     | English                        | Muslim                | Malay              |
|           | Johor Baru, Johor            | 173 | 28.23    | 1.62 | 61.3     | English                        | Muslim                | Malay              |
|           | Kota Kinabalu, Sabah         | 239 | 22.08    | 1.27 | 74.5     | English                        | Muslim                | Malay              |
|           | Kota Samaharan, Sarawak      | 385 | 21.24    | 1.28 | 80.3     | English                        | Muslim                | Malay              |

| Site of data collection |                               | N     | Mean Age | SD   | %females | Language for<br>Administration | Religious<br>Majority | Ethnic<br>Majority |
|-------------------------|-------------------------------|-------|----------|------|----------|--------------------------------|-----------------------|--------------------|
| Malaysia                | Kuala Lumpur                  | 57    | 22.56    | 2.43 | 78.9     | English                        | Muslim                | Malay              |
|                         | Shah Alam, Selangor           | 371   | 20.26    | 1.12 | 74.5     | English                        | Buddhist              | Chinese            |
|                         | Penang                        | 239   | 22.58    | 3.73 | 82.8     | English                        | Muslim                | Chinese            |
| Philippines             | Manila                        | 381   | 18.84    | 1.98 | 73.2     | English                        | Christian             | Filipino           |
|                         | Outside Manila (e.g., Cavite) | 174   | 20.44    | 4.13 | 67.2     | English                        | Christian             | Filipino           |
| Singapore               | Singapore                     | 139   | 21.60    | 1.70 | 60.4     | English                        | Irreligion            | Chinese            |
| Thailand                | Chiang Mai                    | 514   | 19.06    | .95  | 70.6     | Thai                           | Buddhist              | Thai               |
|                         | Khon Kaen                     | 296   | 20.02    | 3.11 | 71.3     | Thai                           | Buddhist              | Thai               |
|                         | Pattani                       | 174   | 20.00    | 1.08 | 89.7     | Thai                           | Muslim                | Thai               |
|                         | Pathumthani                   | 347   | 19.23    | 1.03 | 84.1     | Thai                           | Buddhist              | Thai               |
|                         | Phuket                        | 244   | 19.38    | 1.04 | 86.1     | Thai                           | Buddhist              | Thai               |
| Vietnam                 | Hanoi                         | 184   | 19.48    | 1.02 | 82.6     | Vietnamese                     | Irreligion            | Kinh               |
|                         | Ho Chi Minh                   | 373   | 20.28    | 2.12 | 72.4     | Vietnamese                     | Irreligion            | Kinh               |
| Total                   |                               | 7,304 | 20.24    | 2.67 | 74.5     |                                |                       |                    |

### 3.1.2 Results

Table 12 Descriptive statistics

| Variables               | Scale Range | Scale Points | <i>M (SD)</i> |
|-------------------------|-------------|--------------|---------------|
| PBJW                    | 1-6         | 6            | 3.67 (.90)    |
| GBJW                    | 1-6         | 6            | 3.68 (.87)    |
| Self-direction          | 1-5         | 9            | 3.07 (.56)    |
| Self-reliance           | 1-5         | 9            | 3.33 (.65)    |
| Self-containment        | 1-5         | 9            | 2.36 (.63)    |
| Self-interest           | 1-5         | 9            | 2.73 (.53)    |
| Self-expression         | 1-5         | 9            | 2.81 (.57)    |
| Difference              | 1-5         | 9            | 3.43 (.59)    |
| De-contextualized       | 1-5         | 9            | 3.19 (.61)    |
| Consistency             | 1-5         | 9            | 2.94 (.66)    |
| Holistic Cognition      | n/a         | n/a          | .36 (3.18)    |
| Belief in Karma         | 1-7         | 7            | 4.75 (.99)    |
| Negative Life Events    | 0-1         | 2            | .30 (.21)     |
| Life Satisfaction       | 1-7         | 7            | 4.44 (1.09)   |
| Perceived Health Status | 0-100       | 101          | 79.41 (15.31) |
| Depression              | 0-3         | 4            | 1.04 (.55)    |
| Negative Mental Health  | 0-5         | 6            | 2.01 (3.86)   |
| Independence            | 1-5         | 9            | 2.98 (.26)    |

#### 3.1.2.1 Validation analyses:

When conducting cross-cultural research, the measures with good psychometric properties are often translated and used for data collection in other cultural contexts. Although

ensuring content validity through cross-cultural translation approach by Brislin (1970), this does not guarantee that the materials reliably measure the same construct in all cultural groups without any distortions. Thus, measure invariance tests are usually performed as validation analyses in cross-cultural research. Measurement invariance was tested for most scales in the framework of multi-group confirmatory factor analysis (CFA). Metric equivalence (i.e., equivalence of item loadings) allows the comparison of factor loadings across groups, whereas scalar invariance (i.e., invariance of item loadings and intercepts) allows the comparison of mean levels across groups. For each scale, model fit was assessed using the comparative fit index (CFI) and root mean square error of approximation (RMSEA) (Rutkowski & Svetina, 2014). The multi-group CFA supported metric invariance of BJW, life satisfaction and depression, negative life events, and scalar invariance of BJW, depression and negative life events. For the self-construal scale, a multi-group CFA supported metric invariance of all eight dimensions and scalar invariance of the six out of eight dimensions (see Table 13).

Table 13 Measurement invariance tests (Study 4)

| Variables            | Configural |       | Metric       |                | Scalar       |                |
|----------------------|------------|-------|--------------|----------------|--------------|----------------|
|                      | CFI        | RMSEA | $\Delta$ CFI | $\Delta$ RMSEA | $\Delta$ CFI | $\Delta$ RMSEA |
| BJW                  | .86        | .08   | .01*         | -.00*          | .10          | .02*           |
| Life Satisfaction    | .98        | .09   | .00*         | -.01*          | .09          | .06            |
| Depression           | .92        | .08   | .01*         | -.00*          | .04          | .01*           |
| Negative Life Events | .73        | .08   | .03          | -.00*          | .15          | .01*           |
| Self-construal       |            |       |              |                |              |                |
| - Self-direction     | .89        | .09   | .02*         | -.01*          | .09          | .01*           |
| - Self-reliance      | .98        | .05   | .01*         | .00*           | .06          | .03            |
| - Self-containment   | .93        | .07   | .05          | .01*           | .16          | .03            |

|                    |     |     |      |       |     |      |
|--------------------|-----|-----|------|-------|-----|------|
| - Self-interest    | .82 | .10 | .03  | -.01* | .12 | .01* |
| - Self-expression  | .87 | .10 | .04  | -.00* | .15 | .02* |
| - Difference       | .97 | .05 | .04  | .02*  | .13 | .03  |
| - Decontextualized | .92 | .09 | .01* | -.01* | .03 | .00* |
| - Consistency      | .91 | .11 | .02  | -.01* | .08 | .01* |
| Belief in Karma    | .84 | .11 | .09  | .01*  | .09 | .01* |

\**acceptable fit*

I tested whether the dependent variables (i.e., indices of well-being) showed significant variation at the city level. The results show that there were city-level variations in all indices of well-being. Thus, establishing that cities are meaningful unit of analysis and multilevel modelling are appropriate considering city as the cluster. I also tested whether the predictor variables (i.e., self-construal, holistic cognition, belief in Karma and negative life events) showed significant variation at the city level. The results show that there was city-level variation in all variables except one of the eight scales of self-construal, namely self-reliance. Thus, it is worth testing the hypothetical city-level variables (see Table 14).

Table 14 Variation in all individual-level variables across cities (Study 4)

| Variable         | <i>N</i> | variance | <i>SE</i> | <i>t</i>          |
|------------------|----------|----------|-----------|-------------------|
| PBJW             | 7,157    | .30      | .06       | 5.09***           |
| GBJW             | 7,157    | .24      | .04       | 5.36***           |
| Self-direction   | 5,574    | .02      | .01       | 3.98***           |
| Self-reliance    | 5,574    | .03      | .01       | 1.73 <sup>†</sup> |
| Self-containment | 5,574    | .04      | .02       | 2.35*             |
| Self-interest    | 5,574    | .02      | .01       | 1.97*             |
| Self-expression  | 5,574    | .02      | .01       | 2.14*             |

|                         |       |      |      |         |
|-------------------------|-------|------|------|---------|
| Difference              | 5,574 | .02  | .01  | 2.67**  |
| De-contextualized       | 5,574 | .02  | .01  | 2.77**  |
| Consistency             | 5,574 | .02  | .01  | 3.39**  |
| Holistic Cognition      | 7,157 | .32  | .09  | 3.36**  |
| Belief in Karma         | 7,156 | .09  | .03  | 3.35**  |
| Negative Life Events    | 5,370 | .01  | .00  | 3.07**  |
| Life Satisfaction       | 7,155 | .04  | .01  | 4.71*** |
| Perceived Health Status | 5,132 | 5.63 | 2.62 | 2.15*   |
| Depression              | 7,304 | .01  | .00  | 3.04**  |
| Negative Mental Health  | 5,316 | .04  | .01  | 3.92*** |
| Independence            | 5,475 | .00  | .00  | 3.50*** |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Another challenge for the present research is presented by the possibility that the relationship between PBJW and GBJW may itself vary across cultures. In particular, it would not be surprising if PBJW and GBJW were more strongly related among interdependent participants and in cities characterised by higher levels of interdependence. After all, the essence of interdependent self-construal is that perceptions of self and others are less distinct and more overlapping (Markus & Kitayama, 1991). If these patterns of moderation are found, interpretations of some other moderation effects would be challenging, since higher levels of GBJW might only signify that GBJW is less distinct from PBJW.

I therefore tested whether the association between PBJW and GBJW was different across cities. This test was significant, showing that the association differed more between cities than might be expected from chance alone (see Table 15). I then explored whether this pattern was consistent with the simple hypothesis that PBJW and GBJW overlap more in cities characterised by high levels of interdependence (Level 2), and also examined whether this a

similar pattern of moderation occurs at the level of individual participants (Level 1). At Level 1, self-containment, self-interest and self-expression positively moderated the relationship between PBJW and GBJW (see Table 16). City-level self-direction, self-containment and holistic cognition positively moderated the relationship between individual-level PBJW and GBJW whereas difference was a negative moderator (see Table 17). Thus, when self-construal is unpacked into constituent dimensions, the results did not conform to a clear and consistent pattern of the cultural specificity hypotheses. As in Study 3 in Chapter 2, I also collapsed the scores of all self-construal dimensions into one variable called independence on which higher score indicates higher tendency of independence. I found that independence *positively* moderated the association between PBJW and GBJW at both Level 1 and Level 2. Thus, contextual variations in the relationship between PBJW and GBJW do not conform to a simple cultural hypothesis (i.e., the relationship between PBJW and GBJW was not consistently stronger in collectivist contexts indicated by the positive moderation effects of interdependent cultural variables). This means the results of the moderation effects of cultural variables on the associations between BJW and well-being do not support the cultural specificity hypotheses.

Table 15 City-level variation in PBJW, GBJW and the associations (Study 4)

| Variables           | <i>N</i> | <i>γ</i> | <i>SE</i> | <i>t</i> |
|---------------------|----------|----------|-----------|----------|
| PBJW                | 7,157    | .31      | .06       | 5.09***  |
| GBJW                |          | .03      | .04       | 5.37***  |
| PBJW → GBJW (x → y) |          | .02      | .00       | 3.52***  |
| GBJW → PBJW (x → y) |          | .01      | .01       | 1.59     |

†*p* < .10, \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Table 16 Individual-level moderators of PBJW predicting GBJW (Study 4)

| Individual-level<br>moderator | Independent<br>variable | <i>N</i> | $\gamma$ | GBJW      |          |
|-------------------------------|-------------------------|----------|----------|-----------|----------|
|                               |                         |          |          | <i>SE</i> | <i>t</i> |
| -                             | PBJW                    | 7,157    | .49      | .04       | 12.87*** |
| Self-direction                | PBJW                    | 5,463    | -.01     | .03       | -.32     |
| Self-reliance                 | PBJW                    | 5,463    | .01      | .02       | .46      |
| Self-containment              | PBJW                    | 5,463    | .08      | .02       | 3.42**   |
| Self-interest                 | PBJW                    | 5,463    | .08      | .03       | 3.06**   |
| Self-expression               | PBJW                    | 5,463    | .06      | .02       | 2.74**   |
| Difference                    | PBJW                    | 5,463    | -.02     | .02       | -.69     |
| De-contextualized             | PBJW                    | 5,463    | .01      | .02       | .20      |
| Consistency                   | PBJW                    | 5,463    | .01      | .03       | .58      |
| Holistic Cognition            | PBJW                    | 7,157    | .00      | .00       | .08      |
| Belief in Karma               | PBJW                    | 7,156    | -.02     | .01       | -1.34    |
| Negative Life Events          | PBJW                    | 5,370    | .03      | .05       | .53      |
| Independence                  | PBJW                    | 5,475    | .14      | .06       | 2.51*    |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 17 City-level moderators of PBJW predicting GBJW (Study 4)

| City-level moderator | Independent |          |          | GBJW      |                    |
|----------------------|-------------|----------|----------|-----------|--------------------|
|                      | variable    | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>           |
| Self-direction       | PBJW        | 7,157    | .48      | .15       | 3.21**             |
| Self-reliance        | PBJW        | 7,157    | -.10     | .13       | -.77               |
| Self-containment     | PBJW        | 7,157    | .37      | .17       | 2.19*              |
| Self-interest        | PBJW        | 7,157    | .36      | .24       | 1.50               |
| Self-expression      | PBJW        | 7,157    | .48      | .30       | 1.63               |
| Difference           | PBJW        | 7,157    | -.39     | .18       | -2.18*             |
| De-contextualized    | PBJW        | 7,157    | -.22     | .20       | -1.10              |
| Consistency          | PBJW        | 7,157    | .07      | .20       | .33                |
| Holistic Cognition   | PBJW        | 7,157    | .09      | .05       | 2.05*              |
| Belief in Karma      | PBJW        | 7,157    | .02      | .10       | .15                |
| Negative Life Events | PBJW        | 7,157    | -.90     | .53       | -1.69 <sup>†</sup> |
| Independence         | PBJW        | 7,157    | .97      | .37       | 2.60**             |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

### 3.1.2.2 Strength of BJW

To test the cultural generality and specificity hypotheses about variation in the strength of BJW, I examined variations in the strength of BJW initially as a function only of location (city). The results show that there was a city-level variation in BJW (see Table 15). Thus, I proceeded to test hypotheses about specific sources of this variation across cities.

**3.1.2.2.1 Reality hypotheses:** As predicted by the reality hypothesis in which BJW scores reflect individual and collective life experiences (see Table 18), Level 1 (individual)

variation in negative life events was negatively associated with PBJW but not GBJW, while Level 2 (contextual) variation in negative life events was negatively associated with both personal and general BJW.

Table 18 Level 1 and Level 2 negative life events as predictor of BJW across cities

| Independent variable |  | Level | <i>N</i> | $\gamma$ | PBJW      |                    |
|----------------------|--|-------|----------|----------|-----------|--------------------|
|                      |  |       |          |          | <i>SE</i> | <i>t</i>           |
| Negative Life        |  | 1     | 5,370    | -.35     | .10       | -3.64***           |
| Events               |  | 2     |          | -5.76    | 1.14      | -5.06***           |
| Independent variable |  | Level | <i>N</i> | $\gamma$ | GBJW      |                    |
|                      |  |       |          |          | <i>SE</i> | <i>t</i>           |
| Negative Life        |  | 1     | 5,370    | -.16     | .09       | -1.81 <sup>†</sup> |
| Events               |  | 2     |          | -4.98    | 1.19      | -4.19***           |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**3.1.2.2.2 Cultural specificity hypotheses:** *Self-construal* bipolar dimensions pertaining to classical individualism or independent view of self should be related to increased PBJW relative to GBJW. If this happens at Level 1 (individual), it may reflect internalised cultural norms as schemas to evaluate the fairness of experience. If it happens at Level 2 (city), it may reflect cultural-level representations of justice, a shared understanding that life is fair to the self or others, supported by a shared cultural basis of self-construal.

The results partially confirmed the hypotheses at Level 2. Out of 8 self-construal dimensions, 4 of them are associated with gaps between PBJW and GBJW, and all 4 associations are in the predicted direction. In contrast, there was little or no evidence that people with independent self-construal endorse PBJW relatively more than GBJW. Only 1 out of the

8 cultural dimensions (consistency) was associated with the PBJW-GBJW gap at Level 1 (see Table 19). Thus, when self-construal is unpacked, the results offered some support for the cultural specificity hypothesis at contextual (city) but not individual levels of analysis. Then, as in Study 3 in Chapter 2, I collapsed the scores of all self-construal dimensions into one variable called independence which higher score indicates higher tendency of independence. I found that independence was positively associated with the difference between PBJW and GBJW at both Level 1 and Level 2. I found that independence negatively predicted GBJW and positively predicted PBJW and GBJW difference but only at Level 1 (see Table 19). In sum, I do find evidence that self-construal affects levels of BJW in a manner that is consistent with the cultural specificity hypothesis. Among independent people and contexts, PBJW is endorsed more strongly than GBJW.

Next, I examined how *holistic cognition* predicts BJW. At Level 2 (city), city-level holistic cognition predicted increased individual-level PBJW and GBJW but more strongly predicted PBJW. However, city-level holistic cognition did not predict the BJW difference. At Level 1 (individual), holistic cognition did not predict BJW. Holistic cognition appears to be associated with increased just world beliefs, though its role in widening or narrowing the gap in the strength of PBJW and GBJW is less clear (see Table 19). Finally, I examined how *belief in Karma* predict BJW. At Level 1 (individual), belief in Karma positively predicted both PBJW and GBJW, but more strongly predicted GBJW. Therefore, belief in Karma negatively predicted the BJW difference. However, Belief in Karma did not predict BJW at Level 2 (city) (see Table 19). All in all, my analyses show that as predicted, independent self-construal is associated with the tendency to endorse PBJW more than GBJW. Other cultural moderators had a less clear or consistent effect. If self-construal can affect the strength of just world beliefs, it may also affect their psychological function. I turn to this hypothesis next.

Table 19 Level 1 and 2 Self-construal, belief in Karma and holistic cognition as predictors of PBJW, GBJW and BJW difference (Study 4)

| Independent variable | Level | <i>N</i> | $\gamma$ | PBJW      |          |
|----------------------|-------|----------|----------|-----------|----------|
|                      |       |          |          | <i>SE</i> | <i>t</i> |
| Self-direction       | 1     | 5,463    | .01      | .02       | .50      |
|                      | 2     |          | 2.90     | .61       | 4.74***  |
| Self-reliance        | 1     | 5,463    | .04      | .02       | 1.59     |
|                      | 2     |          | -.79     | .41       | -1.91†   |
| Self-containment     | 1     | 5,463    | -.07     | .02       | -3.97*** |
|                      | 2     |          | 1.58     | .57       | .276**   |
| Self-interest        | 1     | 5,463    | -.06     | .02       | -3.54*** |
|                      | 2     |          | 1.97     | .90       | 2.20*    |
| Self-expression      | 1     | 5,463    | .00      | .03       | .14      |
|                      | 2     |          | 2.08     | .96       | 2.17*    |
| Difference           | 1     | 5,463    | -.01     | .02       | -.49     |
|                      | 2     |          | -1.77    | .58       | -3.05**  |
| De-contextualized    | 1     | 5,463    | .02      | .01       | 1.35     |
|                      | 2     |          | -.66     | .49       | -1.37    |
| Consistency          | 1     | 5,463    | .14      | .02       | 6.34***  |
|                      | 2     |          | -.68     | .64       | -1.07    |
| Holistic Cognition   | 1     | 7,157    | .00      | .00       | 1.54     |
|                      | 2     |          | .57      | .12       | 4.63***  |
| Belief in Karma      | 1     | 7,156    | .08      | .02       | 4.05***  |
|                      | 2     |          | .35      | .38       | .93      |
| Independence         | 1     | 5,475    | .05      | .05       | .95      |

|                      |       | 2        | 3.07     | 1.80      | 1.71 <sup>†</sup>  |
|----------------------|-------|----------|----------|-----------|--------------------|
| Independent variable | Level | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>           |
| Self-direction       | 1     | 5,463    | -.02     | .02       | -1.10              |
|                      | 2     |          | 2.02     | .61       | 3.34**             |
| Self-reliance        | 1     | 5,463    | .01      | .02       | .54                |
|                      | 2     |          | -.52     | .48       | -1.08              |
| Self-containment     | 1     | 5,463    | -.09     | .02       | -5.49****          |
|                      | 2     |          | 1.26     | .58       | 2.17*              |
| Self-interest        | 1     | 5,463    | -.08     | .02       | -4.31****          |
|                      | 2     |          | 1.56     | .94       | 1.66 <sup>†</sup>  |
| Self-expression      | 1     | 5,463    | -.02     | .02       | -1.19              |
|                      | 2     |          | 1.33     | .91       | 1.46               |
| Difference           | 1     | 5,463    | -.01     | .02       | -.19               |
|                      | 2     |          | -1.28    | .53       | -2.42*             |
| De-contextualized    | 1     | 5,463    | .03      | .02       | 1.85 <sup>†</sup>  |
|                      | 2     |          | -.96     | .52       | -1.86 <sup>†</sup> |
| Consistency          | 1     | 5,463    | .08      | .02       | 3.48**             |
|                      | 2     |          | -.34     | .54       | -.62               |
| Holistic Cognition   | 1     | 7,157    | .00      | .00       | .14                |
|                      | 2     |          | .49      | .14       | 3.42**             |
| Belief in Karma      | 1     | 7,156    | .13      | .02       | 6.34****           |
|                      | 2     |          | .22      | .36       | .61                |
| Independence         | 1     | 5,475    | -.07     | .03       | -2.33*             |
|                      | 2     |          | 2.08     | 1.69      | 0.22               |

| Independent variable | Level | <i>N</i> | PBJW and GBJW Difference |           |                   |
|----------------------|-------|----------|--------------------------|-----------|-------------------|
|                      |       |          | $\gamma$                 | <i>SE</i> | <i>t</i>          |
| Self-direction       | 1     | 5,463    | .03                      | .02       | 1.82 <sup>†</sup> |
|                      | 2     |          | .09                      | .21       | 4.23***           |
| Self-reliance        | 1     | 5,463    | .02                      | .02       | 1.47              |
|                      | 2     |          | -.29                     | .21       | -1.36             |
| Self-containment     | 1     | 5,463    | .03                      | .02       | 1.62              |
|                      | 2     |          | .34                      | .17       | 2.04*             |
| Self-interest        | 1     | 5,463    | .02                      | .02       | .90               |
|                      | 2     |          | .43                      | .17       | 2.57*             |
| Self-expression      | 1     | 5,463    | .02                      | .03       | .75               |
|                      | 2     |          | .74                      | .16       | 4.72***           |
| Difference           | 1     | 5,463    | -.01                     | .02       | -.30              |
|                      | 2     |          | -.54                     | .36       | -1.51             |
| De-contextualized    | 1     | 5,463    | -.01                     | .01       | -.92              |
|                      | 2     |          | .27                      | .36       | .73               |
| Consistency          | 1     | 5,463    | .06                      | .02       | 3.80***           |
|                      | 2     |          | -.35                     | .29       | -1.20             |
| Holistic Cognition   | 1     | 7,157    | .00                      | .00       | .96               |
|                      | 2     |          | .09                      | .08       | 1.08              |
| Belief in Karma      | 1     | 7,156    | -.05                     | .01       | -4.90***          |
|                      | 2     |          | .14                      | .09       | 1.50              |
| Independence         | 1     | 5,475    | .12                      | .05       | 2.58*             |
|                      | 2     |          | .99                      | .79       | 1.26              |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

### ***3.1.2.3 Functions of BJW***

The previous results in this study showed the variation in the relationship between PBJW and GBJW across cities. Further, the findings also indicated the association between PBJW and GBJW was not consistently stronger in collectivist contexts. Then, I tested the cultural generality vs. specificity hypotheses about the moderation effects of cultural variables on the functions of BJW for well-being. This, of course, is the main focus of my doctoral research. The cultural generality hypothesis is that PBJW but not GBJW would be associated with well-being across Southeast Asian cities. On the other hand, the cultural specificity hypothesis is that GBJW would be more strongly related to well-being when compared with PBJW. Further, cultural indices of high interdependence would positively moderate the relationships between BJW and well-being including interdependent pole of self-construal dimensions (Vignoles et al., 2016), holistic thinking (Nisbett & Miyamoto, 2005), and more negative life events (Gudjonsson et al., 2009). I tested the hypotheses at both Level 1 and Level 2 by analysing only one moderator at a time to eliminate confounds between individual and city-level effects, to see the clear findings and to deepen theoretical understanding of the role of individual and city-level cultural moderators on the functions of BJW.

**3.1.2.3.1 Testing cultural generality and specificity hypotheses** To test my key hypotheses, I began by conducting a multilevel analysis of the relationship between the two spheres of BJW (PBJW and GBJW) and the four key indicators of well-being: life satisfaction, depression, perceived health status, and negative mental health. Relationships between these predictor and criterion variables were tested at Level 1 (individual level), adjusting for Level 2 (city-level) variation. Personal and general BJW were entered simultaneously as predictor variables in these analyses.

Table 20 reports the Level 1 relationships between BJW and well-being. It shows that across all samples, and consistent with the cultural generality hypothesis, PBJW predicted all indices of well-being. In contrast, GBJW failed to predict any of these indices except life satisfaction, and did so less strongly than PBJW. When I analysed these relationships in each of the 26 individual cities, PBJW was positively related to at least one index of well-being in all but two cities, whereas GBJW was related to well-being in many fewer cases (see Table 17).

Table 20 Just world beliefs as predictors of well-being across cities

| Variables | Life Satisfaction |             |          | Depression |             |          |
|-----------|-------------------|-------------|----------|------------|-------------|----------|
|           | $\gamma$          | <i>SE B</i> | <i>t</i> | $\gamma$   | <i>SE B</i> | <i>t</i> |
| PBJW      | .45               | .07         | 6.06***  | -.17       | .03         | -6.73*** |
| GBJW      | .13               | .03         | 4.56***  | .01        | .02         | .66      |

| Variables | Perceived Health Status |             |          | Negative Mental Health |             |          |
|-----------|-------------------------|-------------|----------|------------------------|-------------|----------|
|           | $\gamma$                | <i>SE B</i> | <i>t</i> | $\gamma$               | <i>SE B</i> | <i>t</i> |
| PBJW      | 3.52                    | .60         | 5.89***  | -.29                   | .04         | -7.86*** |
| GBJW      | .06                     | .44         | .90      | -.00                   | .03         | -.14     |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 21 Summary of PBJW and GBJW predicting well-being by sample (Study 4)

| Site of data collection |                              | Life satisfaction |       | Perceived Health Status |       | Depression |        | Negative Mental Health |         |
|-------------------------|------------------------------|-------------------|-------|-------------------------|-------|------------|--------|------------------------|---------|
|                         |                              | PBJW              | GBJW  | PBJW                    | GBJW  | PBJW       | GBJW   | PBJW                   | GBJW    |
| Brunei                  | Gadong                       | .32***            | .22** | .18†                    | .10   | -.27**     | .23*   | -.37***                | .06     |
| Indonesia               | Banjarbaru, South Kalimantan | .14*              | -.03  | .19*                    | -.20* | -.15*      | -.10†  | -.20*                  | .02     |
|                         | Denpasar, Bali               | .08               | -.02  | .07                     | -.09  | -.20**     | .03    | -.17*                  | -.01    |
|                         | Jakarta                      | .06               | .05   | .03                     | -.03  | -.16       | -.04   | -.25*                  | .15     |
|                         | Jatinangor, West Java        | .18*              | .06   | .04                     | -.06  | -.14†      | .04    | -.25**                 | .03     |
|                         | Makassar, South Sulawesi     | -.03              | .04   | -.02                    | -.06  | -.03       | .02    | -.06                   | -.02    |
|                         | Samarinda, East Kalimantan   | .11**             | -.07† | .03                     | .08†  | -.11**     | .07†   | -.17**                 | .11*    |
|                         | Surabaya, East Java          | .05               | .09   | .04                     | .14†  | .06        | -.05   | .04                    | -.08    |
|                         | Yogyakarta                   | .19**             | .04   | .21*                    | -.02  | -.11       | -.02   | -.29**                 | -.02    |
| Malaysia                | Bangi, Selangor              | .29***            | .17*  | .23**                   | -.08  | -.27***    | .16*   | -.20*                  | .03     |
|                         | Johor Baru, Johor            | .69***            | .10   | .38*                    | .03   | -.29*      | -.35** | -.28*                  | -.47*** |
|                         | Kota Kinabalu, Sabah         | .44***            | .14*  | .12                     | .09   | -.25**     | .04    | -.22*                  | -.09    |
|                         | Kota Samarahan, Sarawak      | .43***            | .10†  | .20**                   | -.03  | -.31***    | .16**  | -.30***                | .14*    |

| Site of data collection |                               | Life satisfaction |                  | Perceived Health Status |       | Depression |                   | Negative Mental Health |                  |
|-------------------------|-------------------------------|-------------------|------------------|-------------------------|-------|------------|-------------------|------------------------|------------------|
|                         |                               | PBJW              | GBJW             | PBJW                    | GBJW  | PBJW       | GBJW              | PBJW                   | GBJW             |
| Malaysia                | Kuala Lumpur                  | .56***            | .19              | .29                     | -.10  | -.15       | .24               | -.36                   | .16              |
|                         | Shah Alam, Selangor           | .43***            | -.05             | .21**                   | -.12  | -.35***    | .08               | -.31***                | .12 <sup>†</sup> |
|                         | Penang                        | .33***            | .30***           | .12                     | .01   | -.19*      | -.10              | -.19*                  | -.13             |
| Philippines             | Manila                        | .52***            | .04              | .34***                  | -.02  | -.40***    | .04               | -.42***                | .03              |
|                         | Outside Manila (e.g., Cavite) | .40***            | -.08             | .31*                    | -.29* | -.38***    | .20*              | -.50***                | .41**            |
| Singapore               | Singapore                     | .49***            | .07              | .25*                    | -.04  | -.38***    | .05               | -.39***                | .01              |
| Thailand                | Chiang Mai                    | .29***            | .21***           | .17**                   | .08   | -.32***    | -.01              | -.28***                | -.03             |
|                         | Khon Kaen                     | .34***            | .17 <sup>†</sup> | .14                     | -.08  | -.28**     | .13               | -.15                   | -.10             |
|                         | Pattani                       | .36***            | .18*             | .20*                    | -.02  | -.13       | -.05              | -.05                   | -.02             |
|                         | Pathumthani                   | .39***            | .06              | .21**                   | -.07  | -.27***    | .02               | -.29***                | -.03             |
|                         | Phuket                        | .36***            | .12              | .15 <sup>†</sup>        | .08   | -.18*      | .14 <sup>†</sup>  | -.22*                  | -.06             |
| Vietnam                 | Hanoi                         | .44***            | .09              | n/a                     | n/a   | -.22*      | -.14 <sup>†</sup> | -.04                   | -.29**           |
|                         | Ho Chi Minh                   | .55***            | .01              | .22**                   | .01   | -.26***    | .02               | -.25**                 | .00              |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Apart from all four indices of well-being, I initially aimed to test the relationships between BJW and Ryff (1989)'s psychological well-being and to include the findings in the main text. Unfortunately, the multi-group CFA did not support metric invariance of Ryff's psychological well-being. However, the findings confirmed the results in this study showing that PBJW strongly predicted well-being when compared with GBJW (see Appendix A).

As in Study 2 and Study 3 in Chapter 2, when controlling for BJW, belief in Karma positively predicted depression among the sample in the UK while belief in Karma positively moderated the association between GBJW and life satisfaction among the sample in Thailand although each study was conducted in a single location. Further, the results in the present study showed that individual-level belief in Karma is related to just world beliefs (see Table 19) which confirmed previous findings (Agrawal & Dalal, 1993; White et al., 2019). Thus, in Study 4, it is worth controlling for belief in Karma when PBJW and GBJW predict well-being by entering belief in Karma and BJW simultaneously as the predictors of well-being. Table 22 shows that belief in Karma positively predicted life satisfaction and perceived health status. However, PBJW still strongly predicted all indices of well-being.

Table 22 BJW and belief in Karma as predictors of well-being across sites

| Independent variable | <i>N</i>    | Life Satisfaction |           |          | Perceived Health Status |           |          |
|----------------------|-------------|-------------------|-----------|----------|-------------------------|-----------|----------|
|                      |             | $\gamma$          | <i>SE</i> | <i>t</i> | $\gamma$                | <i>SE</i> | <i>t</i> |
| PBJW                 | 6,954/5,010 | .40               | .06       | 7.06***  | 2.33                    | .72       | 3.23**   |
| GBJW                 |             | .08               | .03       | 3.08**   | -.74                    | 1.15      | -.65     |
| Belief in Karma      |             | .16               | .04       | 3.74***  | 1.42                    | .65       | 2.18*    |

| Independent variable | <i>N</i>    | Depression |           |          | Negative Mental Health |           |          |
|----------------------|-------------|------------|-----------|----------|------------------------|-----------|----------|
|                      |             | $\gamma$   | <i>SE</i> | <i>t</i> | $\gamma$               | <i>SE</i> | <i>t</i> |
| PBJW                 | 6,954/5,010 | -.12       | .03       | -4.86*** | -.22                   | .04       | -5.03*** |
| GBJW                 |             | .04        | .02       | 2.48*    | .03                    | .03       | 1.21     |
| Belief in Karma      |             | -.01       | .03       | -.42     | -.04                   | .04       | -.85     |

† $p < .10$ , \* $p < .05$ , \*\*\* $p < .001$

All of the participants in this study were recruited from Southeast Asian (non-WEIRD) sites that are typically associated with cultural practices and ways of understanding reality. The finding that PBJW rather than GBJW was robustly associated with well-being across these sites, just as it is in WEIRD contexts, provides clear support for the cultural generality hypothesis. Nonetheless, the possibility remains that the strength and even the direction of relationships varies between cities. To test this hypothesis, I conducted a cross-level moderation analysis, first of all with an empty model at Level 2 (city). This showed that the relationships between well-being and BJW varied significantly between cities (cross-level moderations). Specifically, the relationship between PBJW and all four indices of well-being varied across sites more than would be expected by chance alone, whereas only the relationship between GBJW and life satisfaction varied to this extent (see Table 23).

Table 23 City-level variation in the relationships between BJW and well-being (Study 4)

| Dependent variable      | Independent variable | <i>N</i> | City-level variance | <i>SE</i> | <i>t</i> |
|-------------------------|----------------------|----------|---------------------|-----------|----------|
| Life Satisfaction       | PBJW                 | 7,155    | .08                 | .02       | 4.41***  |
|                         | GBJW                 |          | .01                 | .01       | 2.23*    |
| Perceived Health Status | PBJW                 | 5,028    | 2.55                | .93       | 2.73**   |
|                         | GBJW                 |          | .82                 | .74       | 1.12     |
| Depression              | PBJW                 | 7,156    | .01                 | .00       | 3.50***  |
|                         | GBJW                 |          | .00                 | .00       | 1.63     |
| Negative Mental Health  | PBJW                 | 5,212    | .01                 | .01       | 2.99**   |
|                         | GBJW                 |          | .01                 | .01       | 1.25     |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Since there was evidence of significant variation between sites in the correlates of BJW, I then conducted multilevel analysis to determine which variables, including self-construal, holistic cognition, Karma, and adverse life events, might be responsible for this variation. At Level 2 (city), some *self-construal* dimensions moderate the relationship between BJW and well-being. These effects were generally weak and rare. Where significant, they were all contrary to the hypothesis that PBJW is less important, and GBJW more important, in collectivist contexts. Thus, PBJW is a weaker predictor of life satisfaction and perceived health status, and negative mental health in cities characterised by self-reliance, difference and de-contextualized self, and of depression in cities characterised by self-reliance and difference while GBJW is not emerged as a stronger predictor of well-being in cities characterised by interdependent poles of any self-construal dimensions. However, 27 out of 64 self-construal moderation tests are significant; 11 are consistent and 16 are inconsistent with the hypothesis. Of note, relationships between BJW and well-being were moderated by contextual variations

in *holistic cognition*. The relationships between PBJW and all four indices of well-being was stronger in cities characterised by holistic cognition, in which the relationship between GBJW and life satisfaction was also stronger. However, no moderation effect of city-level *belief in Karma* (see Table 24).

These same models simultaneously reveal whether moderation occurred at Level 1: that is, whether individual-level variation in endorsement or internalisation of cultural variables may change relationships between BJW and well-being. They revealed that there was only weak moderation. Ten out of 64 *self-construal* moderation tests are significant; three are consistent and seven are inconsistent with the hypothesis that PBJW is less important, and GBJW is more important, to the well-being of collectivists. Individual-level *holistic cognition* did not moderate any relationships between BJW and well-being. However, individual-level belief in Karma positively moderated between GBJW and depression which means when internalising high level of Karma, the positive association between GBJW and depression will be stronger (see Table 25).

When unpacking self-construal, the results did not offer a clear and consistent pattern of support for the cultural specificity hypotheses. Then, as in Study 3 in Chapter 2, I collapsed the scores of all self-construal dimensions into one variable called independence which higher score indicates higher tendency of independence. When I did this, I did not find any moderation effects of independence at both Level 1 and Level 2 (See Table 24 and 25).

Overall then the cultural specificity hypothesis is not supported with respect to dimensions of self-construal. Variables associated with interdependent self-construal, examined at either the city or the individual level, were not associated with weaker relationships between PBJW and well-being, nor stronger relationships between GBJW and well-being.

Table 24 City-level moderators of PBJW and GBJW as predictors of well-being (Study 4)

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |          |                 |           |           |
|----------------------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|----------|-----------------|-----------|-----------|
|                      |                      |                    |          |          |           |          | Low             |           |          | High            |           |           |
|                      |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i>  |
| Self-direction       | PBJW                 | Life Satisfaction  | 5,461    | 1.37     | .19       | 7.21***  | .32             | .05       | 6.10***  | .71             | .05       | 14.51***  |
|                      | GBJW                 |                    |          | .18      | .21       | .89      |                 |           |          |                 |           |           |
| Self-reliance        | PBJW                 |                    | 5,461    | -.61     | .27       | -2.29*   | .62             | .06       | 9.88***  | .42             | .08       | 5.52***   |
|                      | GBJW                 |                    |          | .22      | .12       | 1.84†    |                 |           |          |                 |           |           |
| Self-containment     | PBJW                 |                    | 5,461    | .79      | .21       | 3.77***  | .36             | .07       | 5.14***  | .67             | .06       | 11.93***  |
|                      | GBJW                 |                    |          | .03      | .17       | .18      |                 |           |          |                 |           |           |
| Self-interest        | PBJW                 |                    | 5,461    | .93      | .35       | 2.64**   | .38             | .08       | -5.89*** | -.35            | .03       | -10.27*** |
|                      | GBJW                 |                    |          | .11      | .28       | .38      |                 |           |          |                 |           |           |
| Self-expression      | PBJW                 |                    | 5,461    | .94      | .34       | 2.82**   | .40             | .07       | 5.59***  | .64             | .06       | 10.07***  |
|                      | GBJW                 |                    |          | -.15     | .19       | -.77     |                 |           |          |                 |           |           |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |          |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |          | Low             |           |          | High            |           |          |
|                      |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Difference           | PBJW                 | Life Satisfaction  | 5,461    | -1.34    | .30       | -4.53*** | .70             | .06       | 12.82*** | .34             | .07       | 5.06***  |
|                      | GBJW                 |                    |          | .16      | .21       | .79      |                 |           |          |                 |           |          |
| De-contextualized    | PBJW                 |                    | 5,461    | -82      | .32       | -2.59*   | .63             | .05       | 12.92*** | .41             | .08       | 4.85***  |
|                      | GBJW                 |                    |          | .03      | .03       | .12      |                 |           |          |                 |           |          |
| Consistency          | PBJW                 |                    | 5,461    | -.55     | .47       | -1.17    |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | -.13     | .18       | -.71     |                 |           |          |                 |           |          |
| Holistic Cognition   | PBJW                 |                    | 7,155    | .27      | .09       | 2.91**   | .37             | .09       | 4.30***  | .67             | .05       | 12.55*** |
|                      | GBJW                 |                    |          | .11      | .04       | 2.50*    | .05             | .03       | 1.65     | .18             | .04       | 4.22***  |
| Belief in Karma      | PBJW                 |                    | 7,155    | -.08     | .17       | -.47     |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .05      | .08       | .66      |                 |           |          |                 |           |          |
| Independence         | PBJW                 |                    | 7,155    | .49      | .93       | .52      |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .24      | .51       | .48      |                 |           |          |                 |           |          |

| City-level moderator | Independent variable | Dependent variable      | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |                    |                 |           |          |
|----------------------|----------------------|-------------------------|----------|----------|-----------|----------|-----------------|-----------|--------------------|-----------------|-----------|----------|
|                      |                      |                         |          |          |           |          | Low             |           |                    | High            |           |          |
|                      |                      |                         |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i>           | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Self-direction       | PBJW                 | Perceived Health Status | 4,832    | 9.45     | 1.97      | 4.80***  | 2.21            | .55       | 3.99***            | 4.94            | .40       | 12.34*** |
|                      | GBJW                 |                         |          | -.22     | 2.96      | -.08     |                 |           |                    |                 |           |          |
| Self-reliance        | PBJW                 |                         | 4,832    | -3.78    | 1.83      | -2.07*   | 4.20            | .52       | 8.08***            | 2.94            | .59       | 5.01***  |
|                      | GBJW                 |                         |          | 3.16     | 1.12      | 2.81**   | -.65            | .35       | -1.87 <sup>†</sup> | .41             | .51       | .81      |
| Self-containment     | PBJW                 |                         | 4,832    | 4.87     | 1.37      | 3.56***  | 2.63            | .60       | 4.37***            | 4.55            | .43       | 10.70*** |
|                      | GBJW                 |                         |          | -.84     | 2.07      | -.41     |                 |           |                    |                 |           |          |
| Self-interest        | PBJW                 |                         | 4,832    | 6.70     | 2.59      | 2.59*    | 2.58            | .63       | 4.09***            | 4.61            | .54       | 8.56***  |
|                      | GBJW                 |                         |          | -1.63    | 2.32      | -.70     |                 |           |                    |                 |           |          |
| Self-expression      | PBJW                 |                         | 4,832    | 6.44     | 2.38      | 2.71**   | 2.72            | .59       | 4.61               | 4.36            | .49       | 8.87***  |
|                      | GBJW                 |                         |          | -2.20    | 2.64      | -.83     |                 |           |                    |                 |           |          |

| City-level moderator | Independent variable | Dependent variable      | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>          | Slopes          |           |          |                 |           |          |
|----------------------|----------------------|-------------------------|----------|----------|-----------|-------------------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |                      |                         |          |          |           |                   | Low             |           |          | High            |           |          |
|                      |                      |                         |          |          |           |                   | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Difference           | PBJW                 | Perceived Health Status | 4,832    | -8.58    | 2.31      | -3.71***          | 4.82            | .47       | 10.33*** | 2.45            | .59       | 4.13***  |
|                      | GBJW                 |                         |          | 4.51     | 2.60      | 1.74 <sup>†</sup> |                 |           |          |                 |           |          |
| De-contextualized    | PBJW                 |                         | 4,832    | -5.95    | 2.96      | -2.01*            | 4.52            | .50       | 9.01***  | 2.83            | .70       | 4.06***  |
|                      | GBJW                 |                         |          | 1.79     | 2.79      | .64               |                 |           |          |                 |           |          |
| Consistency          | PBJW                 |                         | 4,832    | -2.76    | 3.63      | -.76              |                 |           |          |                 |           |          |
|                      | GBJW                 |                         |          | 1.14     | 2.56      | .45               |                 |           |          |                 |           |          |
| Holistic Cognition   | PBJW                 |                         | 5,023    | 1.95     | .75       | 2.59*             | 2.61            | .67       | 3.88***  | 4.84            | .49       | 9.91***  |
|                      | GBJW                 |                         |          | -.57     | .65       | -.88              |                 |           |          |                 |           |          |
| Belief in Karma      | PBJW                 |                         | 5,023    | -.99     | 1.30      | -.76              |                 |           |          |                 |           |          |
|                      | GBJW                 |                         |          | -.70     | .92       | -.76              |                 |           |          |                 |           |          |
| Independence         | PBJW                 |                         | 5,028    | 7.42     | 7.39      | 1.00              |                 |           |          |                 |           |          |
|                      | GBJW                 |                         |          | 3.69     | 7.46      | .50               |                 |           |          |                 |           |          |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |           |                 |           |           |
|----------------------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|-----------|-----------------|-----------|-----------|
|                      |                      |                    |          |          |           |          | Low             |           |           | High            |           |           |
|                      |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i>  | <i>Estimate</i> | <i>SE</i> | <i>t</i>  |
| Self-direction       | PBJW                 | Depression         | 5,462    | -.40     | .10       | -3.98*** | -.12            | .02       | -5.95***  | -.24            | .03       | -9.61***  |
|                      | GBJW                 |                    |          | .10      | .07       | 1.45     |                 |           |           |                 |           |           |
| Self-reliance        | PBJW                 |                    | 5,462    | .30      | .08       | 3.79***  | -.23            | .02       | -11.37*** | -.13            | .02       | -5.35***  |
|                      | GBJW                 |                    |          | -.02     | .09       | -.26     |                 |           |           |                 |           |           |
| Self-containment     | PBJW                 |                    | 5,462    | -.28     | .06       | -4.72*** | -.13            | .02       | -5.25     | .24             | .02       | -13.42*** |
|                      | GBJW                 |                    |          | -.01     | .09       | -.13     |                 |           |           |                 |           |           |
| Self-interest        | PBJW                 |                    | 5,462    | -.38     | .10       | -3.71*** | -.12            | .03       | -4.52***  | -.24            | .02       | -12.88*** |
|                      | GBJW                 |                    |          | .07      | .07       | 1.04     |                 |           |           |                 |           |           |
| Self-expression      | PBJW                 |                    | 5,462    | -.36     | .09       | -4.13*** | -.13            | .03       | -5.05***  | -.22            | .02       | -13.91*** |
|                      | GBJW                 |                    |          | -.06     | .13       | -.48     |                 |           |           |                 |           |           |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>           | Slopes          |           |          |                 |           |           |
|----------------------|----------------------|--------------------|----------|----------|-----------|--------------------|-----------------|-----------|----------|-----------------|-----------|-----------|
|                      |                      |                    |          |          |           |                    | Low             |           |          | High            |           |           |
|                      |                      |                    |          |          |           |                    | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i>  |
| Difference           | PBJW                 | Depression         | 5,462    | .49      | .16       | 3.01**             | -.25            | .03       | -9.08    | -.12            | .03       | -4.28***  |
|                      | GBJW                 |                    |          | .05      | .16       | .28                |                 |           |          |                 |           |           |
| De-contextualized    | PBJW                 |                    | 5,462    | .19      | .12       | 1.50               |                 |           |          |                 |           |           |
|                      | GBJW                 |                    |          | -.02     | .14       | -.14               |                 |           |          |                 |           |           |
| Consistency          | PBJW                 |                    | 5,462    | .17      | .15       | 1.14               |                 |           |          |                 |           |           |
|                      | GBJW                 |                    |          | -.23     | .13       | -1.78 <sup>†</sup> |                 |           |          |                 |           |           |
| Holistic Cognition   | PBJW                 |                    | 7,156    | -.11     | .02       | -4.85***           | -.12            | .02       | -5.87*** | -.25            | .02       | -11.22*** |
|                      | GBJW                 |                    |          | .04      | .03       | 1.37               |                 |           |          |                 |           |           |
| Belief in Karma      | PBJW                 |                    | 7,156    | -.02     | .05       | -.31               |                 |           |          |                 |           |           |
|                      | GBJW                 |                    |          | .05      | .06       | .87                |                 |           |          |                 |           |           |
| Independence         | PBJW                 |                    | 7,156    | -.28     | .37       | -.75               |                 |           |          |                 |           |           |
|                      | GBJW                 |                    |          | -.13     | .25       | -.51               |                 |           |          |                 |           |           |

| City-level moderator | Independent variable | Dependent variable     | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |           |                 |           |           |
|----------------------|----------------------|------------------------|----------|----------|-----------|----------|-----------------|-----------|-----------|-----------------|-----------|-----------|
|                      |                      |                        |          |          |           |          | Low             |           |           | High            |           |           |
|                      |                      |                        |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i>  | <i>Estimate</i> | <i>SE</i> | <i>t</i>  |
| Self-direction       | PBJW                 | Negative Mental Health | 5,016    | -.42     | .15       | -2.85**  | -.23            | .04       | -6.61***  | -.35            | .04       | -9.46***  |
|                      | GBJW                 |                        |          | -.00     | .12       | -.03     |                 |           |           |                 |           |           |
| Self-reliance        | PBJW                 |                        | 5,016    | .40      | .15       | 2.63**   | -.36            | .03       | -11.33*** | -.23            | .04       | -5.06***  |
|                      | GBJW                 |                        |          | -.17     | .12       | -1.45    |                 |           |           |                 |           |           |
| Self-containment     | PBJW                 |                        | 5,016    | -.30     | .11       | -2.76**  | -.23            | .04       | -5.89***  | -.35            | .03       | -10.27*** |
|                      | GBJW                 |                        |          | -.05     | .19       | -.26     |                 |           |           |                 |           |           |
| Self-interest        | PBJW                 |                        | 5,016    | -.46     | .17       | -2.78**  | -.22            | .04       | -5.27***  | -.36            | .03       | -10.64*** |
|                      | GBJW                 |                        |          | .04      | .16       | .26      |                 |           |           |                 |           |           |
| Self-expression      | PBJW                 |                        | 5,016    | -.29     | .16       | -1.77    |                 |           |           |                 |           |           |
|                      | GBJW                 |                        |          | -.02     | .25       | -.07†    |                 |           |           |                 |           |           |
| Difference           | PBJW                 |                        | 5,016    | .64      | .26       | 2.48*    | -.38            | .04       | -9.27***  | -.21            | .05       | -4.37***  |
|                      | GBJW                 |                        |          | .00      | .28       | .01      |                 |           |           |                 |           |           |

| City-level moderator | Independent variable | Dependent variable     | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |           |                 |           |           |
|----------------------|----------------------|------------------------|----------|----------|-----------|----------|-----------------|-----------|-----------|-----------------|-----------|-----------|
|                      |                      |                        |          |          |           |          | Low             |           |           | High            |           |           |
|                      |                      |                        |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i>  | <i>Estimate</i> | <i>SE</i> | <i>t</i>  |
| De-contextualized    | PBJW                 | Negative Mental Health | 5,016    | .36      | .17       | 2.15*    | -.35            | .03       | -11.39*** | -.25            | .05       | -5.48***  |
|                      | GBJW                 |                        |          | .03      | .27       | .09      |                 |           |           |                 |           |           |
| Consistency          | PBJW                 |                        | 5,016    | .37      | .21       | 1.72†    |                 |           |           |                 |           |           |
|                      | GBJW                 |                        |          | -.33     | .27       | -1.25    |                 |           |           |                 |           |           |
| Holistic Cognition   | PBJW                 |                        | 5,206    | -.15     | .03       | -4.70*** | -.22            | .03       | -6.31***  | -.39            | .03       | -12.20*** |
|                      | GBJW                 |                        |          | .01      | .04       | .29      |                 |           |           |                 |           |           |
| Belief in Karma      | PBJW                 |                        | 5,206    | .07      | .08       | .91      |                 |           |           |                 |           |           |
|                      | GBJW                 |                        |          | -.02     | .10       | -.17     |                 |           |           |                 |           |           |
| Independence         | PBJW                 |                        | 5,212    | .10      | .58       | .17      |                 |           |           |                 |           |           |
|                      | GBJW                 |                        |          | -.43     | .53       | -.81     |                 |           |           |                 |           |           |

*Note* Simple Slopes are shown for only the significant moderating effects.

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 25 Individual-level moderators of PBJW and GBJW as predictors of well-being (Study 4)

| Individual-level<br>moderator | Independent<br>variable | Life Satisfaction |           |          | Perceived Health Status |           |          |
|-------------------------------|-------------------------|-------------------|-----------|----------|-------------------------|-----------|----------|
|                               |                         | $\gamma$          | <i>SE</i> | <i>t</i> | $\gamma$                | <i>SE</i> | <i>t</i> |
| -                             | PBJW                    | .45               | .07       | 6.06***  | 3.52                    | .60       | 5.89***  |
|                               | GBJW                    | .13               | .03       | 4.56***  | .06                     | .44       | .90      |
| Self-direction                | PBJW                    | .10               | .06       | 1.64     | -1.74                   | .70       | -2.48*   |
|                               | GBJW                    | -.01              | .04       | -.19     | 1.33                    | .77       | 1.71†    |
| Self-reliance                 | PBJW                    | .03               | .04       | .67      | .13                     | .48       | .28      |
|                               | GBJW                    | .01               | .04       | .12      | .46                     | .45       | 1.03     |
| Self-containment              | PBJW                    | .03               | .04       | .69      | -1.04                   | .76       | -1.37    |
|                               | GBJW                    | .09               | .04       | 2.16*    | .81                     | .66       | 1.22     |
| Self-interest                 | PBJW                    | .01               | .05       | .14      | -.17                    | .79       | -.21     |
|                               | GBJW                    | -.09              | .05       | -1.70†   | .46                     | .69       | .66      |
| Self-expression               | PBJW                    | .06               | .03       | 1.95†    | .29                     | .55       | .52      |
|                               | GBJW                    | -.02              | .04       | -.51     | .94                     | .60       | 1.56     |

| Individual-level<br>moderator | Independent<br>variable | Life Satisfaction |           |                    | Perceived Health Status |           |                   |
|-------------------------------|-------------------------|-------------------|-----------|--------------------|-------------------------|-----------|-------------------|
|                               |                         | $\gamma$          | <i>SE</i> | <i>t</i>           | $\gamma$                | <i>SE</i> | <i>t</i>          |
| Difference                    | PBJW                    | .11               | .05       | 2.29*              | .96                     | .51       | 1.88 <sup>†</sup> |
|                               | GBJW                    | -.04              | .04       | -1.10              | .01                     | .66       | .01               |
| De-contextualized             | PBJW                    | .03               | .04       | .80                | .22                     | .52       | .42               |
|                               | GBJW                    | -.03              | .04       | -.79               | -.21                    | .68       | -.31              |
| Consistency                   | PBJW                    | -.02              | .04       | -.62               | .81                     | .55       | 1.47              |
|                               | GBJW                    | .03               | .04       | .71                | -.68                    | .53       | -1.27             |
| Holistic Cognition            | PBJW                    | -.01              | .01       | -1.88 <sup>†</sup> | -.04                    | .13       | -.32              |
|                               | GBJW                    | .01               | .01       | 1.77 <sup>†</sup>  | -.12                    | .11       | -1.13             |
| Belief in Karma               | PBJW                    | .01               | .03       | .30                | -.00                    | .27       | -.01              |
|                               | GBJW                    | .01               | .03       | .38                | .13                     | .40       | .31               |
| Negative Life Events          | PBJW                    | .17               | .13       | 1.35               | 4.38                    | 2.44      | 1.80 <sup>†</sup> |
|                               | GBJW                    | .12               | .13       | .88                | .69                     | 2.01      | .34               |
| Independence                  | PBJW                    | .01               | .51       | .03                | -.58                    | 1.52      | -.38              |
|                               | GBJW                    | .00               | .88       | .00                | 1.96                    | 1.59      | 1.23              |

| Individual-level<br>moderator | Independent<br>variable | Depression |           |                    | Negative Mental Health |           |                    |
|-------------------------------|-------------------------|------------|-----------|--------------------|------------------------|-----------|--------------------|
|                               |                         | $\gamma$   | <i>SE</i> | <i>t</i>           | $\gamma$               | <i>SE</i> | <i>t</i>           |
| -                             | PBJW                    | -0.17      | .03       | -6.73***           | -0.29                  | .04       | -7.86***           |
|                               | GBJW                    | .01        | .02       | .66                | -0.00                  | .03       | -.14               |
| Self-direction                | PBJW                    | -0.01      | .02       | -.62               | -0.00                  | .03       | -.03               |
|                               | GBJW                    | -0.02      | .02       | -.62               | -0.04                  | .04       | -.97               |
| Self-reliance                 | PBJW                    | -0.04      | .02       | -2.17*             | -0.05                  | .03       | -1.69 <sup>†</sup> |
|                               | GBJW                    | -0.03      | .02       | -1.67 <sup>†</sup> | .07                    | .03       | -2.46*             |
| Self-containment              | PBJW                    | .05        | .01       | 3.18**             | .07                    | .03       | 2.32*              |
|                               | GBJW                    | -0.00      | .02       | -.09               | -0.03                  | .03       | -.76               |
| Self-interest                 | PBJW                    | .04        | .03       | 1.46               | .05                    | .04       | 1.21               |
|                               | GBJW                    | .03        | .02       | 1.26               | -0.03                  | .03       | -.89               |
| Self-expression               | PBJW                    | -0.01      | .02       | -.24               | -0.01                  | .03       | -.37               |
|                               | GBJW                    | .02        | .02       | .98                | .03                    | .03       | .87                |
| Difference                    | PBJW                    | -0.07      | .03       | -2.59*             | -0.09                  | .04       | -2.56*             |
|                               | GBJW                    | .02        | .03       | .85                | .03                    | .04       | .72                |

| Individual-level<br>moderator | Independent<br>variable | Depression |           |          | Negative Mental Health |           |                    |
|-------------------------------|-------------------------|------------|-----------|----------|------------------------|-----------|--------------------|
|                               |                         | $\gamma$   | <i>SE</i> | <i>t</i> | $\gamma$               | <i>SE</i> | <i>t</i>           |
| De-contextualized             | PBJW                    | -.03       | .02       | -1.57    | -.07                   | .03       | -2.13*             |
|                               | GBJW                    | .04        | .02       | 2.10*    | .02                    | .03       | .49                |
| Consistency                   | PBJW                    | .01        | .02       | .51      | -.05                   | .03       | -1.79 <sup>†</sup> |
|                               | GBJW                    | .01        | .02       | .72      | .02                    | .03       | .84                |
| Holistic Cognition            | PBJW                    | -.00       | .00       | -.65     | -.00                   | .01       | -.21               |
|                               | GBJW                    | -.00       | .01       | -.59     | .00                    | .01       | .38                |
| Belief in Karma               | PBJW                    | -.01       | .01       | -1.23    | .00                    | .02       | -.01               |
|                               | GBJW                    | .02        | .01       | 2.36*    | .03                    | .01       | 1.86 <sup>†</sup>  |
| Negative Life Events          | PBJW                    | .02        | .08       | .23      | -.14                   | .09       | -1.58              |
|                               | GBJW                    | -.06       | .09       | -.59     | .06                    | .07       | .88                |
| Independence                  | PBJW                    | .02        | .03       | .52      | -.14                   | .11       | -1.28              |
|                               | GBJW                    | .00        | .01       | .01      | -.08                   | .06       | -1.32              |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**3.1.2.3.2 Interactions between BJW and negative life events:** Just world beliefs are sometimes related to well-being directly (e.g., Correia et al., 2009; Dalbert & Katona-Sallay, 1996; Lipkus & Bissonnette, 1996; Schlenker et al., 2012), and sometimes by buffering the effect of adverse conditions on well-being (e.g., McParland & Knussen, 2010; Tian, 2019). Thus, I examined whether the frequency of negative life events at both the individual and city level interacted with BJW. Table 26 summarises the results of these analyses. City-level negative life events negatively moderated the relationships between BJW and life satisfaction but weaker for GBJW which means the positive relationships between BJW and life satisfaction were weaker when there was higher frequency of negative life events. Further, negative life events also positively moderated the association between PBJW and perceived health status. On the other hand, at Level 2, the moderation effects of negative life events were positive on the relationships between PBJW and depression and GBJW and negative mental health which means the negative associations between BJW and indices of negative well-being were stronger when there was higher frequency of negative life events.

The results show there was no support for the hypothesis that personal or general BJW buffers well-being from negative life events. Relationships between individuals' BJW and well-being were weaker in cities where negative life events are more frequent, rather than stronger, as suggested by the buffering hypotheses (Level 2). Thus, the relationships between BJW and well-being were stronger in people who are not in contexts featuring high levels of negative life events.

Table 26 Level 1 and 2 negative life events as moderators of relationships between well-being and BJW

| Moderator            | Level | Independent variable | Dependent variable      | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |           |                 |           |          |
|----------------------|-------|----------------------|-------------------------|----------|----------|-----------|----------|-----------------|-----------|-----------|-----------------|-----------|----------|
|                      |       |                      |                         |          |          |           |          | Low             |           | High      |                 |           |          |
|                      |       |                      |                         |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i>  | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Negative Life Events | 1     | PBJW                 | Life Satisfaction       | 5,368    | .17      | .13       | 1.35     |                 |           |           |                 |           |          |
|                      |       | GBJW                 |                         |          | .12      | .13       | .88      |                 |           |           |                 |           |          |
|                      | 2     | PBJW                 |                         |          | -2.62    | .63       | -4.19*** | .69             | .05       | 15.19***  | .35             | .07       | 4.86***  |
|                      |       | GBJW                 |                         |          | -1.22    | .37       | -3.35*   | .19             | .04       | 4.85***   | .04             | .03       | 1.38     |
| Negative Life Events | 1     | PBJW                 | Perceived Health Status | 4,727    | 4.38     | 2.44      | 1.80†    |                 |           |           |                 |           |          |
|                      |       | GBJW                 |                         |          | .69      | 2.01      | .34      |                 |           |           |                 |           |          |
|                      | 2     | PBJW                 |                         |          | -19.40   | 5.62      | -3.45**  | 4.96            | .49       | 10.24***  | 2.51            | .57       | 4.38***  |
|                      |       | GBJW                 |                         |          | 1.77     | 6.23      | .29      |                 |           |           |                 |           |          |
|                      | 1     | PBJW                 | Depression              | 5,369    | .02      | .08       | .23      |                 |           |           |                 |           |          |
|                      |       | GBJW                 |                         |          | -.06     | .09       | -.59     |                 |           |           |                 |           |          |
|                      | 2     | PBJW                 |                         |          | .78      | .26       | 2.99**   | -.23            | .02       | -10.13*** | -.14            | .03       | -5.23*** |
|                      |       | GBJW                 |                         |          | -.07     | .23       | -.31     |                 |           |           |                 |           |          |

|             |   |      |                        |       |      |     |       |      |     |       |     |     |      |
|-------------|---|------|------------------------|-------|------|-----|-------|------|-----|-------|-----|-----|------|
| Negative    | 1 | PBJW | Negative Mental Health | 4,895 | -.14 | .09 | -1.58 |      |     |       |     |     |      |
| Life Events |   | GBJW |                        |       | .06  | .07 | .88   |      |     |       |     |     |      |
|             | 2 | PBJW |                        |       | .61  | .42 | 1.43  |      |     |       |     |     |      |
|             |   | GBJW |                        |       | .74  | .38 | 1.97* | -.04 | .04 | -1.00 | .05 | .03 | 2.11 |

*Note* Simple Slopes are shown for only the significant moderating effects.

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

### 3.1.2.4 Applying a correction for multiple tests

The models were analysed one by one and not corrected for multiple tests. Thus, some specific results were probably just noise because Type I errors were likely to increase more chances incorrectly rejecting null hypotheses or producing significant results. To apply a correction for multiple tests, I used a Holm–Bonferroni sequentially adjusted alpha. This involves first, ranking the  $p$ -values from lowest to highest. Then, calculating the cut-off probability or  $p$ -value for the first hypothesis by dividing a widely acceptable cut-off  $p$ -value (i.e.,  $\alpha$  starting at .05) by the number of hypotheses ( $m$ ) which plus 1 and minus the rank number of  $p$ -value ( $k$ ). Thus, the formula is  $\alpha/(m + 1 - k)$ . In this case,  $k$  for the first hypothesis is 1. After that, comparing the actual  $p$ -value from the first hypothesis with the calculated cut-off  $p$ -value to decide whether accept or reject the null hypothesis. If the actual  $p$ -value of the first hypothesis is fewer than the calculated cut-off  $p$ -value or the null hypothesis for the first hypothesis is rejected, continue to calculate the cut-off  $p$ -value and compare with the actual  $p$ -value for the next hypothesis. If the null hypothesis for the second hypothesis is rejected, repeat the same process. Stop testing when seeing the first non-rejected hypothesis showing that the  $p$ -value of the hypothesis is greater than the calculated cut-off  $p$ -value (Holm, 1979).

In case of 50 tests, the adjusted cut-off  $p$ -value for the first hypothesis is  $.05/(50 + 1 - 1) = .001$ . It means that when the number of tests is more than 50, the adjusted cut-off  $p$ -value for the first hypothesis is fewer than .001. Although the adjusted cut-off  $p$ -value can be calculated in details, the result outputs can show only three decimals. Thus, the  $p$ -value which is fewer than .001 and is also the lowest value can be shown in the outputs is .000. For example, in case of 100 tests, the adjusted cut-off  $p$ -value for the first hypothesis is  $.05/(100 + 1 - 1) = .0005$ . and the adjusted cut-off  $p$ -value for the fifty-first hypothesis is  $.05/(100 + 1 - 51) = .001$ . In other words, the adjusted cut-off  $p$ -value for the first fifty hypotheses is fewer than .001.

Thus, when considering whether the null hypothesis for the first fifty hypotheses is rejected, the actual  $p$ -value must be shown as .000 in the outputs.

When considering only the moderation effects of both individual-level and city-level self-construal on the associations between BJW (i.e., PBJW and GBJW) and well-being (life satisfaction, perceived health status, depression, and negative mental health) in the present study, there are more than 100 tests but there are fewer than 50 tests showing the  $p$ -value is .000. Thus, I can simply consider only the  $p$ -value of .000 as the criteria of the significant results to decide whether accept or reject the null hypothesis after applying a correction for multiple tests.

Regarding the strength of BJW, out of eight *self-construal* dimensions, two of them are associated with gaps between PBJW and GBJW at Level 2, and both associations are in the predicted direction (self-direction and self-expression). Only one out of the eight cultural dimensions (consistency) was associated with the PBJW-GBJW gap at Level 1. In contrast, there was no evidence that composite independent self-construal predicted PBJW relatively more than GBJW at any level. Moreover, city-level *holistic cognition* positively predicted PBJW. In addition, *belief in Karma* positively predicted PBJW but negatively predicted the gap between PBJW and GBJW at Level 2. Further, *negative life events* were negatively related to PBJW at both Level 1 and 2. Although city-level negative life events negatively predicted GBJW at Level 2, it was weaker than PBJW.

Regarding the functions of BJW, PBJW predicted all four indices of well-being while GBJW predicted life satisfaction, though more weakly. When controlling for belief in Karma, although Karma predicted life satisfaction, PBJW predicted most indices of well-being except perceived health status. When considering the moderation effects of city-level *self-construal*, PBJW was a weaker predictor of life satisfaction and perceived health status in cities characterised by difference, and of depression in cities characterised by self-reliance. However,

11 out of 64 self-construal moderation tests are significant; three are consistent (difference and self-reliance) and eight are inconsistent (self-direction, self-containment, self-interest, and self-expression) with the hypothesis that PBJW is less important, and GBJW is more important, to the well-being of collectivists. In contrast, there was no evidence that composite independent self-construal moderate the relationships between BJW and well-being at any level. In addition, city-level *holistic cognition* negatively moderated the association between PBJW and both negative indices of well-being (i.e., depression and negative mental health). Moreover, city-level *negative life events* negatively moderated the relationship between PBJW and life satisfaction. However, there is no moderation effect of negative life events at Level 1, self-construal at Level 2 and *belief in Karma* at both Level 1 and 2.

Table 27 Summary of the findings for Study 4

| Hypotheses   | Results  |
|--|----------|
| (1) Well-being will be varied across cities.   | Accepted |
| (2) The associations between self and other-related BJW will be varied across cities.  | Accepted |
| (3) The cultural or contextual variables will moderate the relationship between self and other-related BJW at both Level 1 and Level 2 | Rejected |

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*Strength of BJW*

*(4) The cultural specificity hypotheses*

Mostly rejected

(a) Independent self-construal dimensions will positively predict self-related BJW relative to other-related BJW at both Level 1 and Level 2

(b) Holistic cognition will positively predict other-related BJW relative to self-related BJW at both Level 1 and Level 2

Rejected

(Holistic cognition positively predicted PBJW at Level 2.)

*(5) The reality hypotheses*

(a) Negative life events will negatively predict BJW

Accepted

(except with GBJW at Level 1)

*(6) Exploratory prediction*

(a) Belief in Karma will predict BJW.

Belief in Karma positively predicted PBJW but negatively predicted the gap between PBJW and GBJW at

*Functions of BJW*

Level 2.

*(7) The cultural generality hypotheses*

(a) Self-related BJW, rather than other-related BJW, will positively predict well-being (also when controlling for Belief in Karma).

Accepted

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(8) *The cultural specificity hypotheses*

- |   |  |
|---|--|
| (a) Other-related BJW, rather than self-related BJW, will positively predict well-being.  | Rejected   |
| (b) Independent self-construal dimensions will positively moderate the relationships between self-related BJW and well-being while negatively moderate the relationship between other-related BJW and well-being at both Level 1 and Level 2. | Mostly rejected  |
| (c) Holistic cognition will positively moderate the relationships between other-related BJW and well-being at both Level 1 and Level 2.   | Rejected<br><br>(Holistic cognition negatively moderated the association between PBJW and both negative indices of well-being at Level 2.) |

(9) *The interactions between negative life events and BJW*

- |   |   |
|---|---|
| (a) Negative life events will moderate the relationship between BJW and well-being at both Level 1 and Level 2. | Negative life events negatively moderated the relationship between PBJW and life satisfaction at Level 2. |
|---|---|

(10) *Exploratory prediction*

- |  |          |
|--|----------|
| (a) Belief in Karma will moderate the relationship between BJW and well-being at both Level 1 and Level 2. | Rejected |
|--|----------|
-

### 3.1.3 Discussion

Scholars have argued that the strength and meaning of BJW may be shaped by cultural forces (e.g., Hafer et al., 2020). The present study provided the largest and most systematic test to date of these arguments, using a large diverse sample from the diverse and relatively neglected Southeast Asian region. It produced little or no evidence that cultural variations in self-construal moderate the psychological functions of BJW. Just as previous studies of WEIRD populations, PBJW was related strongly and reliably to multiple indices of well-being. Also, much as in WEIRD populations, GBJW was related to well-being in only a weak and sporadic fashion. The present results therefore converge with studies in WEIRD populations (e.g., Dalbert, 1999; Sutton & Douglas, 2005; Sutton et al., 2017), indicating that across diverse cultural backgrounds, human beings benefit from believing that life treats them fairly, whereas believing that life treats people fairly in general is less adaptive (Dalbert, 1999; Lerner, 1980; Lipkus et al., 1996).

Variations in the strength of just world beliefs can also be understood in terms of a culturally general mechanism. Specifically, the present results support the reality hypothesis, according to which just world beliefs are affected by the experience of adversity in life. Negative outcomes attract more causal attribution and are more readily interpreted as unjust, meaning that when they are more frequent or severe, just world beliefs are likely to be depressed (Dalbert et al., 2001; Janoff-Bulman & Morgan, 1994; You & Ju, 2020). Specifically, the mean score on the negative life events scale is .30 out of 1 is a relatively low score. The negative life events experienced by the student participants in the present study may not have been severe enough to activate the buffering role of personal BJW in this student sample (Corey et al., 2015). In previous studies the life events were more ongoing and debilitating, such as long-term unemployment. Future research could investigate the role of variations in the severity of negative life events in determining whether personal BJW plays a

buffering role (Corey et al., 2015). Objective life circumstances vary at the collective as well as the individual level: life can be variously tough in cities and separately, for individuals living in those cities. The present study was the first to distinguish between personal and general BJW, and simultaneously to distinguish between individual and contextual life circumstances, and so was uniquely placed to test whether tough living conditions are associated with reduced BJW at the empirically appropriate level. In cities where negative life events were relatively frequent and among individuals who experienced relatively frequent life events, PBJW specifically was lower.

Though the psychological *functions* of just world beliefs appeared to be similar across different cultural contexts, the present results revealed marked variations in their *strength*. In some Southeast Asian cities, PBJW was endorsed more than GBJW just as it is in WEIRD contexts. In other cities, this difference was not significant, and in still others it was reversed. The findings also indicate that these differences can be understood in terms of meaningful cultural variation, consistent with the cultural specificity hypothesis. Specifically, PBJW was relatively strong in cities characterised by self-direction, self-containment, self-interest and self-expression. Thus, BJW involving with a sense of control and predictability may be also affected by independent view. A perceptual focus on individuals' goals and individual inputs such as effort and talent may facilitate beliefs that they are causally connected.

Interestingly, city-level holistic cognition positively predicted PBJW and city-level holistic cognition negatively moderated the association between PBJW and both indices of negative well-being (i.e., depression and negative mental health). Previous research indicated BJW was possibly related to holistic cognition because of conservative ideology (Dittmar & Dickinson, 1993; Lambert & Raichle, 2000; Talhelm et al., 2015). Specifically, Wilson (1973) suggested fear of uncertainty is the mechanism behind conservative ideology. Fear of uncertainty is likely to be consistent with uncertainty avoidance which is common in

collectivistic cultures and so does holistic cognition (Hofstede, 2001). Uncertainty avoidance can also refer to a sense of personal control because people are eager to believe that they can control their lives and make their lives predictable which seems to be one of the motives underlying the belief that the fairness of people should be definitely based on deservingness as known as belief in a just world (Lerner, 1980).

Regarding belief in Karma, the results showed belief in Karma varied across cities. According to the sample demographic details, the religious majority across 26 cities included both Karmic believers (Buddhist and Hindu) and non-Karmic believers (Hindu, Muslim and no religion) which might affect variation in Karma endorsement. Further, belief in Karma positively predicted BJW but stronger for GBJW. These findings supported that belief in Karma was related to belief in a just world (Agrawal & Dalal, 1993; White et al., 2019). In addition, when controlling for BJW, belief in Karma positively predicted life satisfaction although PBJW was a stronger predictor. The positive psychological mechanism of Karma may make people feel that the world meaningful, and well-balanced (Levy et al., 2009) in accord with just world theory (Lerner, 1980; White et al., 2019).

Regarding negative life events, city-level *negative life events* negatively moderated the relationship between PBJW and life satisfaction which means among Southeast Asian samples, PBJW and life satisfaction was more strongly related when there is low frequency of collective adverse life circumstances. This pattern of results is in exactly the opposite direction to the well-known buffering hypothesis in which PBJW protects well-being from the damaging psychological impacts of negative life events (e.g., Dalbert et al., 2001; Janoff-Bulman & Morgan, 1994; You & Ju, 2020). Specifically, Dalbert (2009) suggests that the buffering role of BJW takes effect only under specific adverse life circumstances. According to the mean score on the negative life events scale, the score was low (.30 out of 1) which reflected that the negative life events might not be severe enough to activate the PBJW as a buffer in this young

student sample. In other respects, PBJW behaved in much the same way in my results as in previous studies. The cultural specificity hypothesis would not predict that PBJW is actively bad for individuals in the sense that it is negatively related to well-being or that it makes people *more* susceptible to negative life events. However, in a well-powered study, the present findings give cause to doubt the robustness of the buffering hypothesis.

## **Chapter 4: When life is fair for “me” and not “others”, my well-being still prospers: A replication study from 18 sites in Asia**

### **4.1 Study 5**

To my knowledge, Study 4 is the first multilevel study of just world beliefs and well-being. It has the largest sample of any just world study to my knowledge, sampling more than 7,000 participants across 26 sites in Southeast Asia. However, Snijders and Bosker (1993) found that when considering cross-level interactions or the Level 2 moderating effects, the sample size at Level 1 (i.e., the number of participants) is less important to the estimates of statistical power when compared with the sample size at Level 2 (i.e, the number of clusters). Specifically, Kreft and De Leeuw (1998) suggested a minimum of 20 groups could provide sufficient statistical power. On the contrary, Busing (1993) and van der Leeden and Busing (1994) dispute at least 30 groups could produce adequate statistical power. Thus, the number of Level 2 clusters (26 sites) might not be enough to provide good statistical power even though the sample size at Level 1 was very high. It means city-level moderating effects are less reliable. Thus, replication of Level 2 effects is very important. Thus, in the present Chapter, I report a study that attempts to replicate Study 4.

As well as replicating Study 4, the present study attempts to do some new things; specifically, it makes two modest but important extensions. First, it attempts a multi-site investigation across sites that differ fundamentally in terms of their main underlying cultural and linguistic influences. Second, it introduces a new and complementary method of operationalizing the distinction between personal justice (for me) and general justice (for others).

According to our literature search for just world beliefs and well-being research, the number of previous studies conducted in Asia are relatively few when compared with the

number of prior studies in the West, especially in the United States, the United Kingdom and Germany. The locations in Asia where most cross-cultural studies took place and where just world beliefs and well-being research was conducted were mainland China (e.g., Jiang et al., 2016; Jiang et al., 2017; Lucas et al., 2016; Tian, 2019; Wu et al., 2009; Wu et al., 2011; Wu et al., 2013; Xie et al., 2011; Zhang & Zhang, 2015), Hong Kong S.A.R. (Poon & Chen, 2014), India (e.g., Agrawal & Dalal, 1993; Correia et al., 2009; Donat et al., 2016; Ferguson & Kamble, 2012; Kamble & Dalbert, 2012; Lucas et al., 2016), Japan (e.g., Nakajima & Yoshida, 2008), and South Korea (e.g., Kim & Kim, 2017; Kim & Park, 2018, July).

Interestingly, most of these sites (except India) are in East Asia and their cultures have been influenced by Chinese cultures such as Chinese characters (Collin, 2011; Endo, 2015; Eom, 2015; Lewin, 1976) and ancient Chinese philosophies, especially Confucianism (Duvert, 2018). Confucianism prioritises both family and social relationships, and is also concerned about the sense of justice. The term *yì* 義, relating to justice and righteousness was introduced as a part of basic Confucian doctrine (Duvert, 2018). Further, justice issues are discussed in Confucianism including distributive justice, referring to fair distribution of outcomes and resources. For example, Kongzi, the early Chinese philosopher, says in the Confucian *Analecets* 16.1, “good rulers are not concerned [so much] about poverty, but about unequal distribution. If wealth is equally distributed (jun 均), there should be no poverty...and if your people are content, there should be no instability.” (Cline, 2007). Thus, Confucianism, as the prominent Chinese philosophy in East Asia, is important – directly by first and knowledge, and indirectly via institutional and historical influence - for ethics, moral and justice endorsements in these sites. In addition, apart from the Confucianism, ancient philosophies in East Asia have been also influenced by Mahayana Buddhist philosophy from India (Harvey, 2012; William, 2009) although the majority of the people in East Asia indicate they belong to no religion or folk religions (Central Intelligence Agency, 2019). Further, Chinese language is widely used among

people in many sites apart from the mainland such as Hong Kong S.A.R, Macau S.A.R. and Taiwan (Central Intelligence Agency, 2019). In addition, the languages in East Asia share the same root of Chinese characters such as Japanese (Collin, 2011; Endo, 2015; Lewin, 1976) and Korean (Collin, 2011; Eom, 2015; Lewin, 1976). Thus, most languages in East Asia are based on Chinese.

On the other hand, when compared with East Asia, India's distant geographical location in South Asia may be related to cultural differences. Specifically, although Indian philosophies consist of many schools including Buddhism, Hindu is the most unique nowadays (Central Intelligence Agency, 2019). Apart from the philosophy, languages in India are also very unique. India is multilingual and has the world's second highest number of languages (Seetharaman, 2017) and Hindi language is the most widely used among Indian, accounting for almost 50% of the population (Central Intelligence Agency, 2019).

Although this replication study used most measures in Study 4, I included another BJW Scale consisting BJW-Self and BJW-Others developed by Lipkus et al. (1996). Most prior studies addressing just world beliefs use either Lipkus et al. (1996)'s BJW-Self and BJW-Others Scale or Dalbert (1999)'s PBJW and GBJW Scale including our previous studies (Study 1-4) having used only Dalbert (1999)'s PBJW and GBJW Scale. Although both BJW Scales seem to be equivalent, there are some differences. One important difference is in the construction of items and the similarity between items in self- and other-related BJW. Most items in Dalbert (1999)'s PBJW (e.g., "In my life injustice is the exception rather than the rule.") and GBJW (e.g., "I am confident that justice always prevail over injustice.") are differently worded and structured. In contrast all items in Lipkus et al. (1996) BJW-S (e.g., "I feel that the world treats *me* fairly") and BJW-O (e.g., "I feel that the world treats *people* fairly", emphases added) are tightly matched by changing only pronouns. This gives the BJW-S and BJW-O operationalisation an apparent advantage over the PBJW and GBJW distinction since

potential confounds between the targets and contents of justice items are removed. Further, when considering the concepts, GBJW is different from BJW-Others because the instruction of BJW-Others is separated from the instruction of BJW-Self and BJW-Others explicitly asks the participants to apply to people *other* than yourself which means to exclude yourself whereas GBJW does not specifically ask the participants separated from PBJW. This could result in more dissociation between BJW-Self and BJW-Others, relative to the dissociation between GBJW and PBJW. Thus, both scales were included in the present study, which to my knowledge is the first study to do so.

Consequently, the present study (Study 5) aims to replicate Study 4 in a different set of Asian sites, specifically sampling almost 4,000 participants from 18 non-Southeast Asian sites in Asia, also employing two different measures of the bidimensional BJW construct.

Based on the theory and previous research, I tested the following hypotheses:

- (1) Well-being will be varied across cities.
- (2) The associations between self and other-related BJW will be varied across cities.
- (3) The cultural or contextual variables will moderate the relationship between self and other-related BJW at both Level 1 and Level 2

#### *Exploratory Factor Analysis*

- (4) Self-related BJW (BJW-Self and PBJW) and other-related BJW (BJW-Others and GBJW) subscales are psychometrically distinct

#### *Strength of BJW*

- (5) The cultural specificity hypotheses

- (a) Independent self-construal dimensions will positively predict self-related BJW relative to other-related BJW at both Level 1 and Level 2
  - (b) Holistic cognition will positively predict other-related BJW relative to self-related BJW at both Level 1 and Level 2
- (6) The reality hypotheses
- (a) Negative life events will negatively predict BJW
- (7) Exploratory prediction
- (a) Belief in Karma will predict BJW.

#### *Functions of BJW*

- (8) The cultural generality hypotheses
- (a) Self-related BJW, rather than other-related BJW, will positively predict well-being (also when controlling for Belief in Karma).
- (9) The cultural specificity hypotheses
- (a) Other-related BJW, rather than self-related BJW, will positively predict well-being.
  - (b) Independent self-construal dimensions will positively moderate the relationships between self-related BJW and well-being while negatively moderate the relationship between other-related BJW and well-being at both Level 1 and Level 2.
  - (c) Holistic cognition will positively moderate the relationships between other-related BJW and well-being at both Level 1 and Level 2.
- (10) The interactions between negative life events and BJW
- (a) Negative life events will moderate the relationship between BJW and well-being at both Level 1 and Level 2.
- (11) Exploratory prediction

(a) Belief in Karma will moderate the relationship between BJW and well-being at both Level 1 and Level 2.

#### **4.1.1 Method**

##### ***4.1.1.1 Participants***

The sample consisted of 4,453 students in a variety of universities in 18 sites in Asia (mainland China, Hong Kong S. A. R., India, Japan, Macau S. A. R., South Korea and Taiwan). Following local circumstances, they were invited to participate either in class or online through participant pool system. However, this study includes only the responses from the participants who have lived in these countries since birth. This has decreased the sample size to 3,895 (2,162 women or 55.5%), aged over 18 ( $M = 21.11$ ,  $SD = 3.82$ ) (see Table 28).

##### ***4.1.1.2 Procedure***

All study measures were translated from English to the target languages (see Table 28). They were then independently back-translated, as recommended by Brislin (1970). The two English versions were compared for any inaccuracies, which were resolved through discussion with translators.

The sampling was administered either online or using pen and paper<sup>3</sup>. Participants completed questionnaires which also contained the measures unrelated to the present study..

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<sup>3</sup> The sampling was administered using pen and paper in 3 out of 18 sites. I tested the main hypothesis that either PBJW or GBJW would be related to well-being. Overall, the results showed that when compared with GBJW, PBJW was a stronger predictor of well-being across both administration modes (online vs. pen and paper). Moreover, I also tested whether there were any differences in scores between both administration modes. I found 15 out of 18 variables (i.e., PBJW, GBJW, BJW-S, BJW-O, self-direction, self-reliance, self-containment, self-interest, de-contextualized self, consistency, holistic cognition, belief in Karma, negative life events, life satisfaction and depression) were different across both methods of completion. Since no sites used both pen-and-paper and online methods, these differences are impossible to interpret: they may have arisen from differences in sites or method.

These measures were not intended for use in this thesis but were included for collaborative projects (e.g., immanent justice reasoning). Thus, they were excluded before data analyses. Following local conventions of data collection, some participants were given course credit for participation. The questionnaire was broken into two parts, each of which took about 15-18 minutes to complete. After the first part, there was a break before proceeding to the next part. Depending on local circumstances, this break varied from 10 minutes to a week. The participants were debriefed after completing the last part.

#### **4.1.1.3 Measures**

Measures employed in Study 4 were used in Study 5 including *Satisfaction With Life Scale (SWLS)* (Diener et al., 1985) ( $\alpha = .82$ ), *Rasch-derived short form of the Center for Epidemiological Studies Depression scale (CES-D)* (Cole et al., 2004) ( $\alpha = .82$ ), *Belief in a Just World Scale (BJW)* (Dalbert, 1999): ( $\alpha = .84$  for PBJW and  $\alpha = .80$  for GBJW), *Belief in Karma Scale* (Kopalle et al., 2010) ( $\alpha = .81$ ), *Self-construal Scale* (Vignoles et al., 2016) ( $\alpha = .73$  for difference vs. similarity,  $\alpha = .76$  for self-containment vs. connectedness to others,  $\alpha = .67$  for self-direction vs. receptiveness to influence,  $\alpha = .82$  for self-reliance vs. dependence on others,  $\alpha = .72$  for consistency vs. variability,  $\alpha = .68$  for self-expression vs. harmony,  $\alpha = .63$  for self-interest vs. commitment to others, and  $\alpha = .69$  for de-contextualized vs. contextualized self), *Negative Life Events* (Gudjonsson et al., 2009) ( $\alpha = .89$ ), and *Analytic-Holistic Cognition* (Ji et al., 2004).

Additional scales were another *Belief in a Just World Scale (BJW)* developed by Lipkus et al. (1996) consisting of the eight-item *Belief in a Just World to the Self (BJW-S)* (e.g., “I feel that the world treats me fairly.”,  $\alpha = .87$ ) and the eight-item *Belief in a Just World to the Others (BJW-O)* (e.g., “I feel that the world treats people fairly.”,  $\alpha = .86$ ) (0 = strongly

disagree, 6 = strongly agree). Further, I also included the Japanese version of the six-item Depression subscale of Zigmond and Snaith (1983)'s Hospital Anxiety and Depression Scale (HADS) developed by Kitamura (1993) (e.g., "I feel as if I am slowed down.",  $\alpha = .73$ ) as an index of depression among Japanese samples<sup>4</sup>.

As in Study 4, and for the same reasons, the cultural and contextual variables (i.e., self-construal, belief in Karma, holistic cognition and negative life events) at Level 2 (city-level) were calculated from the city-level mean scores of participants' individual-level responses.

#### ***4.1.1.4 Data analyses***

Like Study 4, Study 5 is a replication study. Thus, all analyses in Study 4 were also employed in Study 5. Because BJW-S and BJW-O were just included in the present study, BJW-S and BJW-O were entered into all BJW-related analyses. Moreover, I conducted Exploratory Factor Analysis (EFA) to test psychometric properties across both versions of BJW scales.

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<sup>4</sup> Due to research practices, Depression subscale of Zigmond and Snaith (1983)'s Hospital Anxiety and Depression Scale (HADS) developed by Kitamura (1993) was specially employed to measure depression among Japanese samples in 5 out of 18 sites instead of Rasch-derived short form of the Center for Epidemiological Studies Depression scale (CES-D) (Cole et al., 2004). When considering the samples by sites, the results showed that self-related BJW were overall stronger predictors of depression than other-related BJW no matter which depression measures were used.

Table 28 Sample demographic details (Study 5)

|                      | Data collection site | N   | Mean Age | SD   | %females | Language            | Religious<br>Majority | Ethnic<br>Majority |
|----------------------|----------------------|-----|----------|------|----------|---------------------|-----------------------|--------------------|
| China (Mainland)     | Guangzhou            | 152 | 20.00    | 1.43 | 79.6     | Simplified Chinese  | Irreligion            | Han Chinese        |
|                      | Shanghai             | 111 | 26.00    | 9.05 | 70.3     | Simplified Chinese  | Irreligion            | Han Chinese        |
|                      | Wuhan                | 201 | 20.68    | 1.30 | 30.0     | Simplified Chinese  | Irreligion            | Han Chinese        |
| Hong Kong (S. A. R.) | Hong Kong            | 223 | 19.36    | 2.84 | 63.7     | English             | Irreligion            | Chinese            |
| India                | Kolkata              | 123 | 24.76    | 6.56 | 61.0     | English             | Hindu                 | Bengali            |
|                      | New Delhi            | 194 | 21.68    | 3.25 | 58.8     | English             | Hindu                 | Hindu              |
|                      | Puducherry           | 200 | 23.71    | 5.89 | 36.2     | English             | Hindu                 | Vanniyar           |
| Japan                | Kochi                | 196 | 19.12    | 1.27 | 43.9     | Japanese            | Irreligion            | Japanese           |
|                      | Kurume               | 85  | 19.11    | 1.22 | 60.0     | Japanese            | Irreligion            | Japanese           |
|                      | Nagoya               | 494 | 19.72    | 1.39 | 37.7     | Japanese            | Irreligion            | Japanese           |
|                      | Osaka                | 269 | 20.01    | .97  | 65.8     | Japanese            | Irreligion            | Japanese           |
|                      | Tokyo                | 142 | 21.01    | 1.57 | 75.4     | Japanese            | Irreligion            | Japanese           |
| Macau (S. A. R.)     | Macau                | 313 | 19.67    | 1.41 | 58.1     | Traditional Chinese | Irreligion            | Han Chinese        |

|             | Data collection site | N     | Mean Age | SD   | %females | Language            | Religious<br>Majority | Ethnic Majority |
|-------------|----------------------|-------|----------|------|----------|---------------------|-----------------------|-----------------|
| South Korea | Pohang               | 134   | 24.03    | 2.47 | 61.9     | Korean              | Christian             | Korean          |
|             | Seoul                | 354   | 22.54    | 2.80 | 51.4     | Korean              | Irreligion            | Korean          |
| Taiwan      | Chiayi               | 224   | 20.12    | 1.68 | 77.7     | Traditional Chinese | Irreligion            | Han Chinese     |
|             | Kaohsiung            | 251   | 19.49    | 1.94 | 59.0     | Traditional Chinese | Irreligion            | Han Chinese     |
|             | Taipei               | 229   | 24.39    | 5.65 | 54.1     | Traditional Chinese | Irreligion            | Han Chinese     |
|             | Total                | 3,895 |          |      |          |                     |                       |                 |

### 4.1.2 Results

Table 29 Descriptive statistics

| Variables            | Scale Range | Scale Points | <i>M</i> ( <i>SD</i> ) |
|----------------------|-------------|--------------|------------------------|
| PBJW                 | 1-6         | 6            | 3.94 (.81)             |
| GBJW                 | 1-6         | 6            | 3.51 (.89)             |
| BJW-S                | 0-6         | 7            | 3.53 (.98)             |
| BJW-O                | 0-6         | 7            | 2.87 (1.03)            |
| Self-direction       | 1-5         | 9            | 3.16 (.53)             |
| Self-reliance        | 1-5         | 9            | 2.15 (.67)             |
| Self-containment     | 1-5         | 9            | 2.48 (.66)             |
| Self-interest        | 1-5         | 9            | 2.91 (.52)             |
| Self-expression      | 1-5         | 9            | 2.88 (.56)             |
| Difference           | 1-5         | 9            | 3.30 (.58)             |
| De-contextualized    | 1-5         | 9            | 3.22 (.58)             |
| Consistency          | 1-5         | 9            | 2.86 (.60)             |
| Holistic Cognition   | n/a         | n/a          | 1.13 (3.92)            |
| Belief in Karma      | 1-7         | 7            | 4.15 (1.15)            |
| Negative Life Events | 0-1         | 2            | .27 (.32)              |
| Life Satisfaction    | 1-7         | 7            | 4.21 (1.17)            |
| Depression           | 0-3         | 4            | 1.04 (.57)             |
| Independence         | 1-5         | 9            | 2.99 (.29)             |

#### 4.1.2.1 Validation analyses:

As in Study 4, and for the same reasons, I validated the measures in the present study through tests of measurement invariance. For each scale, model fit was assessed using the comparative fit index (CFI) and root mean square error of approximation (RMSEA) (Rutkowski & Svetina, 2014). The multi-group CFA supported both metric and scalar invariance of both Dalbert's (1999) and Lipkus et al. (1996)'s BJW, life satisfaction and depression, and negative life events For the self-construal scale, a multi-group CFA supported metric invariance of all eight dimensions and scalar invariance of the seven out of eight dimensions (see Table 30).

Table 30 Measurement invariance tests (Study 5)

| Variables                 | Configural |       | Metric       |                | Scalar       |                |
|---------------------------|------------|-------|--------------|----------------|--------------|----------------|
|                           | CFI        | RMSEA | $\Delta$ CFI | $\Delta$ RMSEA | $\Delta$ CFI | $\Delta$ RMSEA |
| BJW (Dalbert, 1999)       | .92        | .08   | .00*         | -.00*          | .02          | .01*           |
| BJW (Lipkus et al., 1996) | .89        | .09   | .01*         | -.00*          | .04          | .01*           |
| Life Satisfaction         | .97        | .11   | .01*         | -.02*          | .15          | .09            |
| Depression                | .89        | .10   | .05          | .01*           | .04          | .01*           |
| Negative Life Events      | .82        | .11   | .09          | .02*           | .11          | .01*           |
| Self-construal            |            |       |              |                |              |                |
| - Self-direction          | .92        | .09   | .02          | -.01*          | .11          | .02*           |
| - Self-reliance           | .97        | .09   | .02*         | .00*           | .03          | .01*           |
| - Self-containment        | .92        | .11   | .02          | -.01*          | .05          | .01*           |
| - Self-interest           | .78        | .13   | .01*         | -.02*          | .17          | .02*           |
| - Self-expression         | .90        | .10   | .01*         | -.01*          | .09          | .02*           |
| - Difference              | .93        | .09   | .01          | -.01*          | .14          | .04            |

|                    |     |     |     |       |     |      |
|--------------------|-----|-----|-----|-------|-----|------|
| - Decontextualized | .89 | .11 | .01 | -.00* | .14 | .02* |
| - Consistency      | .85 | .14 | .03 | -.01* | .07 | .00* |
| Belief in Karma    | .78 | .21 | .03 | -.02* | .10 | .01* |

\**acceptable fit*

I tested whether the dependent variables (i.e., indices of well-being) showed significant variation at the city level. The results show that there were city-level variations in both life satisfaction and depression. This establishes that cities are meaningful unit of analysis and multilevel modelling is appropriate when taking city as the cluster. I also tested whether the predictor variables (i.e., self-construal, holistic cognition, belief in Karma and negative life events) showed significant variation at the city level. The results show that there was city-level variation in all variables except belief in Karma and negative life events (see Table 31). Thus, it is worth testing the hypothetical city-level variables.

Table 31 Variation in all individual-level variables across cities (Study 5)

| Variable         | <i>N</i> | variance | <i>SE</i> | <i>t</i> |
|------------------|----------|----------|-----------|----------|
| PBJW             | 3,895    | .03      | .01       | 3.49***  |
| GBJW             | 3,895    | .06      | .02       | 3.45**   |
| BJW-S            | 3,895    | .04      | .01       | 4.32***  |
| BJW-O            | 3,895    | .13      | .04       | 3.53***  |
| Self-direction   | 3,386    | .01      | .00       | 2.26*    |
| Self-reliance    | 3,385    | .03      | .01       | 4.00***  |
| Self-containment | 3,387    | .04      | .01       | 3.26**   |
| Self-interest    | 3,383    | .02      | .00       | 3.44**   |
| Self-expression  | 3,385    | .01      | .00       | 2.61**   |
| Difference       | 3,387    | .01      | .00       | 2.59*    |

|                      |       |      |     |                   |
|----------------------|-------|------|-----|-------------------|
| De-contextualized    | 3,384 | .01  | .00 | 3.00**            |
| Consistency          | 3,385 | .02  | .01 | 3.25**            |
| Holistic Cognition   | 3,895 | 2.42 | .86 | 2.82**            |
| Belief in Karma      | 3,895 | .18  | .10 | 1.76 <sup>†</sup> |
| Negative Life Events | 3,384 | .02  | .01 | 1.63              |
| Life Satisfaction    | 3,893 | .06  | .02 | 2.62**            |
| Depression           | 3,893 | .05  | .01 | 3.87***           |
| Independence         | 3,387 | .00  | .00 | 2.92**            |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

As in Study 4, and for the same reasons, if the specific moderation results showing that the association between self- and other-related BJW is moderated by interdependence are found at both Level 1 and Level 2, interpretations of some other moderation effects would be challenging, since higher levels of other-related BJW might only signify that other-related BJW is less distinct from self-related BJW.

Thus, I tested whether the relationship between PBJW and GBJW was different across cities. This test was significant, showing that the association varied more between cities than might be expected from chance alone (see Table 32). I then explored whether this pattern was consistent with the simple hypothesis that self- and other-related BJW overlap more in cities characterised by high levels of interdependence (Level 2), and also examined whether this a similar pattern of moderation occurs at the level of individual participants (Level 1). I found that holistic cognition positively moderated the relationship between PBJW and GBJW at both Level 1 (see Table 33) and Level 2 (see Table 35). However, there was no evidence that self-construal moderated the relationship between individual-level self- and other-related BJW at both Level 1 (see Table 33 and 34) and Level 2 (see Table 35 and 36). Thus, when self-construal

is unpacked into constituent dimensions, the results did not provide a clear and consistent pattern of the cultural specificity hypotheses. As in Studies 3 and 4, I also collapsed the scores of all self-construal dimensions into one variable called independence on which higher score indicates higher tendency of independence. I still found that no moderation effect of independence at any level. Thus, as in my previous contextual variations in the relationship between self- and other-related BJW do not conform to a simple cultural hypothesis (i.e., the relationship between self- and other-related BJW was not consistently stronger in collectivist contexts indicated by the positive moderation effects of interdependent cultural variables). This means the results of the moderation effects of cultural variables on the associations between BJW and well-being may not accept the cultural specificity hypotheses. (for summary of individual and city-level moderators of PBJW as predictor of GBJW across Study 4 and 5, see Table B1 in Appendix B)

Table 32 City-level variation in the strength of BJW and the associations (Study 5)

| Variables                         | <i>N</i> | variance | <i>SE</i> | <i>t</i>          |
|-----------------------------------|----------|----------|-----------|-------------------|
| PBJW→GBJW ( $x \rightarrow y$ )   | 3,895    | .00      | .00       | 1.67 <sup>†</sup> |
| GBJW→PBJW ( $x \rightarrow y$ )   | 3,895    | .00      | .00       | 155.23***         |
| BJW-S→BJW-O ( $x \rightarrow y$ ) | 3,895    | .01      | .00       | 3.43**            |
| BJW-O→BJW-S ( $x \rightarrow y$ ) | 3,895    | .00      | .00       | .99               |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 33 Individual-level moderators of PBJW predicting GBJW (Study 5)

| Individual-level<br>moderator | Independent |          |          | GBJW      |          |
|-------------------------------|-------------|----------|----------|-----------|----------|
|                               | variable    | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| -                             | PBJW        | 3,895    | .59      | .02       | 27.94*** |
| Self-direction                | PBJW        | 3,386    | -.02     | .04       | -.49     |
| Self-reliance                 | PBJW        | 3,385    | -.03     | .03       | -1.13    |
| Self-containment              | PBJW        | 3,387    | .05      | .03       | 1.46     |
| Self-interest                 | PBJW        | 3,383    | .01      | .03       | .32      |
| Self-expression               | PBJW        | 3,385    | .01      | .04       | .24      |
| Difference                    | PBJW        | 3,387    | -.02     | .04       | -.55     |
| De-contextualized             | PBJW        | 3,384    | -.03     | .02       | -1.35    |
| Consistency                   | PBJW        | 3,385    | .04      | .03       | 1.40     |
| Holistic Cognition            | PBJW        | 3,896    | .01      | .01       | 2.13*    |
| Belief in Karma               | PBJW        | 3,895    | .01      | .01       | .43      |
| Negative Life Events          | PBJW        | 3,384    | -.01     | .07       | -.21     |
| Independence                  | PBJW        | 3,387    | -.03     | .09       | -.34     |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 34 Individual-level moderators of BJW-Self predicting BJW-Others (Study 5)

| Individual-level<br>moderator | Independent |          |          | BJW-O     |          |
|-------------------------------|-------------|----------|----------|-----------|----------|
|                               | variable    | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| -                             | BJW-S       | 3,895    | .57      | .03       | 20.67*** |
| Self-direction                | BJW-S       | 3,385    | -.04     | .05       | -.86     |
| Self-reliance                 | BJW-S       | 3,384    | .04      | .03       | 1.43     |
| Self-containment              | BJW-S       | 3,386    | .04      | .03       | 1.37     |

|                      |       |       |      |     |                    |
|----------------------|-------|-------|------|-----|--------------------|
| Self-interest        | BJW-S | 3,382 | -.03 | .03 | -1.01              |
| Self-expression      | BJW-S | 3,384 | -.01 | .04 | -.26               |
| Difference           | BJW-S | 3,386 | -.04 | .02 | -1.85 <sup>†</sup> |
| De-contextualized    | BJW-S | 3,383 | -.03 | .03 | -1.20              |
| Consistency          | BJW-S | 3,384 | -.00 | .03 | .13                |
| Holistic Cognition   | BJW-S | 3,895 | -.00 | .01 | -.12               |
| Belief in Karma      | BJW-S | 3,894 | .01  | .01 | .75                |
| Negative Life Events | BJW-S | 3,384 | .01  | .05 | .17                |
| Independence         | BJW-S | 3,386 | -.04 | .05 | -.90               |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 35 City-level moderators of PBJW predicting GBJW (Study 5)

| City-level moderator | Independent |          |          | GBJW      |                    |
|----------------------|-------------|----------|----------|-----------|--------------------|
|                      | variable    | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>           |
| Self-direction       | PBJW        | 3,895    | .18      | .20       | .92                |
| Self-reliance        | PBJW        | 3,895    | .00      | .10       | .04                |
| Self-containment     | PBJW        | 3,895    | -.17     | .10       | -1.77 <sup>†</sup> |
| Self-interest        | PBJW        | 3,895    | -.17     | .16       | -1.06              |
| Self-expression      | PBJW        | 3,895    | -.22     | .18       | -1.28              |
| Difference           | PBJW        | 3,895    | .08      | .17       | .46                |
| De-contextualized    | PBJW        | 3,895    | .03      | .20       | .16                |
| Consistency          | PBJW        | 3,895    | -.11     | .11       | -1.01              |
| Holistic Cognition   | PBJW        | 3,895    | .02      | .01       | 2.18*              |
| Belief in Karma      | PBJW        | 3,895    | .04      | .05       | .79                |
| Negative Life Events | PBJW        | 3,895    | .02      | .11       | .19                |

|              |      |       |      |     |       |
|--------------|------|-------|------|-----|-------|
| Independence | PBJW | 3,895 | -.40 | .25 | -1.59 |
|--------------|------|-------|------|-----|-------|

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 36 City-level moderators of BJW-Self predicting BJW-Others (Study 5)

| City-level moderator | Independent |          | BJW-O    |           |          |
|----------------------|-------------|----------|----------|-----------|----------|
|                      | variable    | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| Self-direction       | BJW-S       | 3,895    | -.32     | .19       | -1.72†   |
| Self-reliance        | BJW-S       | 3,895    | .04      | .13       | .29      |
| Self-containment     | BJW-S       | 3,895    | .04      | .12       | .35      |
| Self-interest        | BJW-S       | 3,895    | -.18     | .16       | -1.15    |
| Self-expression      | BJW-S       | 3,895    | .07      | .27       | .26      |
| Difference           | BJW-S       | 3,895    | -.22     | .19       | -1.18    |
| De-contextualized    | BJW-S       | 3,895    | -.12     | .25       | -.49     |
| Consistency          | BJW-S       | 3,895    | .07      | .16       | .44      |
| Holistic Cognition   | BJW-S       | 3,895    | -.01     | .02       | -.81     |
| Belief in Karma      | BJW-S       | 3,895    | .02      | .06       | .41      |
| Negative Life Events | BJW-S       | 3,895    | .25      | .15       | 1.65†    |
| Independence         | BJW-S       | 3,895    | -.26     | .33       | -.79     |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

This study employed two widely used operationalisations of the distinction between justice for “me” and “others”: the BJW-Self and Others scales (Lipkus et al., 1996) and Personal and General BJW scales (Dalbert, 1999). In general, these two operationalisations are used interchangeably in the literature (Hafer & Sutton, 2016). Although psychometric properties were tested within each scale, especially BJW-Self and Others (Bègue & Bastounis,

2003; Sutton & Douglas, 2005), to my knowledge, this may be the first study employing both BJW scales.

I entered all 29 BJW items (Lipkus et al., 1996; Dalbert, 1999) into a factor analysis to test whether self-related BJW (BJW-Self and PBJW) and other-related BJW (BJW-Others and GBJW) subscales are psychometrically distinct. Although BJW-Self and BJW-Others were psychometrically tested (Bègue & Bastounis, 2003; Sutton & Douglas, 2005), factor analyses of both BJW scales have never been published before. Thus, I performed Exploratory Factor Analysis (EFA) using DIRECT OBLIMIN (an oblique rotation). When I used the Eigenvalue  $> 1$  criterion, five factors were identified, but the Eigenvalues of the last two factors were marginally significant (Eigenvalues = 1.185, and 1.060, respectively). Then, I calculated the three-factor model and found that Dalbert's (1999) GBJW items loaded onto both the Factor 2 and Factor 3 (loadings at least .200). Therefore, a two-factor solution were calculated and found that all 29 items appropriately loaded onto the two factors (loadings at least .200) although the item "I feel that when I meet with misfortune, I have brought it upon myself." (Lipkus et al., 1996) seem to be problematic because the loadings onto the two factors were very close (.296 and .134, respectively) confirming Sutton and Douglas's (2005) findings. Principal components loadings from the pattern matrix are presented in Table 37.

Table 37 Factor analysis: pattern matrix showing principal component loading of items from Lipkus et al.'s (1996) BJW-Self and BJW-Others and Dalbert's (1999) PBJW and GBJW.

| Items  | Factor 1<br>(Self-related) | Factor 2<br>(Other-related) |
|--|----------------------------|-----------------------------|
| <i>Lipkus et al.'s (1996) BJW-Self</i>   |                            |                             |
| I feel that the world treats me fairly.  | .589                       | -                           |
| I feel that I get what I deserve.  | .709                       | -                           |
| I feel that people treat me fairly in life.                                    | .722                       | -                           |
| I feel that I earn the rewards and punishments I get.                          | .627                       | -                           |
| I feel that people treat me with the respect I deserve.                        | .609                       | -                           |
| I feel that I get what I am entitled to have.                                  | .673                       | -                           |
| I feel that my efforts are noticed and rewarded.                               | .622                       | -                           |
| I feel that when I meet with misfortune, I have brought it upon myself.        | .296                       | -                           |
| <i>Dalbert's (1999) PBJW</i>   |                            |                             |
| I believe that, by and large, I deserve what happens to me.                    | .598                       | -                           |
| I am usually treated fairly.   | .764                       | -                           |
| I believe that I usually get what I deserve.                                   | .765                       | -                           |
| Overall, events in my life are just.   | .690                       | -                           |
| In my life injustice is the exception rather than the rule.                    | .428                       | -                           |
| I believe that most of the things that happen in my life are fair.             | .548                       | -                           |
| I think that important decisions that are made concerning me are usually just. | .559                       | -                           |
| <i>Lipkus et al.'s (1996) BJW-Others</i>                                       |                            |                             |
| I feel that the world treats people fairly.                                    | -                          | .714                        |
| I feel that people get what they deserve.                                      | -                          | .711                        |
| I feel that people treat each other fairly in life.                            | -                          | .728                        |

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|   |   |      |
|---|---|------|
| I feel that people earn the rewards and punishments they get.   | - | .702 |
| I feel that people treat each other with the respect they deserve.  | - | .628 |
| I feel that people get what they are entitled to have.  | - | .633 |
| I feel that a person's efforts are noticed and rewarded.  | - | .566 |
| I feel that when people meet with misfortune, they have brought it upon themselves.   | - | .522 |
| <i>Dalbert's (1999) GBJW</i>  |   |      |
| I think basically the world is a just place.  | - | .517 |
| I believe that, by and large, people get what they deserve.   | - | .574 |
| I am confident that justice always prevails over injustice.   | - | .517 |
| I am convinced that in the long run people will be compensated for injustices.  | - | .507 |
| I firmly believe that injustices in all areas of life (e.g., professional, family, politics)<br>are the exception rather than the rule. | - | .511 |
| I think people try to be fair when making important decisions.  | - | .421 |

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*Note.* Only loadings at least .200 are presented.

#### **4.1.2.2 Strength of BJW**

To test the cultural generality and specificity hypotheses about variation in the strength of BJW, I examined variations in the strength of BJW initially as a function only of location (city). The results show that there was a city-level variation in BJW (see Table 32). Thus, I proceeded to test hypotheses about specific sources of this variation across cities.

**4.1.2.2.1 Reality hypotheses:** The reality hypotheses state that BJW reflect individual-level and city-level negative life events. This hypothesis was supported in Study 4 (negative life events in individuals' lives were associated with lower PBJW; negative life events at city level were associated with lower GBJW). In contrast, the present findings failed to support the reality hypotheses. The results show that negative life events were not associated with BJW at

Level 1 (individual) while negative life events were positively associated with BJW-S at Level 2 (contextual) (see Table 38).

Table 38 Level 1 and Level 2 negative life events as predictor of BJW across cities

|                      |       |          | PBJW     |           |          |
|----------------------|-------|----------|----------|-----------|----------|
| Independent variable | Level | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| Negative Life Events | 1     | 3,384    | -.16     | .24       | -.65     |
|                      | 2     |          | .18      | .26       | .70      |
|                      |       |          | GBJW     |           |          |
| Independent variable | Level | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| Negative Life Events | 1     | 3,384    | -.20     | .13       | -1.50    |
|                      | 2     |          | .13      | .37       | .35      |
|                      |       |          | BJW-S    |           |          |
| Independent variable | Level | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| Negative Life Events | 1     | 3,384    | -.10     | .24       | -.43     |
|                      | 2     |          | .60      | .24       | 2.47*    |
|                      |       |          | BJW-O    |           |          |
| Independent variable | Level | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| Negative Life Events | 1     | 3,384    | -.11     | .17       | -.65     |
|                      | 2     |          | .72      | .56       | 1.27     |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**4.1.2.2.2 Cultural specificity hypotheses:** As in Study 4, the cultural specificity hypotheses state that BJW reflect independent-interdependent self-construal. Further, the

levels of analysis (Level 1 and 2) reflect either internalised cultural norms or cultural representations of justice.

There was little or no evidence that people in independent contexts endorse PBJW relatively more than GBJW. At Level 2 (city), 3 out of all 8 self-dimensions are associated with gaps between PBJW and GBJW but only two associations are in the predicted direction (self-direction and difference). However, there was little or no evidence that people with independent self-construal endorse PBJW relatively more than GBJW. At Level 1 (individual), five out of all eight self-dimensions are associated with gaps between PBJW and GBJW but 3 associations are in the predicted direction (self-direction, difference, and de-contextualized self). Further, 4 out of all 8 self-dimensions are associated with gaps between BJW-S and BJW-O and three of these associations are in the predicted direction (self-direction, difference, and de-contextualized self) (see Table 39). Thus, when self-construal is unpacked, the results did not clearly offer some support for the cultural specificity hypothesis at both individual and contextual (city) levels of analysis. Then, as in Study 3 in Chapter 2 and in Study 4 in Chapter 3, I collapsed the scores of all self-construal dimensions. I found that independence was positively associated with the difference between PBJW and GBJW only at Level 1 but not the gap between BJW-S and BJW-O at any level. I found that independence negatively predicted GBJW and BJW-O only at Level 1 but not PBJW and BJW-S at any level (see Table 39). In sum, I do find evidence that self-construal affects levels of BJW in a manner that is consistent with the cultural specificity hypothesis. Among independent people, PBJW is endorsed more strongly than GBJW.

Next, I examined how *holistic cognition* predicts BJW. At Level 2 (city), city-level holistic cognition predicted decreased individual-level GBJW, BJW-S and BJW-O but most strongly predicted BJW-O but predicted increased both individual-level PBJW vs. GBJW and BJW-S vs. BJW-O differences. At Level 1 (individual), holistic cognition predicted increased

PBJW, GBJW, and BJW-O but most strongly predicted GBJW. However, individual-level holistic cognition did not predict the BJW difference. Holistic cognition appears to be associated with increased just world beliefs and self-related BJW relative to other-related BJW at individual-level but decreased just world beliefs at city-level (see Table 39). Finally, I examined how *belief in Karma* predict BJW. At Level 2 (city), belief in Karma predicted increased individual-level BJW-O. Further, belief in Karma negatively predicted the PBJW and GBJW difference. At Level 1 (individual), belief in Karma positively predicted both self- and other-related BJW, but more strongly predicted other-related BJW. Further, belief in Karma negatively predicted the PBJW and GBJW difference (see Table 39). All in all, my analyses show that as predicted, independent self-construal is associated with the tendency to endorse PBJW more than GBJW. Other cultural moderators had a less clear or consistent effect. If self-construal can affect the strength of just world beliefs, it may also affect their psychological function. I turn to this hypothesis next (for a summary of Level 1 and 2 self-construal, belief in Karma and holistic cognition as predictors of PBJW, GBJW and BJW difference across Study 4 and 5, see Table B2 to Table B4 in Appendix B)

Table 39 Level 1 and 2 self-construal, belief in Karma and holistic cognition as predictors of PBJW, GBJW, BJW-Self, BJW-Others and BJW differences (Study 5)

| Independent variable | Level | <i>N</i> | $\gamma$ | PBJW      |           |
|----------------------|-------|----------|----------|-----------|-----------|
|                      |       |          |          | <i>SE</i> | <i>t</i>  |
| Self-direction       | 1     | 3,386    | .01      | .02       | .28       |
|                      | 2     |          | 1.25     | .26       | 4.81***   |
| Self-reliance        | 1     | 3,385    | .00      | .03       | .11       |
|                      | 2     |          | .32      | .21       | 1.52      |
| Self-containment     | 1     | 3,387    | -.22     | .02       | -13.85*** |

|                      |       |          |          |           |          |
|----------------------|-------|----------|----------|-----------|----------|
|                      | 2     |          | -.63     | .12       | -5.46*** |
| Self-interest        | 1     | 3,383    | -.08     | .02       | -3.44**  |
|                      | 2     |          | -.14     | .35       | -.41     |
| Self-expression      | 1     | 3,385    | -.04     | .03       | -1.12    |
|                      | 2     |          | -.80     | .46       | -1.73†   |
| Difference           | 1     | 3,387    | .01      | .03       | .38      |
|                      | 2     |          | .29      | .44       | .65      |
| De-contextualized    | 1     | 3,384    | .11      | .03       | 3.19**   |
|                      | 2     |          | .65      | .57       | 1.15     |
| Consistency          | 1     | 3,385    | .13      | .03       | 4.93***  |
|                      | 2     |          | .06      | .33       | .17      |
| Holistic Cognition   | 1     | 3,895    | .01      | .01       | 1.98*    |
|                      | 2     |          | .03      | .02       | 1.40     |
| Belief in Karma      | 1     | 3,895    | .17      | .02       | 7.35***  |
|                      | 2     |          | -.04     | .11       | -.41     |
| Independence         | 1     | 3,387    | -.07     | .05       | -1.37    |
|                      | 2     |          | -.26     | .93       | -.28     |
| Independent variable |       |          | GBJW     |           |          |
|                      | Level | <i>N</i> | <i>γ</i> | <i>SE</i> | <i>t</i> |
| Self-direction       | 1     | 3,386    | -.15     | .03       | -4.44*** |
|                      | 2     |          | -.20     | .62       | -.31     |
| Self-reliance        | 1     | 3,385    | -.04     | .03       | -1.37    |
|                      | 2     |          | .46      | .24       | 1.93†    |
| Self-containment     | 1     | 3,387    | -.11     | .03       | -4.49*** |
|                      | 2     |          | .04      | .27       | .13      |

| Self-interest        | 1     | 3,383    | -.13                     | .04       | -3.29**  |
|----------------------|-------|----------|--------------------------|-----------|----------|
|                      | 2     |          | -.49                     | .34       | -1.43    |
| Self-expression      | 1     | 3,385    | -.07                     | .04       | -1.77†   |
|                      | 2     |          | -.11                     | .80       | -.14     |
| Difference           | 1     | 3,387    | -.10                     | .02       | -4.71*** |
|                      | 2     |          | .38                      | .49       | .77      |
| De-contextualized    | 1     | 3,384    | -.04                     | .03       | -1.27    |
|                      | 2     |          | -.74                     | .41       | -1.79†   |
| Consistency          | 1     | 3,385    | .19                      | .04       | 5.42***  |
|                      | 2     |          | .22                      | .39       | .55      |
| Holistic Cognition   | 1     | 3,895    | .01                      | .00       | 2.35*    |
|                      | 2     |          | -.08                     | .02       | -3.74*** |
| Belief in Karma      | 1     | 3,895    | .21                      | .02       | 9.29***  |
|                      | 2     |          | .26                      | .13       | 1.92†    |
| Independence         | 1     | 3,387    | -.24                     | .05       | -4.52*** |
|                      | 2     |          | .09                      | 1.03      | .08      |
| Independent variable | Level | <i>N</i> | PBJW and GBJW Difference |           |          |
|                      |       |          | $\gamma$                 | <i>SE</i> | <i>t</i> |
| Self-direction       | 1     | 3,386    | .15                      | .03       | 5.03***  |
|                      | 2     |          | 1.44                     | .73       | 1.98*    |
| Self-reliance        | 1     | 3,385    | .04                      | .02       | 1.92†    |
|                      | 2     |          | -.14                     | .23       | -.58     |
| Self-containment     | 1     | 3,387    | -.11                     | .03       | -4.24*** |
|                      | 2     |          | -.66                     | .27       | -2.44*   |
| Self-interest        | 1     | 3,383    | .04                      | .05       | .98      |

|                      |       |          |          |                       |                    |
|----------------------|-------|----------|----------|-----------------------|--------------------|
|                      | 2     |          | .33      | .40                   | .84                |
| Self-expression      | 1     | 3,385    | .04      | .04                   | 1.01               |
|                      | 2     |          | -.67     | .66                   | -1.03              |
| Difference           | 1     | 3,387    | .11      | .03                   | 3.50***            |
|                      | 2     |          | -.08     | .52                   | -.16               |
| De-contextualized    | 1     | 3,384    | .14      | .03                   | 5.25***            |
|                      | 2     |          | 1.40     | .63                   | 2.21*              |
| Consistency          | 1     | 3,385    | -.06     | .03                   | -2.25*             |
|                      | 2     |          | -.16     | .48                   | -.33               |
| Holistic Cognition   | 1     | 3,895    | .00      | .00                   | .82                |
|                      | 2     |          | .11      | .03                   | 4.32***            |
| Belief in Karma      | 1     | 3,985    | -.05     | .01                   | -3.50***           |
|                      | 2     |          | -.30     | .07                   | -4.57***           |
| Independence         | 1     | 3,387    | .17      | .06                   | 2.78**             |
|                      | 2     |          | -.33     | .82                   | -.41               |
| Independent variable | Level | <i>N</i> | $\gamma$ | BJW-Self<br><i>SE</i> | <i>t</i>           |
| Self-direction       | 1     | 3,386    | .03      | .03                   | .84                |
|                      | 2     |          | .48      | .51                   | .95                |
| Self-reliance        | 1     | 3,385    | -.01     | .03                   | -.22               |
|                      | 2     |          | .84      | .14                   | 5.95***            |
| Self-containment     | 1     | 3,387    | -.25     | .03                   | -10.33***          |
|                      | 2     |          | -.44     | .25                   | -1.76 <sup>†</sup> |
| Self-interest        | 1     | 3,383    | -.10     | .04                   | -2.69**            |
|                      | 2     |          | -.70     | .40                   | -1.76 <sup>†</sup> |

|                      |       |          |          |           |          |
|----------------------|-------|----------|----------|-----------|----------|
| Self-expression      | 1     | 3,385    | -.03     | .04       | -.73     |
|                      | 2     |          | -.56     | .43       | -1.30    |
| Difference           | 1     | 3,387    | .05      | .03       | 1.55     |
|                      | 2     |          | .74      | .34       | 2.19*    |
| De-contextualized    | 1     | 3,384    | .12      | .03       | 3.62***  |
|                      | 2     |          | -.08     | .43       | -.19     |
| Consistency          | 1     | 3,385    | .12      | .04       | 3.39**   |
|                      | 2     |          | -.30     | .27       | -1.12    |
| Holistic Cognition   | 1     | 3,895    | .01      | .01       | 1.82†    |
|                      | 2     |          | -.07     | .02       | -4.50*** |
| Belief in Karma      | 1     | 3,895    | .22      | .03       | 7.89***  |
|                      | 2     |          | .19      | .11       | 1.80†    |
| Independence         | 1     | 3,387    | -.08     | .06       | -1.33    |
|                      | 2     |          | -.16     | .94       | -.17     |
| Independent variable | Level | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> |
| Self-direction       | 1     | 3,385    | -.08     | .03       | -3.13**  |
|                      | 2     |          | -.25     | .89       | -.28     |
| Self-reliance        | 1     | 3,384    | -.04     | .03       | -1.12    |
|                      | 2     |          | 1.12     | .33       | 3.43**   |
| Self-containment     | 1     | 3,386    | -.04     | .03       | -1.66†   |
|                      | 2     |          | -.06     | .37       | -.17     |
| Self-interest        | 1     | 3,382    | -.03     | .05       | -.62     |
|                      | 2     |          | -.92     | .53       | -1.73†   |
| Self-expression      | 1     | 3,384    | -.05     | .04       | -1.23    |

|                         |       |          |          |           |                    |
|-------------------------|-------|----------|----------|-----------|--------------------|
|                         | 2     |          | -.08     | .97       | -.08               |
| Difference              | 1     | 3,386    | -.07     | .04       | -1.55              |
|                         | 2     |          | .77      | .64       | 1.20               |
| De-contextualized       | 1     | 3,383    | -.06     | .03       | -1.91 <sup>†</sup> |
|                         | 2     |          | -.91     | .62       | -1.48              |
| Consistency             | 1     | 3,384    | .16      | .03       | 4.87***            |
|                         | 2     |          | .26      | .50       | .51                |
| Holistic Cognition      | 1     | 3,895    | .01      | .00       | 2.25*              |
|                         | 2     |          | -.18     | .02       | -8.99***           |
| Belief in Karma         | 1     | 3,894    | .23      | .03       | 8.98***            |
|                         | 2     |          | .32      | .16       | 2.03*              |
| Independence            | 1     | 3,386    | -.15     | .05       | -2.93**            |
|                         | 2     |          | .62      | 1.19      | .52                |
| BJW-Self and BJW-Others |       |          |          |           |                    |
| Independent variable    | Level | <i>N</i> | <i>γ</i> | <i>SE</i> | <i>t</i>           |
| Self-direction          | 1     | 3,385    | .11      | .04       | 3.08**             |
|                         | 2     |          | .84      | .55       | 1.53               |
| Self-reliance           | 1     | 3,384    | .03      | .03       | 1.01               |
|                         | 2     |          | -.27     | .32       | -.87               |
| Self-containment        | 1     | 3,386    | -.21     | .03       | -8.37***           |
|                         | 2     |          | .39      | .21       | -1.85 <sup>†</sup> |
| Self-interest           | 1     | 3,382    | -.07     | .04       | -1.58              |
|                         | 2     |          | .18      | .41       | .43                |
| Self-expression         | 1     | 3,384    | .03      | .03       | .95                |

|                    |   |       |      |     |                   |
|--------------------|---|-------|------|-----|-------------------|
|                    | 2 |       | -.44 | .66 | -.67              |
| Difference         | 1 | 3,386 | .12  | .04 | 2.93**            |
|                    | 2 |       | .03  | .50 | .06               |
| De-contextualized  | 1 | 3,383 | .18  | .03 | 6.09***           |
|                    | 2 |       | .88  | .51 | 1.72 <sup>†</sup> |
| Consistency        | 1 | 3,384 | -.04 | .03 | -1.30             |
|                    | 2 |       | -.54 | .41 | -1.32             |
| Holistic Cognition | 1 | 3,895 | .00  | .00 | .27               |
|                    | 2 |       | .11  | .02 | 5.70***           |
| Belief in Karma    | 1 | 3,894 | -.01 | .01 | -.72              |
|                    | 2 |       | -.13 | .08 | -1.48             |
| Independence       | 1 | 3,386 | .06  | .06 | 1.022             |
|                    | 2 |       | -.67 | .91 | -.74              |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

#### 4.1.2.3 Functions of BJW

The previous results in this study showed the variation in the relationship between self- and other-related BJW across cities. Further, the findings also indicated the association between self- and other-related BJW was not consistently stronger in collectivist contexts. As in Study 4 in Chapter 3, I tested the cultural generality vs. specificity hypotheses about the moderation effects of cultural variables including self-construal (Vignoles et al., 2016), holistic cognition (Nisbett & Miyamoto, 2005) and negative life events (Gudjonsson et al., 2009) on the functions of BJW for well-being. I tested the hypotheses at both Level 1 and Level 2 by analysing only one moderator at a time to eliminate confounds between individual and city-level effects, to see the clear findings and to deepen theoretical understanding of the role of individual and city-level cultural moderators on the functions of BJW.

**4.1.2.3.1 Testing cultural generality and specificity hypotheses** To test my key hypotheses, I began by conducting a multilevel analysis of the relationship between the two versions of bi-dimensional BJW (PBJW and GBJW vs. BJW-S and BJW-O) and the two key indicators of well-being: life satisfaction and depression. Relationships between these predictor and criterion variables were tested at Level 1 (individual level), adjusting for Level 2 (city-level) variation. Both dimensions of BJW were entered simultaneously as predictor variables in these analyses but each version was separately analysed.

Table 4. reports the Level 1 relationships between well-being and BJW. It shows that across all samples, and consistent with the cultural generality hypothesis, PBJW and BJW-S predicted both indices of well-being. In contrast, GBJW predicted only life satisfaction, and did so less strongly than PBJW. When I analysed these relationships in each of the 18 individual cities, PBJW and BJW-S were positively related to at least one index of well-being in all but one city, whereas GBJW and BJW-O were related to well-being in many fewer cases (see Table 41). (for summary of just world beliefs as predictors of well-being across cities across Study 4 and 5, see Table B5 in Appendix B)

Table 40 Just world beliefs as predictors of well-being across cities

| Variables | Life Satisfaction |             |          | Depression |             |          |
|-----------|-------------------|-------------|----------|------------|-------------|----------|
|           | $\gamma$          | <i>SE B</i> | <i>t</i> | $\gamma$   | <i>SE B</i> | <i>t</i> |
| PBJW      | .60               | .06         | 10.70*** | -.20       | .03         | -7.79*** |
| GBJW      | .09               | .03         | 2.96**   | -.01       | .02         | -.49     |

| Variables | Life Satisfaction |             |          | Depression |             |          |
|-----------|-------------------|-------------|----------|------------|-------------|----------|
|           | $\gamma$          | <i>SE B</i> | <i>t</i> | $\gamma$   | <i>SE B</i> | <i>t</i> |
| BJW-S     | .52               | .05         | 10.06*** | -.16       | .02         | -8.46*** |
| BJW-O     | .05               | .04         | 1.05     | .02        | .02         | .91      |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 41 Summary of PBJW, GBJW, BJW-Self and BJW-Others predicting well-being by sample (Study 5)

| Data collection site |            | Life satisfaction |       |        |         | Depression |        |         |       |
|----------------------|------------|-------------------|-------|--------|---------|------------|--------|---------|-------|
|                      |            | PBJW              | GBJW  | BJW-S  | BJW-O   | PBJW       | GBJW   | BJW-S   | BJW-O |
| China (Mainland)     | Guangzhou  | .45***            | -.01  | .59*** | -.05    | -.45***    | .04    | -.43*** | -.02  |
|                      | Shanghai   | .53***            | .13   | .52*** | .14     | -.34**     | -.15   | -.14    | -.25* |
|                      | Wuhan      | -.06              | -.11  | -.09   | .04     | .04        | -.20*  | -.04    | -.06  |
| Hong Kong (S. A. R.) | Hong Kong  | .47***            | .08   | .48*** | .07     | -.36***    | .20*   | -.36*** | .21*  |
| India                | Kolkata    | .42***            | .21*  | .22*   | .29**   | -.08       | -.11   | -.15    | .12   |
|                      | New Delhi  | .43***            | .16*  | .30*** | .29***  | -.40***    | .04    | -.37*** | .22*  |
|                      | Puducherry | .41***            | .04   | .02    | .35***  | .06        | .30*** | .30**   | .06   |
| Japan                | Kochi      | .35***            | .06   | .53*** | -.11    | -.21**     | -.12   | -.30*** | .08   |
|                      | Kurume     | .41**             | .09   | .63*** | -.10    | -.33*      | .08    | -.50*** | .21†  |
|                      | Nagoya     | .51***            | -.02  | .61*** | -.16*** | -.41***    | .07    | -.37*** | .11*  |
|                      | Osaka      | .50***            | .02   | .54*** | -.04    | -.31***    | .01    | -.35*** | .02   |
|                      | Tokyo      | .55***            | -.01  | .62*** | -.04    | -.20***    | .02    | -.37*** | -.09  |
| Macau (S. A. R.)     | Macau      | .25***            | .23** | .31*** | .16*    | -.25**     | .04    | -.28*** | .03   |

| Country     | City/Region of data collection | Life satisfaction |       |         |           | Depression |        |         |           |
|-------------|--------------------------------|-------------------|-------|---------|-----------|------------|--------|---------|-----------|
|             |                                | PBJW              | GBJW  | BJWSelf | BJWOthers | PBJW       | GBJW   | BJWSelf | BJWOthers |
| South Korea | Pohang                         | .59***            | .01   | .50***  | -.05      | -.31**     | -.08   | -.32**  | .03       |
|             | Seoul                          | .39***            | .15** | .42***  | .08       | -.28***    | -.07   | -.38*** | .08       |
| Taiwan      | Chiayi                         | .45***            | .14*  | .49***  | .04       | -.17**     | -.14** | -.19*** | -.05      |
|             | Kaohsiung                      | .37***            | .05   | .32***  | .08       | -.40***    | .02    | -.39*** | -.07      |
|             | Taipei                         | .51***            | .02   | .48***  | .13       | -.36***    | -.07   | -.25*** | -.20**    |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

The results in the present study showed that individual-level belief in Karma is related to just world beliefs (see Table 39) which confirmed previous findings (Agrawal & Dalal, 1993; White et al., 2019) and the results in Study 4 (see Table 19). Further, in Study 4, when controlling for BJW, belief in Karma positively predicted life satisfaction and perceived health status among the Southeast Asian samples (see Table 21). Thus, in Study 5, it is worth replicating the analysis by controlling for belief in Karma when self- and other-related BJW predict well-being. Table 42 shows that belief in Karma positively predicted depression when controlling for BJW-S and BJW-O. However, PBJW and BJW-S still strongly predicted both indices of well-being.

Table 42 BJW and belief in Karma as predictors of well-being across sites

| Independent variable | <i>N</i> | Life Satisfaction |           |          | Depression |           |           |
|----------------------|----------|-------------------|-----------|----------|------------|-----------|-----------|
|                      |          | $\gamma$          | <i>SE</i> | <i>t</i> | $\gamma$   | <i>SE</i> | <i>t</i>  |
| PBJW                 | 3,872    | .57               | .02       | 35.12*** | -.21       | .02       | -11.64*** |
| GBJW                 |          | .10               | .01       | 10.49*** | -.01       | .03       | -.46      |
| Belief in Karma      |          | -.01              | .06       | -.17     | .05        | .05       | .97       |

| Independent variable | <i>N</i> | Life Satisfaction |           |                   | Depression |           |          |
|----------------------|----------|-------------------|-----------|-------------------|------------|-----------|----------|
|                      |          | $\gamma$          | <i>SE</i> | <i>t</i>          | $\gamma$   | <i>SE</i> | <i>t</i> |
| BJW-S                | 3,871    | .44               | .08       | 5.65***           | -.17       | .03       | 5.16***  |
| BJW-O                |          | .12               | .07       | 1.65 <sup>†</sup> | .01        | .03       | .43      |
| Belief in Karma      |          | -.04              | .06       | -.72              | .05        | .02       | 2.35*    |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\*\* $p < .001$

Political conservatism was measured in Study 5. Although it is not a focal variable in the present studies, it is relevant to my hypotheses. Previous research suggests that political

conservatism is positively related to well-being (Napier & Jost, 2008; Onraet et al., 2013; Onraet et al., 2017). My own findings replicate this result: in Study 5, conservatism was positively related to life satisfaction [ $r = .07, p < .001$ ] and negatively related to depression [ $r = -.03, p = .034$ ]. It is also related to just world beliefs in past research (Dittmar & Dickinson, 1993; Lambert & Raichle, 2000) and other-related BJWs in my studies: for GBJW [ $r = .05, p = .003$ ], and for BJW-O [ $r = .05, p = .006$ ]. I conducted multiple regressions in which BJW, Karma, and conservatism were entered as predictors of well-being, to assess the unique relationship of conservatism and BJW to well-being. These confirmed that conservatism was related to life satisfaction even controlling for PBJW and GBJW [ $\beta = .07, p < .001$ ], and for BJW-S and BJW-O [ $\beta = .07, p < .001$ ]. Similarly, the significant relationships between BJW and well-being remained significant when I controlled for conservatism.

All of the participants in this study were recruited from East and South Asian sites (non-Southeast Asian and non-WEIRD) that are typically associated with cultural practices and ways of understanding reality. The finding that self-related BJW rather than other-related BJW was robustly associated with well-being across these sites, just as it is in WEIRD contexts, provides clear support for the cultural generality hypothesis. Nonetheless, the possibility remains that the strength and even the direction of relationships varies between cities. To test this hypothesis, I conducted a cross-level moderation analysis, first of all with an empty model at Level 2 (city). This showed that the relationships between well-being and BJW varied significantly between cities (cross-level moderations). Specifically, the relationship between BJW-O and both indices of well-being varied across sites more than would be expected by chance alone, whereas the relationships between self-related BJW and both indices of well-being did not vary across sites (see Table 43).

Table 43 City-level variation in the relationships between BJW and well-being (Study 5)

| Dependent variable | Independent variable | <i>N</i> | City-level variance | <i>SE</i> | <i>t</i>          |
|--------------------|----------------------|----------|---------------------|-----------|-------------------|
| Life Satisfaction  | PBJW                 | 3,893    | .04                 | .03       | 1.39              |
|                    | GBJW                 |          | .01                 | .00       | 1.57              |
| Depression         | PBJW                 | 3,893    | .01                 | .00       | 1.88 <sup>†</sup> |
|                    | GBJW                 |          | .00                 | .00       | 1.70 <sup>†</sup> |
| Life Satisfaction  | BJW-S                | 3,892    | .05                 | .02       | 1.90 <sup>†</sup> |
|                    | BJW-O                |          | .01                 | .01       | 2.15*             |
| Depression         | BJW-S                | 3,892    | .01                 | .01       | 1.35              |
|                    | BJW-O                |          | .00                 | .00       | 2.31*             |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Since there was evidence of significant variation between sites in the correlates of BJW, I then conducted multilevel analysis to determine which variables, including self-construal, holistic cognition, Karma, and negative life events, might be responsible for this variation. At Level 2 (city), some *self-construal* dimensions moderated the relationship between BJW and well-being. These effects were generally weak and rare. Only, 14 out of 64 self-construal cross-level moderation effects were significant; eight were consistent and six were inconsistent with the hypothesis. Of note, relationships between BJW and well-being were moderated by contextual variations in *holistic cognition*. The association between PBJW and life satisfaction was stronger in cities characterised by holistic cognition. In addition, the relationships between BJW-S and both indices of well-being were stronger in cities characterised by holistic cognition whereas the relationship between BJW-O and life satisfaction was weaker. Moreover, the associations between BJW and well-being were also moderated by city-level *belief in Karma*.

The associations between self-related BJW (PBJW and BJW-S) and life satisfaction were weaker in cities characterised by belief in Karma and the relationship between PBJW and depression was also weaker. On the other hand, the relationship between BJW-O and life satisfaction was stronger (for moderation effects see Table 44 and 45).

These same models simultaneously reveal whether moderation occurred at Level 1: that is, whether individual-level variation in endorsement or internalisation of cultural variables may change relationships between BJW and well-being. They revealed that there was only weak moderation. Three out of 64 *self-construal* moderation tests are significant; two are consistent and one is inconsistent with the hypothesis that other-related BJW is more important, to the well-being of collectivists. However, individual-level *holistic cognition* and *belief in Karma* did not moderate any relationships between BJW and well-being (see Table 46 and 47).

Thus, when unpacking the dimensions of self-construal, the present results did not reveal clear and consistent pattern of support for the cultural specificity hypotheses. Then, as in Studies 3 and 4, I collapsed the scores of all self-construal dimensions into one variable called independence which higher score indicates higher tendency of independence. Independence positively moderated the relationship between BJW-O and life satisfaction whereas positively moderated the relationship between BJW-S and depression only at Level 2. Thus, the results contradicted to each other (See Table 44 and 45).

Overall then the cultural specificity hypothesis is not supported with respect to dimensions of self-construal. Variables associated with interdependent self-construal, examined at either the city or the individual level, were not associated with weaker relationships between PBJW and well-being, nor stronger relationships between GBJW and well-being. (for summary of moderators of just world beliefs as predictors of well-being across Study 4 and 5, see Table B6-B9 in Appendix B)

Table 44 City-level moderators of PBJW and GBJW as predictors of well-being (Study 5)

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |          |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |          | Low             |           |          | High            |           |          |
|                      |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Self-direction       | PBJW                 | Life Satisfaction  | 3,893    | 1.11     | .40       | 2.79**   | .51             | .07       | 7.36***  | .72             | .05       | 14.20*** |
|                      | GBJW                 |                    |          | .28      | .22       | 1.26     |                 |           |          |                 |           |          |
| Self-reliance        | PBJW                 |                    | 3,893    | -.22     | .30       | -.74     |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .12      | .17       | .731     |                 |           |          |                 |           |          |
| Self-containment     | PBJW                 |                    | 3,893    | -.26     | .20       | -1.26    |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .02      | .11       | .20      |                 |           |          |                 |           |          |
| Self-interest        | PBJW                 |                    | 3,893    | .37      | .29       | 1.27     |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | -.05     | .22       | -.21     |                 |           |          |                 |           |          |
| Self-expression      | PBJW                 |                    | 3,893    | .06      | .52       | 12       |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .53      | .21       | 2.55*    | .04             | .04       | .95      | .14             | .03       | 5.11***  |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>          | Slopes          |           |          |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|-------------------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |                   | Low             |           |          | High            |           |          |
|                      |                      |                    |          |          |           |                   | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Difference           | PBJW                 | Life Satisfaction  | 3,893    | .03      | .30       | .09               |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .14      | .23       | .59               |                 |           |          |                 |           |          |
| De-contextualized    | PBJW                 |                    | 3,893    | 1.14     | .46       | 2.50*             | .50             | .07       | 6.69***  | .73             | .05       | 13.40*** |
|                      | GBJW                 |                    |          | .19      | .25       | .77               |                 |           |          |                 |           |          |
| Consistency          | PBJW                 |                    | 3,893    | .40      | .28       | 1.41              |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .18      | .17       | 1.05              |                 |           |          |                 |           |          |
| Holistic Cognition   | PBJW                 |                    | 3,893    | .09      | .03       | 2.79*             | .46             | .08       | 6.00***  | .76             | .05       | 14.17*** |
|                      | GBJW                 |                    |          | .00      | .02       | .03               |                 |           |          |                 |           |          |
| Belief in Karma      | PBJW                 |                    | 3,893    | -.19     | .08       | -2.31*            | .69             | .06       | 11.58*** | .53             | .06       | 8.63***  |
|                      | GBJW                 |                    |          | .10      | .05       | 1.76 <sup>†</sup> |                 |           |          |                 |           |          |
| Independence         | PBJW                 |                    | 3,893    | .71      | .47       | 1.50              |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .66      | .36       | 1.82 <sup>†</sup> |                 |           |          |                 |           |          |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |          |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |          | Low             |           |          | High            |           |          |
|                      |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Self-direction       | PBJW                 | Depression         | 3,893    | -.38     | .24       | -1.57    |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | -.38     | .16       | -2.42*   | .03             | .03       | .91      | -.05            | .01       | -3.64*** |
| Self-reliance        | PBJW                 |                    | 3,893    | .05      | .12       | .40      |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | -.22     | .07       | -3.38**  | .03             | .02       | 1.40     | -.05            | .02       | -2.94**  |
| Self-containment     | PBJW                 |                    | 3,893    | .14      | .12       | 1.18     |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .27      | .06       | 4.12***  | -.07            | .02       | -3.06**  | .05             | .02       | 3.04**   |
| Self-interest        | PBJW                 |                    | 3,893    | -.01     | .14       | -.07     |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .20      | .14       | 1.40     |                 |           |          |                 |           |          |
| Self-expression      | PBJW                 |                    | 3,893    | .24      | .27       | .90      |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .26      | .19       | 1.35     |                 |           |          |                 |           |          |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>           | Slopes          |           |          |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|--------------------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |                    | Low             |           |          | High            |           |          |
|                      |                      |                    |          |          |           |                    | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Difference           | PBJW                 | Depression         | 3,893    | -.01     | .21       | -.03               |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | -.30     | .14       | -2.08*             | .03             | .03       | 1.01     | -.04            | .02       | -1.97*   |
| De-contextualized    | PBJW                 |                    | 3,893    | -.40     | .22       | -1.77 <sup>†</sup> |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | -.31     | .17       | -1.83 <sup>†</sup> |                 |           |          |                 |           |          |
| Consistency          | PBJW                 |                    | 3,893    | .14      | .14       | 1.02               |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .07      | .14       | .53                |                 |           |          |                 |           |          |
| Holistic Cognition   | PBJW                 |                    | 3,893    | -.04     | .02       | -1.92 <sup>†</sup> |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .01      | .01       | .44                |                 |           |          |                 |           |          |
| Belief in Karma      | PBJW                 |                    | 3,893    | .04      | .04       | 1.09               |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | .01      | .04       | .22                |                 |           |          |                 |           |          |
| Independence         | PBJW                 |                    | 3,893    | .19      | .31       | .60                |                 |           |          |                 |           |          |
|                      | GBJW                 |                    |          | -.02     | .29       | -.05               |                 |           |          |                 |           |          |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 45 City-level moderators of BJW-Self and BJW-Others as predictors of well-being (Study 5)

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |           |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|-----------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |          | Low             |           |           | High            |           |          |
|                      |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i>  | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Self-direction       | BJW-S                | Life Satisfaction  | 3,892    | .78      | .53       | 1.48     |                 |           |           |                 |           |          |
|                      | BJW-O                |                    |          |          |           |          |                 |           |           |                 |           |          |
| Self-reliance        | BJW-S                |                    | 3,892    | -.55     | .27       | -2.03*   | .61             | .06       | 10.92**** | .40             | .08       | 4.75**** |
|                      | BJW-O                |                    |          | .50      | .13       | 3.89**** | -.03            | .04       | -.62      | .16             | .03       | 5.02**** |
| Self-containment     | BJW-S                |                    | 3,892    | -.18     | .30       | -.62     |                 |           |           |                 |           |          |
|                      | BJW-O                |                    |          | .08      | .19       | .44      |                 |           |           |                 |           |          |
| Self-interest        | BJW-S                |                    | 3,892    | .58      | .32       | 1.80†    |                 |           |           |                 |           |          |
|                      | BJW-O                |                    |          | -.40     | .24       | -1.71†   |                 |           |           |                 |           |          |
| Self-expression      | BJW-S                |                    | 3,892    | -.68     | .52       | -1.30    |                 |           |           |                 |           |          |
|                      | BJW-O                |                    |          | .65      | .24       | 2.73**   | -.00            | .04       | -.11      | .13             | .04       | 2.93**   |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>          | Slopes          |           |          |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|-------------------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |                   | Low             |           |          | High            |           |          |
|                      |                      |                    |          |          |           |                   | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Difference           | BJW-S                | Life Satisfaction  | 3,892    | -.60     | .44       | -1.37             |                 |           |          |                 |           |          |
|                      | BJW-O                |                    |          | .47      | .30       | 1.56              |                 |           |          |                 |           |          |
| De-contextualized    | BJW-S                |                    | 3,892    | .94      | .52       | 1.83 <sup>†</sup> |                 |           |          |                 |           |          |
|                      | BJW-O                |                    |          | -.22     | .37       | -.60              |                 |           |          |                 |           |          |
| Consistency          | BJW-S                |                    | 3,892    | -.11     | .30       | -.36              |                 |           |          |                 |           |          |
|                      | BJW-O                |                    |          | .12      | .18       | .65               |                 |           |          |                 |           |          |
| Holistic Cognition   | BJW-S                |                    | 3,892    | .13      | .02       | 7.66***           | .28             | .03       | 9.74***  | .70             | .05       | 15.26*** |
|                      | BJW-O                |                    |          | -.07     | .02       | -4.00***          | .19             | .04       | 4.89***  | -.04            | .04       | -1.10    |
| Belief in Karma      | BJW-S                |                    | 3,892    | -.22     | .07       | -2.99**           | .60             | .05       | 11.46*** | .42             | .07       | 6.17***  |
|                      | BJW-O                |                    |          | .21      | .07       | 2.90**            | -.03            | .05       | -.54     | .15             | .04       | 4.00***  |
| Independence         | BJW-S                |                    | 3,892    | -.50     | .63       | -.79              |                 |           |          |                 |           |          |
|                      | BJW-O                |                    |          | .81      | .39       | 2.04*             | .01             | .05       | .15      | .09             | .04       | 1.98*    |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |                    |                 |           |          |
|----------------------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|--------------------|-----------------|-----------|----------|
|                      |                      |                    |          |          |           |          | Low             |           |                    | High            |           |          |
|                      |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i>           | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Self-direction       | BJW-S                | Depression         | 3,892    | -.32     | .33       | -.97     |                 |           |                    |                 |           |          |
|                      | BJW-O                |                    |          | -.13     | .18       | -.76     |                 |           |                    |                 |           |          |
| Self-reliance        | BJW-S                |                    | 3,892    | .10      | .08       | 1.07     |                 |           |                    |                 |           |          |
|                      | BJW-O                |                    |          | -.16     | .04       | -2.05*   | .04             | .02       | 2.41*              | -.02            | .03       | -.83     |
| Self-containment     | BJW-S                |                    | 3,892    | .14      | .14       | 1.00     |                 |           |                    |                 |           |          |
|                      | BJW-O                |                    |          | .15      | .07       | 2.22*    | -.02            | .02       | -1.01              | .04             | .02       | 2.24*    |
| Self-interest        | BJW-S                |                    | 3,892    | -.11     | .13       | -.83     |                 |           |                    |                 |           |          |
|                      | BJW-O                |                    |          | .22      | .10       | 2.28*    | -.02            | .02       | -.90               | .04             | .02       | 2.15*    |
| Self-expression      | BJW-S                |                    | 3,892    | .25      | .22       | 1.13     |                 |           |                    |                 |           |          |
|                      | BJW-O                |                    |          | .39      | .13       | 3.01**   | -.03            | .02       | -1.74 <sup>†</sup> | .05             | .02       | 2.39*    |
| Difference           | BJW-S                |                    | 3,892    | .10      | .22       | .45      |                 |           |                    |                 |           |          |
|                      | BJW-O                |                    |          | -.14     | .17       | -.83     |                 |           |                    |                 |           |          |

| City-level moderator | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i>          | Slopes          |           |           |                 |           |           |
|----------------------|----------------------|--------------------|----------|----------|-----------|-------------------|-----------------|-----------|-----------|-----------------|-----------|-----------|
|                      |                      |                    |          |          |           |                   | Low             |           |           | High            |           |           |
|                      |                      |                    |          |          |           |                   | <i>Estimate</i> | <i>SE</i> | <i>t</i>  | <i>Estimate</i> | <i>SE</i> | <i>t</i>  |
| De-contextualized    | BJW-S                | Depression         | 3,892    | -.36     | .26       | -1.35             |                 |           |           |                 |           |           |
|                      | BJW-O                |                    |          | -.00     | .16       | -.02              |                 |           |           |                 |           |           |
| Consistency          | BJW-S                |                    | 3,892    | .12      | .24       | .52               |                 |           |           |                 |           |           |
|                      | BJW-O                |                    |          | .25      | .13       | 1.91 <sup>†</sup> |                 |           |           |                 |           |           |
| Holistic Cognition   | BJW-S                |                    | 3,892    | -.04     | .01       | -2.99**           | -.09            | .03       | -2.75**   | -.22            | .02       | -10.15*** |
|                      | BJW-O                |                    |          | .00      | .01       | .54               |                 |           |           |                 |           |           |
| Belief in Karma      | BJW-S                |                    | 3,892    | .07      | .03       | 2.25*             | -.19            | .02       | -10.23*** | -.13            | .03       | -4.20***  |
|                      | BJW-O                |                    |          | -.05     | .03       | -1.57             |                 |           |           |                 |           |           |
| Independence         | BJW-S                |                    | 3,892    | .90      | .34       | 2.65**            | -.25            | .03       | -8.68***  | -.15            | .03       | -5.15***  |
|                      | BJW-O                |                    |          | .38      | .26       | 1.46              |                 |           |           |                 |           |           |

*Note* Simple Slopes are shown for only the significant moderating effects.

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 46 Individual-level moderators of PBJW and GBJW as predictors of well-being (Study 5)

| Individual-level<br>moderator | Independent<br>variable | <i>N</i> | Life Satisfaction |           |          | Depression |          |           |                    |
|-------------------------------|-------------------------|----------|-------------------|-----------|----------|------------|----------|-----------|--------------------|
|                               |                         |          | $\gamma$          | <i>SE</i> | <i>t</i> | <i>N</i>   | $\gamma$ | <i>SE</i> | <i>t</i>           |
| Self-direction                | PBJW                    | 3,385    | -.01              | .05       | -.16     | 3,385      | -.04     | .03       | -1.36              |
|                               | GBJW                    |          | .03               | .05       | .56      |            | -.03     | .04       | -.62               |
| Self-reliance                 | PBJW                    | 3,384    | -.02              | .05       | -.45     | 3,384      | -.03     | .02       | -1.03              |
|                               | GBJW                    |          | .03               | .06       | .46      |            | -.03     | .02       | -1.75 <sup>†</sup> |
| Self-containment              | PBJW                    | 3,386    | -.07              | .05       | -.133    | 3,386      | .03      | .02       | 1.88 <sup>†</sup>  |
|                               | GBJW                    |          | .08               | .06       | 1.36     |            | .04      | .02       | 1.74 <sup>†</sup>  |
| Self-interest                 | PBJW                    | 3,382    | -.01              | .05       | -.19     | 3,382      | .03      | .03       | 1.10               |
|                               | GBJW                    |          | .05               | .07       | .74      |            | .01      | .03       | .38                |
| Self-expression               | PBJW                    | 3,384    | -.09              | .06       | -1.56    | 3,384      | -.01     | .03       | -.35               |
|                               | GBJW                    |          | -.00              | .05       | -.02     |            | .02      | .02       | 1.00               |

| Individual-level<br>moderator | Independent<br>variable | <i>N</i> | Life Satisfaction |           |          | Depression |          |           |          |
|-------------------------------|-------------------------|----------|-------------------|-----------|----------|------------|----------|-----------|----------|
|                               |                         |          | $\gamma$          | <i>SE</i> | <i>t</i> | <i>N</i>   | $\gamma$ | <i>SE</i> | <i>t</i> |
| Difference                    | PBJW                    | 3,386    | .00               | .06       | -.01     | 3,386      | -.02     | .03       | -.73     |
|                               | GBJW                    |          | .03               | .04       | -.72     |            | -.06     | .02       | -2.37*   |
| De-contextualized             | PBJW                    | 3,383    | .06               | .06       | 1.03     | 3,383      | -.01     | .03       | -.21     |
|                               | GBJW                    |          | -.05              | .04       | -1.13    |            | -.04     | .03       | -1.42    |
| Consistency                   | PBJW                    | 3,384    | .04               | .05       | .78      | 3,384      | -.01     | .02       | -.32     |
|                               | GBJW                    |          | .03               | .04       | .70      |            | .02      | .02       | .95      |
| Holistic Cognition            | PBJW                    | 3,893    | .00               | .01       | .32      | 3,893      | .00      | .01       | .59      |
|                               | GBJW                    |          | -.00              | .01       | -.38     |            | .00      | .00       | .05      |
| Belief in Karma               | PBJW                    | 3,892    | .02               | .02       | .80      | 3,892      | .01      | .01       | 1.23     |
|                               | GBJW                    |          | .01               | .03       | .29      |            | .00      | .01       | .11      |
| Independence                  | PBJW                    | 3,386    | -.01              | .14       | -.06     | 3,386      | -.04     | .06       | -.76     |
|                               | GBJW                    |          | .01               | .13       | .08      |            | -.04     | .04       | -.95     |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 47 Individual-level moderators of BJW-Self and BJW-Others as predictors of well-being (Study 5)

| Individual-level<br>moderator | Independent<br>variable | <i>N</i> | Life Satisfaction |           |                    | Depression |          |           |          |
|-------------------------------|-------------------------|----------|-------------------|-----------|--------------------|------------|----------|-----------|----------|
|                               |                         |          | $\gamma$          | <i>SE</i> | <i>t</i>           | <i>N</i>   | $\gamma$ | <i>SE</i> | <i>t</i> |
| Self-direction                | BJW-S                   | 3,384    | .01               | .04       | .12                | 3,384      | .01      | .02       | -.34     |
|                               | BJW-O                   |          | .01               | .04       | .33                |            | -.05     | .02       | -2.19*   |
| Self-reliance                 | BJW-S                   | 3,383    | .01               | .03       | .37                | 3,383      | -.02     | .02       | -1.02    |
|                               | BJW-O                   |          | -.01              | .04       | -.35               |            | -.02     | .02       | -1.26    |
| Self-containment              | BJW-S                   | 3,385    | -.08              | .05       | -1.73 <sup>†</sup> | 3,385      | .02      | .02       | 1.47     |
|                               | BJW-O                   |          | .07               | .04       | 1.68 <sup>†</sup>  |            | .04      | .02       | 2.62**   |
| Self-interest                 | BJW-S                   | 3,381    | -.03              | .04       | -0.20              | 3,381      | .02      | .02       | 1.46     |
|                               | BJW-O                   |          | -.01              | .04       | .44                |            | .01      | .02       | .65      |
| Self-expression               | BJW-S                   | 3,383    | -.05              | .05       | -1.11              | 3,383      | .01      | .02       | .33      |
|                               | BJW-O                   |          | -.01              | .04       | -.17               |            | -.00     | .02       | -.12     |

| Individual-level<br>moderator | Independent<br>variable | <i>N</i> | Life Satisfaction |           |          | Depression |          |           |          |
|-------------------------------|-------------------------|----------|-------------------|-----------|----------|------------|----------|-----------|----------|
|                               |                         |          | $\gamma$          | <i>SE</i> | <i>t</i> | <i>N</i>   | $\gamma$ | <i>SE</i> | <i>t</i> |
| Difference                    | BJW-S                   | 3,385    | .00               | .05       | -.00     | 3,385      | -.01     | .02       | -.48     |
|                               | BJW-O                   |          | -.07              | .04       | -1.64    |            | -.02     | .03       | -.72     |
| De-contextualized             | BJW-S                   | 3,382    | -.03              | .05       | -.73     | 3,382      | .00      | .02       | .15      |
|                               | BJW-O                   |          | -.01              | .06       | -.18     |            | -.04     | .03       | -1.41    |
| Consistency                   | BJW-S                   | 3,383    | .01               | .04       | .20      | 3,383      | .01      | .02       | .41      |
|                               | BJW-O                   |          | .02               | .04       | .65      |            | .02      | .02       | 1.01     |
| Holistic Cognition            | BJW-S                   | 3,892    | .00               | .01       | .42      | 3,892      | .00      | .00       | -.03     |
|                               | BJW-O                   |          | .00               | .01       | .40      |            | .00      | .01       | .42      |
| Belief in Karma               | BJW-S                   | 3,891    | .02               | .03       | .92      | 3,891      | -.01     | .01       | -.86     |
|                               | BJW-O                   |          | .01               | .02       | .38      |            | .02      | .01       | 1.53     |
| Independence                  | BJW-S                   | 3,385    | -.03              | .12       | -.23     | 3,385      | -.01     | .03       | -.43     |
|                               | BJW-O                   |          | -.02              | .08       | -.22     |            | -.02     | .02       | -.87     |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**4.1.2.3.2 Interactions between BJW and negative life events:** As in Study 4 in Chapter 3, and for the same reasons, I examined whether negative life events at both Level 1 and 2 interacted with BJW. Table 48 summarises the results of these analyses. City-level negative life events positively moderated the relationship between GBJW and life satisfaction which means the positive relationship between GBJW and life satisfaction were stronger when there was higher frequency of negative life events.

The results show there was some support for the hypothesis that GBJW buffers well-being from negative life events. Relationship between individuals' GBJW and well-being were stronger in cities where negative life events are more frequent, as suggested by the buffering hypotheses (Level 2). Thus, the relationships between GBJW and well-being were stronger in people who are in the contexts with high levels of negative life events. (for summary of moderators of just world beliefs as predictors of well-being across Study 4 and 5, see Table B6-B9 in Appendix B).

Table 48 Level 1 and 2 negative life events as moderators of relationships between well-being and BJW

| Moderator            | Level | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |          |                 |           |          |
|----------------------|-------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|----------|-----------------|-----------|----------|
|                      |       |                      |                    |          |          |           |          | Low             |           | High     |                 |           |          |
|                      |       |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Negative Life Events | 1     | PBJW                 | Life Satisfaction  | 3,382    | -.10     | .31       | -.31     |                 |           |          |                 |           |          |
|                      |       | GBJW                 |                    |          | .03      | .26       | .11      |                 |           |          |                 |           |          |
|                      | 2     | PBJW                 |                    | 3,893    | -.14     | .25       | -.58     |                 |           |          |                 |           |          |
|                      |       | GBJW                 |                    |          | .33      | .08       | 4.16***  | .04             | .03       | 1.51     | .13             | .02       | 5.33***  |
|                      | 1     | BJW-S                | Life Satisfaction  | 3,382    | -.03     | .03       | -.97     |                 |           |          |                 |           |          |
|                      |       | BJW-O                |                    |          | -.03     | .21       | -.14     |                 |           |          |                 |           |          |
|                      | 2     | BJW-S                |                    | 3,892    | -.50     | .44       | -1.14    |                 |           |          |                 |           |          |
|                      |       | BJW-O                |                    |          | .50      | .32       | 1.55     |                 |           |          |                 |           |          |
|                      | 1     | PBJW                 | Depression         | 3,382    | -.12     | .16       | -.74     |                 |           |          |                 |           |          |
|                      |       | GBJW                 |                    |          | .11      | .10       | .26      |                 |           |          |                 |           |          |
|                      | 2     | PBJW                 |                    | 3,893    | .12      | .14       | .81      |                 |           |          |                 |           |          |
|                      |       | GBJW                 |                    |          | -.07     | .09       | -.85     |                 |           |          |                 |           |          |

| Moderator   | Level | Independent variable | Dependent variable | <i>N</i> | $\gamma$ | <i>SE</i> | <i>t</i> | Slopes          |           |          |                 |           |          |
|-------------|-------|----------------------|--------------------|----------|----------|-----------|----------|-----------------|-----------|----------|-----------------|-----------|----------|
|             |       |                      |                    |          |          |           |          | Low             |           |          | High            |           |          |
|             |       |                      |                    |          |          |           |          | <i>Estimate</i> | <i>SE</i> | <i>t</i> | <i>Estimate</i> | <i>SE</i> | <i>t</i> |
| Negative    | 1     | BJW-S                | Depression         | 3,382    | -.01     | .03       | -.24     |                 |           |          |                 |           |          |
| Life Events |       | BJW-O                |                    |          | .04      | .06       | .65      |                 |           |          |                 |           |          |
|             | 2     | BJW-S                |                    | 3,892    | .07      | .21       | .34      |                 |           |          |                 |           |          |
|             |       | BJW-O                |                    |          | .02      | .07       | .29      |                 |           |          |                 |           |          |

*Note* Simple Slopes are shown for only the significant moderating effects.

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

#### 4.1.2.4 Applying a correction for multiple tests

As in Study 4 in Chapter 3, and for the same reasons, I used a Holm–Bonferroni sequentially adjusted alpha for applying a correction for multiple tests (Holm, 1979). When considering only the moderation effects of both individual-level and city-level self-construal on the associations between BJW (i.e., PBJW, GBJW, BJW-S and BJW-O) and well-being (life satisfaction and depression) in this study, there are more than 100 tests which is same as in Study 4. Thus, I can simply consider only the  $p$ -value of .000 as the criteria of the significant results to decide whether accept or reject the null hypothesis.

Regarding the strength of BJW, out of eight *self-construal* dimensions, four of them are associated with gaps between self- and other-related BJW, and three associations are in the predicted direction (self-direction, difference, and de-contextualized self) only at Level 1. Moreover, city-level *holistic cognition* positively predicted both self- and other-related BJW differences but negatively predicted GBJW, BJW-S, and BJW-O. In addition, *belief in Karma* positively predicted PBJW, GBJW, BJW-S, BJW-O at Level 1 but negatively predicted the gap between PBJW and GBJW at both Level 1 and 2, Further, *negative life events* were not related to BJW at any level.

Regarding the functions of BJW, PBJW and BJW-S predicted both indices of well-being but not GBJW and BJW-O. Unlike in Study 4 in Chapter 3, when controlling for BJW, belief in Karma did not predict well-being. When considering the moderation effects of city-level *self-construal*, two out of 64 self-construal moderation tests are significant; one is that GBJW is a stronger predictor of depression in cities characterised by self-containment which is consistent with the hypothesis that other-related BJW is more important, to the well-being of collectivists whereas another one is that BJW-O is a stronger predictor of life satisfaction in cities characterised by self-reliance which is inconsistent with the hypothesis. In addition, city-level *holistic cognition* positively moderated the association between BJW-S and life

satisfaction whereas negatively moderated the relationship between BJW-O and life satisfaction. Moreover, city-level *negative life events* positively moderated the relationship between GBJW and life satisfaction.

Table 49 Summary of the findings for Study 5

| Hypotheses   | Results         |
|--|-----------------|
| (1) Well-being will be varied across cities.   | Accepted        |
| (2) The associations between self and other-related BJW will be varied across cities.  | Accepted        |
| (3) The cultural or contextual variables will moderate the relationship between self and other-related BJW at both Level 1 and Level 2       | Rejected        |
| <i>Exploratory Factor Analysis</i>   |                 |
| (4) Self-related BJW (BJW-Self and PBJW) and other-related BJW (BJW-Others and GBJW) subscales are psychometrically distinct.                | Accepted        |
| <i>Strength of BJW</i>   |                 |
| <i>(5) The cultural specificity hypotheses</i>   |                 |
| (a) Independent self-construal dimensions will positively predict self-related BJW relative to other-related BJW at both Level 1 and Level 2 | Mostly rejected |

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|  |  |
|--|--|
| (b) Holistic cognition will positively predict   | Rejected   |
| other-related BJW relative to self-related BJW<br>at both Level 1 and Level 2  | (Holistic cognition positively predicted<br>both self- and other-related BJW<br>differences but negatively predicted<br>GBJW, BJW-S, and BJW-O.        |
| <i>(6) The reality hypotheses</i>  |  |
| (a) Negative life events will negatively predict<br>BJW  | Rejected   |
| <i>(7) Exploratory prediction</i>  |  |
| (a) Belief in Karma will predict BJW.  | Belief in Karma positively predicted all<br>types of BJW at Level 1 but negatively<br>predicted the gap between PBJW and<br>GBJW at both Level 1 and 2 |
| <i>Functions of BJW</i>  |  |
| <i>(8) The cultural generality hypotheses</i>  |  |
| (a) Self-related BJW, rather than other-related<br>BJW, will positively predict well-being (also<br>when controlling for Belief in Karma). | Accepted   |
| <i>(9) The cultural specificity hypotheses</i>   |  |
| (a) Other-related BJW, rather than self-related<br>BJW, will positively predict well-being.  | Rejected   |

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|--|--|
| <p>(b) Independent self-construal dimensions will positively moderate the relationships between self-related BJW and well-being while negatively moderate the relationship between other-related BJW and well-being at both Level 1 and Level 2.</p> | <p>Mostly rejected</p>   |
| <p>(c) Holistic cognition will positively moderate the relationships between other-related BJW and well-being at both Level 1 and Level 2.</p>   | <p>Rejected<br/>(Holistic cognition city-level holistic cognition positively moderated the association between BJW-S and life satisfaction whereas negatively moderated the relationship between BJW-O and life satisfaction.)</p> |
| <p><i>(10) The interactions between negative life events and BJW</i></p>   |  |
| <p>(a) Negative life events will moderate the relationship between BJW and well-being at both Level 1 and Level 2.</p>   | <p>Negative life events positively moderated the relationship between GBJW and life satisfaction at Level 2.</p>   |
| <p><i>(11) Exploratory prediction</i></p>  |  |
| <p>(a) Belief in Karma will moderate the relationship between BJW and well-being at both Level 1 and Level 2.</p>  | <p>Rejected</p>  |

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### 4.1.3 Discussion

Like Study 4, the present study is a large-scale cross-cultural investigation of just world beliefs and well-being, this time across 18 sites in Asia. This study also includes some sites that share cultural roots in language and philosophy. Replicating Study 4, it confirmed that both PBJW and BJW-S predicted higher life satisfaction and lower depression across all sites as prior research among WEIRD samples. As in Study 4, self-construal did not moderate these effects in any ways predicted by the cultural specificity hypothesis. Rather, moderations were rare and varied such that sometimes patterns of moderation were in the opposite direction than predicted. The present results therefore converge with studies in WEIRD populations and previous studies in this thesis, indicating that across diverse cultural backgrounds, human beings benefit from believing that life treats them fairly, whereas believing that life treats people fairly in general is less adaptive (Dalbert, 1999; Lerner, 1980; Lipkus et al., 1996).

The functions of BJW can vary between cities for reasons other than culture per se. One of the main factors implicated in the just world literature is the adversity of people's life circumstances. It has long been argued (and sometimes found) that BJW, and in particular PBJW, should help weaken the link between adversity in a person's life and psychological distress (the buffering hypothesis) (e.g., Kim & Park, 2018). Some scholars have suggested that in the content of collective adversity, such as natural disasters or a shared experience of chronic pain, GBJW may be more important in protecting well-being (McParland & Knussen, 2010; Wu et al., 2009; Wu et al., 2011; Wu et al., 2013). In the present study, the first hypothesis did not receive support: there was no interaction between negative life events at the individual level, and BJW, for indices of well-being. On the other hand, the second hypothesis did receive support. A cross-level moderation effect shows that the relationship between GBJW and well-being was stronger in cities characterized by high levels of negative life events. In sum, neither Study 4 nor Study 5 support the buffering hypothesis for PBJW, in contrast to

previous published findings. On the other hand, Study 5, but not Study 4, provided support for the hypothesis that GBJW may play a buffering role for well-being among individuals who live in cities where life is generally tougher for people. This latter set of findings points to the possibility that the effect of GBJW in buffering people's well-being from collective adversity may depend on other cultural factors, for example, the predominance of Taoist and Confucian philosophy in Chinese and Chinese-influenced cultures (Wu et al., 2009; Wu et al., 2011; Wu et al., 2013).

In Study 4, I found that adverse life events appeared to affect the strength of BJW. Specifically, negative life events in individuals' lives (Level 1) were associated with lower levels of PBJW, while the preponderance of negative life events with cities (Level 2) was associated with reduced GBJW. This pattern of results was exactly consistent with the reality hypothesis: people's judgements of the justice experienced in their own and others' lives are associated with levels of negative life events experienced individually and collectively. However, no such pattern was observed in the present study. Adverse life circumstances and BJW were largely unrelated. Out of eight relationships, only one (the relationship between city-level adversity and BJW-S) was significant, and does not offer support for the reality hypothesis.

Although the functions of just world beliefs to well-being were similar across cultures, the results showed marked variations in their *strength*. Overall, PBJW and BJW-S were endorsed more than GBJW and BJW-O, just as they are in WEIRD contexts. Specifically, PBJW was relatively strong in cities characterized by self-direction, difference and de-contextualized self which are independent poles of self-construal dimensions. The results were consistent with research on personal control showing that internal control was more common among individualistic cultures (Mueller & Thomas, 2001; Spector et al., 2001). Thus, BJW involving with a sense of control and predictability may be affected by independent view. A

perceptual focus on individuals' goals and individual inputs such as effort and talent may facilitate beliefs that they are causally connected.

Interestingly, city-level holistic cognition predicted BJW and promoted the positive relationship between BJW-S and life satisfaction but diminished the positive association between BJW-O and life satisfaction in Asia. These results in the present study mostly confirmed the results in Study 4 conducted in Southeast Asia. Previous research found that BJW is related to conservatism (Dittmar & Dickinson, 1993; Lambert & Raichle, 2000) and conservatism is associated with holistic cognition (Talhelm et al., 2015) which indicated the possible relationship between BJW and holistic cognition driven by conservatism. Specifically, Wilson (1973) suggested the mechanism behind conservative ideology is fear of uncertainty. Fear of uncertainty is likely to be equivalent to uncertainty avoidance which is usually found in East Asia and so does holistic cognition (Hofstede, 2001). Uncertainty avoidance can also refer to a sense of personal control because people are eager to believe that they can control their lives and make their lives predictable which seems to be one of the motives underlying the belief that the fairness of people should be definitely based on deservingness as known as belief in a just world (Lerner, 1980).

Regarding belief in Karma, belief in Karma positively predicted BJW but stronger for GBJW which confirmed the results in Study 4. These findings also supported that belief in Karma was related to belief in a just world (Agrawal & Dalal, 1993; White et al., 2019). In contrast, when controlling for BJW, belief in Karma did not predict life satisfaction as emerging in Study 4. White et al. (2019) suggested that the relationship between Karma and BJW would be stronger among Karmic believers. According to the sample demographic details, although the religious majority in three out of 18 sites from India is Hindu, the religious majority across most cities is no religion. Thus, Karma may not be important among the samples indicating most of them are non-Karmic believers.

## **Chapter 5:**

### **General Discussion**

In this final chapter, I review the main aims of the present research and summarise the main findings. These results are discussed, followed by unresolved questions, limitations and future directions.

#### **5.1 Review of main aims**

In the present thesis, I sought to conduct the largest, most comprehensive test to date of the relationship between BJW and well-being. I sampled across 44 Asian cities and included measures of BJW, well-being, and various cultural and environmental constructs including self-construal, holistic thinking, and adverse life circumstances. My aim was to examine whether the often-observed relationship between self-related BJW (i.e, PBW and BJW-S) and well-being is determined (or bound) by culture, versus independent of cultural influence. The cities vary on a range of important dimensions, including religious majority (e.g., Buddhist, Christian, Hindu, Muslim, or no religion) and economic development. As my data show, they also vary on various aspects of self-construal. As much as the diversity between these cities is important, equally or more important is their geographical and cultural difference from the North American, European, and British Commonwealth location of most previous BJW studies. For example, the Asian cities from which my participants were recruited tend to be significantly more collectivistic and differ in terms of economic development and social welfare provision. The diversity between the cities, and their common differences from WEIRD cities, meant that I could test the generalisability of previous research, and the possible role of cultural variables, in several ways.

One way of doing this is simply to test whether the unique relationship between PBJW and well-being holds true across Asian cities. Studies 1 to 3 were preliminary research conducted in both understudied (Thai) and frequently studied (British) locations to give me an initial indication of the similarity of findings. I selected Thailand not only because of convenience, but also because no BJW and well-being research on Thai samples has been published, while the United Kingdom is one of the top three places where BJW and well-being research have been most frequently conducted.

However, research findings in only one single location might be inadequately generalized. I therefore enhanced sample size and diversity by recruiting participants from more than one single location. Study 4 was an extension of my previous studies sampling participants from 26 Southeast Asian sites and employing multilevel to isolate relationships as the individual and city-level. I selected the Southeast Asian region because it had been largely neglected in previous research addressing BJW and well-being, and with its diverse religions, cultures, and ethnicities, is an interesting region for social psychological research. In Study 5, I included samples from other parts of Asia such as mainland China, Hong Kong S.A.R., India, Japan and South Korea, most of which are more frequently studied in cross-cultural research generally and BJW research specifically.

Apart from considering the effects of BJW on well-being in non-WEIRD location, another approach to testing hypotheses about the cultural generality and specificity is to analyse the moderation effects of cultural or contextual variables. The selected cultural or contextual variables were self-construal, analytic-holistic cognition, belief in Karma, and negative life events and analytic-holistic cognition

## 5.2 Summary of key findings and discussion

### 5.2.1 *Functions of BJW for well-being in different locales*

Some previous research conducted in Asia has had some flaws which may result in inconsistent findings. Some have measured only the global BJW without distinguishing between self and others domains (e.g., Agrawal & Dalal, 1993; Jiang et al., 2017; Nakajima & Yoshida, 2009). Some have measured only either self-related BJW (e.g., Donat et al., 2016) or other-related BJW (e.g., Ferguson & Kamble, 2012; Poon & Chen, 2014; Zhang & Zhang, 2015). Thus, zero-order relationships between BJW and well-being could be spurious. Although some studies have had measured both self-related and other-related BJW simultaneously, the findings have still been inconsistent. Further, most prior studies were mostly conducted in a single location and some have had rather small sample size (e.g., Agrawal & Dalal, 1993; Poon & Chen, 2014). Thus, it is hard to draw a firm conclusion from previous results.

In the present research, these limitations were eliminated. I measured both self-related and other-related BJW simultaneously across all studies. Further, two widely used BJW scales (i.e., Dalbert, 1999 and Lipkus et al., 1996) were employed in Study 5. Moreover, this research was conducted with non-WEIRD sample, especially in Study 4 and 5. As well, I recruited participants from more than a single location to guarantee sufficient sample size and sample diversity including non-industrialised, non-rich and non-democratic samples in Asia. Thus, the findings from the present research would be adequately strong to deliver a clearer verdict on whether the psychological correlates of self-related BJW are culturally general or specific.

A key result emerged consistently across all of my studies. Namely, self-related BJW (both PBJW and BJW-S) predicted well-being, whereas relationships between other-related BJW (GBJW and BJW-O) were much weaker and sparser across cities and indices of well-being. They supported Lerner (1980)'s just world theory which explained about "the world of

the self'. In other words, people's psychological functioning depends on the belief that life will treat themselves fairly, whereas justice for other people is of secondary psychological interest. This is consistent with many previous empirical findings in the West that also confirmed that self-related BJW is associated with higher well-being (e.g., Dalbert, 1999; Sutton & Douglas, 2005; Sutton et al., 2017) In this respect, my results favour the cultural generality hypothesis over the cultural specificity hypothesis.

I also tested whether the function of BJW may vary between cities in Study 4 and Study 5. In Study 4, this variation is mostly in the strength of the association between PBJW and well-being. However, the results of Study 5 did not uncover clear variations in the strength of the associations between BJW and well-being. One of the possible reasons for this is variation in the sample characteristics across sites. In Study 4, some features of the samples vary across cities. For example, there are 5 different religious groups recorded as the religious majorities (Buddhist, Christian, Hindu, Muslim and no religion). In addition, ethnic groups also vary within some countries such as Banjar, Bali, Bugis, Jawa and Sunda in Indonesia and Chinese and Malay in Malaysia. On the other hand, in Study 5, the samples show more similarities. First, Chinese language is very influential in many sites including mainland China, Macau and Taiwan. Apart from Chinese language, most languages in East Asia are based on Chinese such as Japanese (Collin, 2011; Endo, 2015; Lewin, 1976) and Korean (Collin, 2011; Eom, 2015; Lewin, 1976). Next, out of 18 sites, no religion is the religious majority in 14 East Asian sites while Hindu is unique in Indian sites. In addition, ethnic groups also similar within some countries such as Chinese in mainland China, Hong Kong, Macau, and Taiwan, Japanese in Japan and Korean in South Korea.

Across all studies, I relied on student samples because it was more convenient for the research including cross-cultural studies. Thus, for various reasons, sample characteristics may be related to the findings. First, student samples may be relatively more privileged and more

Westernised, because as young relatively affluent people they regularly access international mass media (Giles & Maltby, 2004). Specifically, Asian culture is affected by modern media, predominantly influenced by Western pop cultures. Thus, Asian student samples may have been influenced by these media. Since Asian student samples may have been more Westernised, self-related BJW may be more strongly related to well-being (and other-related BJW less related) when compared with other groups of people in Asian societies. In other words, considering the fairness of the self may be more psychological beneficial to this specific subsection of society. Moreover, although I tried to ensure sufficient sample size and sample diversity by recruiting the participants beyond WEIRD samples from many Asian sites including non-industrialised, non-rich and non-democratic locations, there were some limitations in the sampling affecting the research findings. One of them is that the majority is young, female undergraduate students. However, the present findings confirmed some previous results showing that self-related BJW is positively related to well-being among young female undergraduate students globally (e.g., Nartova-Bochaver et al., 2019).

### ***5.2.2 The effects of cultural or contextual variables***

I tested whether it was explained by the variables that are prominent in the cultural literature and which seem relevant to the distinction between self- and other-related BJW. These included self-construal, which is one of the classic variables of cultural difference (West vs. East) broadly classified into independent and interdependent view of self (Markus & Kitayama, 1991). Self-construal has been studied and tested for more than two decades. I used an up-to-date multidimensional self-construal scale (Vignoles et al., 2016) in an effort to use a valid measure that can help identify cultural effects in detail.

**5.2.2.1 Self-construal** In Study 3, independent self-construal negatively moderated the relationship between PBJW and life satisfaction but positively moderated the relationship

between GBJW and life satisfaction among Thai sample. Though, of course, a correlational finding, this is *inconsistent* with the cultural specificity hypothesis that suggests PBJW promotes well-being especially or only among individualists, while GBJW promotes well-being more strongly among collectivists.

However, the results in Study 3 might not accurately reflect reality because of some limitations. The participants were sampled from a single territory (i.e., Thailand), and the sample size was rather small. Because of lack of statistical power to run multiple regressions resulting from the sample size, I decided to collapse multidimensional self-construal into one bi-polar construct (independent vs. interdependent self-construal). In the next studies, I tried to ensure more reliable and detailed results by increasing sample size and diversity, and analyzing the multiple dimensions of self-construal separately.

Regarding the strength of BJW, the cultural specificity hypothesis implies that PBJW should be stronger, and GBJW weaker, among those closer to the independent pole of the dimensions of self-construal (e.g., Wu et al., 2011; Wu et al., 2013). Although some contradicting results emerged in Study 5, (e.g., self-containment negatively predicted BJW differences indicating that other-related BJWs were endorsed stronger), some consistent results were found in both studies. In Study 4, self-direction, self-expression, and consistency positively predicted the strength of PBJW relative to GBJW. Further, self-direction, difference and de-contextualized self positively predicted the relative strength of PBJW in in Study 5. Although not all self-construal dimensions predicted BJW as expected, these findings indicated some independent pole of self-construal dimensions facilitate self-related BJW endorsement. Thus, there was some support for the cultural specificity hypothesis concerning the relative strength of PBJW and GBJW.

Regarding the functions of BJW, the cultural specificity hypothesis entails that self-construal should moderate relations between BJW and well-being. Specifically, other-related

BJW and well-being should be more strongly related (and self-related BJW and well-being less strongly related) among people, and cities, who tend toward the interdependent pole of the self-construal dimensions (e.g., Wu et al., 2011; Wu et al., 2013). However, I found little or no support for these hypotheses. Moderation effects were weak, rare, and sometimes in the reverse direction than that expected. For example, self-direction and self-containment positively moderated the relationships between PBJW and most indices of well-being in Study 4 and self-reliance positively moderated the relationship between BJW-O and life satisfaction in Study 5. Thus, the results contradicted the hypothesis that the psychological functions of BJW are culturally specific.

When unpacking self-construal, the results did not show clear and consistent pattern of the cultural specificity hypotheses, especially the functions of BJW. Then, as in Study 3 in Chapter 2, I collapsed the scores of all self-construal dimensions into one variable called independence in both Study 4 and 5. However, after applying a correction for multiple tests, I did not find any moderation effects of independence at both Level 1 and Level 2 across both Study 4 and 5. In addition, independence negatively predicted GBJW in Study 5 but not in Study 4. Thus, the effects of self-construal are still unclear and inconsistent.

These results indicate that self-related BJW is positively associated with well-being and that this effect is culturally general. It is possible also to construct an evolutionary case for a preference for, and even faith, in justice. Non-human animals show a clear implicit expectation of just outcomes and react negatively when they encounter injustice (Baumard & Chevallier, 2012; Pierce & Bekoff, 2012; Proctor et al., 2013). However, in Lerner (1980)'s just world theory, the belief in a just world is not biologically innate, but acquired through socialization (see also Bandura, 1999). Although the form of this socialization may vary by culture (the theory does not say anything about cultural differences) its function will tend to be to equip children to meet the universal demands of effective moral agency. This means to pursue self-

interest within moral constraints. To give up means of self-gratification that violate moral rules that protect others' interests, it helps a child to believe that they will get what they deserve. Our results, like the vast bulk of relevant studies in WEIRD contexts but also some in non-WEIRD locales (e.g., Jiang et al., 2016; Kamble & Dalbert, 2012; Kim & Kim, 2017; Tian, 2019), support this culturally general interpretation of just world theory.

One of the other possible reasons which could explain unclear effects is statistical limitations. Although I conducted two large-scale cross-cultural survey studies with large number of participants (i.e., more than 7,000 in Study 4 and almost 4,000 in Study 5), the number of sites in both studies (i.e., 26 in Study 4 and 18 in Study 5) was lower than the suggested minimum level at 30 groups (Busing, 1993; der Leeden and Busing, 1994) and was possibly inadequate for sufficient statistical power, especially for analysing cross-level interactions (Snijders & Bosker, 1993). However, I have confidence in the basic pattern of my results for two main reasons. First, although each study had relatively few sites, they each obtained much the same results, offering internal replication of the Level 2 results. Second, despite the relatively small number of sites, each study had thousands of participants and thus was very highly powered to detect Level 1 moderation effects. Despite this high power, there was no evidence that individual differences in internalization of independent and interdependent cultural frameworks have any bearing on the functions of BJW. Further, it is important to note that null moderation effects emerged in the context of results that contradict the cultural specificity hypothesis: namely, consistent findings that self-related but not other-related BJW is related to well-being.

Another reason for the failure of the moderation results to support the cultural specificity hypothesis is that the underlying independence vs interdependence construct may fail to capture relevant cultural differences. Individualistic and collectivistic ideas can coexist within individuals and within cultures, as Vignoles et al (2016) has shown (see also Hamamura,

2012; Zeng & Greenfield, 2015). Social and political changes (e.g., economic development, urbanization, and modernization) have increased individualism in many parts of Asia (Ogihara, 2017, 2018; Sun & Ryder, 2016), which may also have varied even before these changes, due to local variations in geographical and economic circumstances (Gelfand et al., 2011; Uskul et al., 2008). For example, some self-construal dimensions were scored as more independent among the samples in Asia such as Japan, Malaysia, Philippines, Singapore and Thailand while the remaining dimensions were scored as more interdependent (Vignoles et al., 2016). All of these variations, however, underscore the problems facing the broad and appealingly simple hypothesis that in Asian societies, GBJW should be more important and PBJW less important because these societies are collectivistic. I had hoped that any pattern of moderation across the two large studies in this thesis would be consistent and interpretable, leading to a more nuanced theory of cultural variation that might take the specific dimensions of self-construal into account, these patterns were not consistent across the two studies and may have emerged due to Type-I error. For this reason, I now turn to a different dimension of culture altogether, namely analytic and holistic cognition (Nisbett et al., 2001).

**5.2.2.2 Holistic cognition** Aside from the cultural variable referring to beliefs, values, and viewpoints like self-construal (Vignoles et al., 2016), there is a concept of cultural difference (West vs. East) in a psychological dimension called analytic-holistic cognition (Nisbett et al., 2001). Studying these variations in thinking styles may help identify the mechanisms of just world beliefs both self-other distinction and their functions to well-being.

In contrast to self-construal, the patterns of moderating effects of another important cultural variable - holistic cognition - are overall consistent and clear in both Study 4 and 5, even if they were not necessarily consistent with the cultural specificity hypothesis that inspired my research. I went into this research expecting that holistic cognition may facilitate effects

of GBJW on well-being. In fact, city-level holistic cognition positively moderated most relationships between *self-related* BJW and indices of well-being. Moreover, city-level holistic cognition mostly showed a clear pattern of being associated with higher self-related BJW across both studies.

To interpret these results, it helps to remember that holistic cognition encourages perceptions of causal connections between events, even events separated far apart in time and in outward appearance. Drawing such connections is crucial to just world beliefs, since at their core is the belief that good behaviours (somehow) attract good outcomes, while bad actions (somehow) produce bad consequences (Callan et al., 2014b; Lerner & Simmons, 1966; Lerner, 1980). Holistic cognition may therefore give people more scope to see events as just – to draw connections between beneficial and harmful outcomes and the good and bad actions that might have caused them. Holistic cognition may also give people more leeway to depart from immediately obvious causal principles and draw in less tangible principles such as justice when appraising past, present and future events in their own and others' lives (Callan et al., 2014b). These findings remain to be replicated, and I acknowledge that my interpretations are post-hoc and speculative. However, the present findings highlight the potential importance of holistic cognition to social belief systems, well-being, and their interrelationships.

**5.2.2.3 Belief in Karma** Apart from classic cultural variables like self-construal and holistic cognition, the specific spiritual concept of Karma common to Eastern religions is also important for this research for two main reasons. First, religion and culture are interconnected (Beckford & Demerath, 2007); thus, Karma is a part of culture. Second, Karma is a law addressing universal causation which is conceptually and empirically related to just world beliefs (Agrawal & Dalal, 1993; Reichenbach, 1988; White et al., 2019). Thus, differences in belief in Karma may help clarifying associations between just world beliefs and well-being.

The most important finding concerning Karma, across the four studies that included this variable, is that it did not explain relationships between BJW and well-being. In all studies, relationships between BJW and well-being, if significant at zero-order (mostly in the case of PBJW) remained significant when Karma was controlled for. Further, with the single exception of the relatively low-powered Study 3, Karma did not moderate relationships between BJW and well-being. Thus, just as self-construal does not change the psychological functions of BJW, neither does Karma: even though it is generally related to BJW in my studies (specifically, Studies 3, 4, and 5 but only related to GBJW in Study 2), and in previous research (Agrawal & Dalal, 1993; Reichenbach, 1988; White et al., 2019), and even though it varies widely in cultural prominence from one country or even city to another. This failure of Karma to alter the significance of BJW is another blow to the cultural specificity hypothesis.

A new literature has begun to examine relationships between Karma and well-being. The present studies can contribute to this literature, first by examining whether Karma is positively related to well-being as most previous studies have found, and second by examining whether this relationship is explained (mediated) by BJW. However, the present results are mixed in this regard and not easy to interpret. In Study 2 (UK), belief in Karma positively predicted depression. In Study 3 it did not, and instead positively moderated the relationship between GBJW and life satisfaction. In Study 4, belief in Karma was positively related to well-being even controlling for BJW. In contrast, in Study 5, it was not.

These mixed findings are hard to explain. Further research might focus on the importance of religious context. In Study 4 (Southeast Asia), there are 5 different religious groups recorded as the religious majorities (Buddhist, Christian, Hindu, Muslim and no religion) which indicated more variety in religions. On the other hand, in Study 5, almost 70% of the participants identified themselves as no religion, and the religious and philosophical traditions are often influenced by secular thinkers including Confucius. The link between

Karma and well-being, in sum, is less robust and more variable than might be apparent from previous research.

**5.2.2.4 Negative life events** Apart from cultural variables, contextual variables are also worth considering. One of the contextual variables which is very interesting and relevant to this research is negative life events. Negative life events can be contextual because some events can be collective such as disasters and shared economic deprivation. This affords interesting new opportunities to use multilevel modelling to understand variations in the strength and functions of BJW.

In Study 4, the results for the strength of just world beliefs overall support the reality hypothesis, according to which perceived adverse life circumstances affect just world beliefs. Although negative life events predicted decreased PBJW at both Level 1 and 2, negative life events more strongly predicted decreased GBJW at Level 2. In other words, when there is a high frequency of individual negative life events, BJW endorsement reduces, especially PBJW whereas the strength of GBJW decreases when there is a high frequency of contextual negative life events. That is to say, when experiencing more frequent and severe adverse life circumstances, people tend to interpret their lives as less just, meaning that just world beliefs endorsement reduces (Dalbert et al., 2001; Janoff-Bulman & Morgan, 1994; You & Ju, 2020). However, the results in Study 5 were different from Study 4. There was no clear result showing negative life events predicted the strength of BJW. Thus, taking the results of Studies 4 and 5 together, we cannot be confident that the strength of BJW reflects the levels of adversity that people experience, individually or collectively.

Moreover, BJW is known to buffer psychological well-being from the effects of adverse life circumstances (Dalbert, 2001). Thus, studying negative life events may help understand the buffering role of BJW. In Study 4, city-level negative life events negatively moderated the

relationship between PBJW and life satisfaction. In other words, the association between PBJW and life satisfaction was stronger in contexts with low levels of negative life events. City-level negative life events did not moderate the effects of GBJW, and there were no moderation effects involving individual-level negative life events. These results contradicted both the buffering hypothesis (which suggests that BJW should be more strongly related to well-being when life is tough), and previous work suggesting that in collectivistic and/or traumatised communities, GBJW plays a more important role in well-being.

In contrast, in Study 5, city-level negative life events positively moderated the relationship between GBJW and life satisfaction, and did not moderate the effects of PBJW. The findings were consistent with the previous results in China showing when people face contextual negative life events such as suffering from disaster and belonging to disadvantaged group, GBJW become more important for coping with stress (Wu et al., 2009; Wu et al., 2011; Wu et al., 2013).

Although authors of studies in China have claimed that the effect of GBJW was influenced by collectivistic culture (Wu et al., 2009; Wu et al., 2011; Wu et al., 2013), other previous research in the West found that GBJW became as important as PBJW for buffering stress among underprivileged Western samples such as young adults in sheltered accommodation (Sutton & Winnard, 2007) and chronic pain sufferers (McParland & Knussen, 2010; McParland et al., 2012) in the United Kingdom. Thus, one of the possible reasons is when people are faced with negative life events experienced collectively, GBJW may be more relevant to coping with this type of adverse life consequences. Adverse life circumstances, rather than collectivism, appears to be a relevant contextual moderator of the functions of BJW. Although the cross-level moderations differ in detail between Studies 4 and 5, both studies suggest that PBJW becomes relatively less important than GBJW in protecting well-being as life gets tougher for a community.

### 5.3 Limitations and future directions

The present study returned some results that are difficult to reconcile with previous research and suggest the need for further investigation. These findings, and the present results more generally, need to be interpreted in light of some limitations of the present study. Naturally, since the study has a cross-sectional and correlational design, it does not offer strong support for causal assertions. Although I realise that the other alternative research designs would provide stronger findings, this cross-sectional, correlational and survey research is the most practical approach for the present research, especially the cross-cultural studies because it is easier to monitor research processes, especially the way the research collaborators conduct the research and collect data. To address this limitation, future research should seek to use other research methods which could provide better causal inferences. For example, self and other-related BJW could be experimentally manipulated as an independent variable by directly measuring from the participants through scales and simply dividing into two groups at the median of BJW scores (strong vs. weak BJW) (e.g., Miller, 1977; Zuckerman, 1975) or priming through the tasks asking the participants to describe behaviours that they would perceive as fair and to begin their description with the specific subjects (I vs. Other) based on the assigned conditions (Self- vs. Other-related BJW) (e.g., Dalbert, 1999). Apart from experimental method, longitudinal studies would be another research approach which could provide better causal explanations.

Further, it relied on student samples, which might lead to the problems with representing the population and generalizing the results (Ercikan, 2009; Landis & Kuhn, 1957). Moreover, student samples may be relatively more privileged than other citizens of Asia, and more Westernised, because as young people, they have been exposed to international mass media (Giles & Maltby, 2004). Specifically, modern media influence Asian culture in the

contemporary era (Shome, 2012). Thus, modern media, predominantly influenced by Western pop cultures, may have affected Asian student samples' identities and viewpoints.

To address this limitation, future studies should seek to recruit beyond this population, while capitalising on the multilevel approach to studying just world beliefs pioneered in this research. Although this research mainly sampled participants in Asia which is still understudied, future studies should recruit the samples from other understudied regions such as other parts of Asia, Africa and South America.

Another limitation of the present research is that it relied on self-report scales to measure most variables, including the various indices of well-being. Further, the moderators are also measured from self-report measures including negative life events. Although negative life events were assessed by forced choice questions asking to answer yes or no instead of the scales rating the level of agreement, the data was still based on subjective perception. Moreover, not only the data for individual-level but for city-level variables were also based on the participants' mean score in each site.

To address this limitation, future research should assess well-being not only from subjective ratings but also from objective indicators (D'Acci, 2011). Physical health, as an indicator of well-being, should be objectively measured using indices such as either short-term (e.g., heart rate and blood pressure) or long-term health status (e.g., cardiovascular fitness) (Howell et al., 2007). Further, future research should measure some moderating variables from the secondary data or objective indicators. For example, negative life events should be retrieved from the existing archives, records or statistics such as the records of national disaster, crime, domestic violence and illnesses and diseases. In addition, to ensure more validity and accuracy, negative life events can be measured from subjective ratings from the participants facing actual negative life events such as earthquake (e.g., Wu et al, 2011; Wu et al., 2013) or recent outbreak of COVID-19 pandemic. Moreover, context-level cultural variables may be retrieved from

secondary databases (e.g., Hofstede, 2001; World Values Survey, 2019) which should be more representative than the mean scores based on the data collected from the participants.

#### **5.4 Theoretical implications**

The theoretical implications of the present research lie in the extension of just world beliefs and the function for well-being. The main finding shows that self-related BJW was positively related to well-being while the association between other-related BJW and well-being was weaker. The results support Lerner's just world theory (1980) stating when people believe the world is fair to them in particular, it helps people see life as orderly, controllable, predictable, and meaningful. Consequently, it enhances positive mental health and diminish depression and anxiety. Specifically, this is consistent with Lerner's (1980) notion of the "personal contract" and "the world of the self" indicating that the primary benefits of just world belief arise from seeing one's own outcomes as just – and that this is strengthened by seeing the outcomes of similar others as just. Further, the results confirmed previous research in the West finding that self-related BJW was more strongly related to well-being when compared to other-related BJW (e.g., Dalbert, 1999).

Moreover, just world belief is a multidimensional concept which can be differentiated along various dimensions including the perspectives of self vs. others (Lipkus et al., 1996; Dalbert, 1999). In general, these two concepts of self-related (i.e., BJW-S and PBJW) and other-related BJW (i.e., BJW-O and GBJW) are used interchangeably in the literature (Hafer & Sutton, 2016). Further, although psychometric properties were tested within each scale, especially BJW-Self and Others (Bègue & Bastounis, 2003; Sutton & Douglas, 2005), the present research may be the first study employing both BJW scales. I found that Lipkus et al (1996)'s BJW-Self and Dalbert (1999)'s PBJW items loaded onto the same factor while Lipkus

et al (1996)'s BJW-Others and Dalbert (1999)'s GBJW items loaded onto another factor. Thus, the results support bi-dimensional model of BJW (Self- vs. Other-related BJW).

The cultural specificity hypotheses state that the main cultural differences (e.g., individualism vs. collectivism) may be related to specific types of BJW. For example, individualists may just care about themselves or see their outcomes as entirely independent from others while collectivists also care about other people or see their outcomes as interdependent with others. Thus, individualists' well-being depends on thinking they will get just treatment while collectivists' well-being depends on the fairness of other people in general. In other words, the association between self-related BJW and well-being may be stronger among individualists whereas other-related BJW may be more strongly related to well-being among collectivists. However, the present results showing self-related BJW is positively related to well-being among non-WEIRD samples and there is no clear moderation effect of cultural variables (i.e., self-construal, belief in Karma and holistic cognition) on the association between BJW and well-being which supports the cultural specificity hypotheses. Therefore, the function of BJW for well-being seems to be culturally general.

### **5.5 Practical implications**

The present findings showing self-related BJW generally predicted well-being might be used to support the psychological well-being of people by promoting the sense of justice or feeling that I received fair or deserving treatment in various practical terms. First, the results suggest that to enhance people's well-being, policy makers should strictly deal with justice-related social problems such as income inequality (Pickett & Wilkinson, 2010). They can set the standard for the sufficient minimum income. In addition, people must have the right to equally access to public utilities and health services. Thus, the institutions must ensure that they provide adequate resources to support equal utilities and services. Next, the findings can

be applied in human resource management and organisational psychology. In the literature, employee's well-being is associated with organizational productivity (e.g., Van De Voorde et al., 2012). One of the justice-related factors is how the employees perceive how fair the organisation allocates the rewards or organisational justice (Greenberg, 1990) which is related to employees' well-being (e.g., Judge et al., 2004; Kausto et al., 2005; Maslach et al., 2001). Human resources staff members should ensure the fairness within the organisation including distributive justice (the fairness of reward allocation outcomes: Greenberg, 1990), procedural justice (the fairness of reward allocation processes: Greenberg, 1990) and interactional justice (the fairness of the treatment: Bies & Moag, 1986). Finally, the results can also be applied in relationships. The fairness which involves with interpersonal relationships can be interpreted in various aspects including the fairness of inputs and outputs between both parties or equity (Adams, 1965). Equity is really important to the relationships because when people give something to their lover, they would expect to receive the fair quantity of the same things back in return. These things can be the present, praise, attention, honesty, faith and trust. Previous research found equity is related to relationship satisfaction (DeMaris, 2007; Hendrick & Hendrick, 2006). Thus, positive mental health may stem from when you feel that you receive fair treatments in life in any domains including public policies, work and relationships.

## **5.6 Concluding remarks**

Taken together with previous studies, the present findings show on one hand that whether in Asia or in North America and Europe, people's sense of justice for themselves (PBJW and BJW-S) is uniquely associated with well-being supporting Lerner (1980)'s just world theory stating about "the world of the self" which means concerning self-related justice is really important. The results also corroborate research showing that self-related BJW is also important to well-being among non-WEIRD samples such as China (Jiang et al., 2016; Tian,

2019), India (Kamble & Dalbert, 2012) and South Korea (Kim & Kim, 2017). Thus, justice beliefs seem to be general without culture boundedness. On the other hand, how strongly people believe the world to be a just place does vary significantly, and is shaped by differences in cultural or contextual variables (self-construal, holistic cognition, belief in Karma and negative life events). Culture, in other words, appears to shape how strongly people believe in a just world, but does not seem to shape how much people benefit from believing in a just world.

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## Appendix A

### The functions of BJW for Ryff (1989)'s psychological well-being (Study 4)

Because multi-group CFA did not support any metric or scalar invariance of psychological well-being which is another index of well-being, the analyses were not included in the main text.

*Psychological well-being.* The eighty-four item instrument *Scales of Psychological Well-being* (SPWB) (Ryff, 1989) consists of six areas which are autonomy (e.g., “I have confidence in my opinions, even if they are contrary to the general consensus”,  $\alpha = .61$ ), environmental mastery (e.g., “In general, I feel I am in charge of the situation in which I live”,  $\alpha = .76$ ), personal growth (e.g., “I think it is important to have new experiences that challenge how you think about yourself and the world”,  $\alpha = .77$ ), positive relations with others (e.g., “People would describe me as a giving person, willing to share my time with others”,  $\alpha = .80$ ), purpose in life (e.g., “Some people wander aimlessly through life, but I am not one of them”,  $\alpha = .71$ ), and self-acceptance (e.g., “I like most aspects of my personality”,  $\alpha = .79$ ) (1 = *strongly disagree*, 6 = *strongly agree*).

Table A1 reports the Level 1 relationships between BJW and psychological well-being. It shows that across the samples, PBJW significantly predicted all 6 subscales of psychological well-being. In contrast, GBJW predicted only environmental mastery, and did so less strongly than PBJW. When we analyzed these relationships in each of the 26 individual cities, PBJW was consistently related to well-being in most cities, and GBJW was related relatively rarely to well-being. (see Table A2).

Table A1 Just world beliefs as predictors of Ryff's psychological well-being across cities  
(Study 4)

| Variables | Positive Relations with Others |             |          | Autonomy |             |          |
|-----------|--------------------------------|-------------|----------|----------|-------------|----------|
|           | $\gamma$                       | <i>SE B</i> | <i>t</i> | $\gamma$ | <i>SE B</i> | <i>t</i> |
| PBJW      | .20                            | .02         | 9.53***  | .09      | .02         | 4.55***  |
| GBJW      | .02                            | .02         | .93      | -.01     | .02         | -.71     |

| Variables | Environmental Mastery |             |          | Personal Growth |             |          |
|-----------|-----------------------|-------------|----------|-----------------|-------------|----------|
|           | $\gamma$              | <i>SE B</i> | <i>t</i> | $\gamma$        | <i>SE B</i> | <i>t</i> |
| PBJW      | .20                   | .03         | 7.54***  | .13             | .02         | 5.49***  |
| GBJW      | .04                   | .02         | 2.19*    | .02             | .02         | .90      |

| Variables | Purpose in Life |             |          | Self-acceptance |             |          |
|-----------|-----------------|-------------|----------|-----------------|-------------|----------|
|           | $\gamma$        | <i>SE B</i> | <i>t</i> | $\gamma$        | <i>SE B</i> | <i>t</i> |
| PBJW      | .16             | .01         | 11.18*** | .24             | .03         | 6.97***  |
| GBJW      | .01             | .02         | .74      | .01             | .02         | .49      |

† $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table A2 Summary of PBJW and GBJW predicting Ryff's psychological well-being by sample (Study 4)

| Country   | City/Region of data collection | Positive Relations |                  | Autonomy         |                   | Environmental Mastery |       | Personal Growth  |      |
|-----------|--------------------------------|--------------------|------------------|------------------|-------------------|-----------------------|-------|------------------|------|
|           |                                | PBJW               | GBJW             | PBJW             | GBJW              | PBJW                  | GBJW  | PBJW             | GBJW |
| Brunei    | Gadong                         | .22*               | .21 <sup>†</sup> | .19 <sup>†</sup> | -.37**            | .25*                  | .17   | .09              | -.06 |
| Indonesia | Banjarbaru, South Kalimantan   | .21*               | .04              | .21*             | .02               | .22*                  | .02   | .06              | .09  |
|           | Denpasar, Bali                 | .12                | -.01             | .05              | .01               | .10                   | .09   | .10              | .09  |
|           | Jakarta                        | .30*               | -.11             | .33**            | -.23 <sup>†</sup> | .26*                  | -.13  | .30*             | -.06 |
|           | Jatinangor, West Java          | .25**              | .13              | .06              | .10               | .21*                  | .10   | .18*             | .16* |
|           | Makassar, South Sulawesi       | .21*               | .17 <sup>†</sup> | .01              | .16               | .14                   | .09   | .21*             | .13  |
|           | Samarinda, East Kalimantan     | .11*               | .06              | .03              | .01               | .16**                 | .01   | .09 <sup>†</sup> | .08  |
|           | Surabaya, East Java            | .13 <sup>†</sup>   | .12              | .22**            | -.11              | .08                   | .07   | .01              | .17* |
|           | Yogyakarta                     | .41***             | -.16             | .09              | -.18 <sup>†</sup> | .32**                 | -.05  | .29**            | -.09 |
| Malaysia  | Bangi, Selangor                | .28**              | -.08             | .02              | -.07              | .15 <sup>†</sup>      | .09   | .06              | .10  |
|           | Johor Baru, Johor              | .30*               | .39**            | .40**            | .34*              | .40**                 | .37** | .38**            | .31* |
|           | Kota Kinabalu, Sabah           | .21*               | -.06             | .05              | .02               | .13                   | .08   | .06              | .03  |
|           | Kota Samarahan, Sarawak        | .17*               | -.01             | .15*             | -.02              | .21**                 | .07   | -.03             | .06  |

| Site of data collection |                               | Positive Relations |       | Autonomy |      | Environmental Mastery |       | Personal Growth |        |
|-------------------------|-------------------------------|--------------------|-------|----------|------|-----------------------|-------|-----------------|--------|
|                         |                               | PBJW               | GBJW  | PBJW     | GBJW | PBJW                  | GBJW  | PBJW            | GBJW   |
| Malaysia                | Kuala Lumpur                  | -.16               | .08   | .52      | .08  | .13                   | -.30  | .03             | -.03   |
|                         | Shah Alam, Selangor           | .18**              | .07   | .00      | -.04 | .24***                | .00   | .12             | -.04   |
|                         | Penang                        | .17†               | .04   | .11      | .01  | .17†                  | .10   | .07             | .03    |
| Philippines             | Manila                        | .22***             | -.03  | .08      | -.04 | .41***                | -.05  | .09             | .03    |
|                         | Outside Manila (e.g., Cavite) | .55*               | -.44* | .53*     | -.33 | .42†                  | -.37† | .19             | -.27   |
| Singapore               | Singapore                     | .34**              | -.02  | .05      | -.04 | .38***                | .17†  | .34***          | -.18†  |
| Thailand                | Chiang Mai                    | .36***             | .04   | .12†     | .08  | .28***                | .12*  | .24***          | .00    |
|                         | Khon Kaen                     | .20                | -.17  | .11      | -.16 | .06                   | -.06  | .27†            | -.21   |
|                         | Pattani                       | .12                | -.03  | .15†     | -.01 | .18*                  | .11   | .12             | .10    |
|                         | Pathumthani                   | .32***             | .05   | .23***   | -.02 | .35***                | .05   | .23***          | .05    |
|                         | Phuket                        | .17†               | -.11  | .22*     | -.12 | .24*                  | -.15  | .19*            | -.02   |
| Vietnam                 | Hanoi                         | .24**              | -.13  | .20*     | -.01 | .28**                 | -.13  | .22*            | -.29** |
|                         | Ho Chi Minh                   | .30***             | -.05  | .23**    | -.04 | .32***                | .07   | .35***          | -.17*  |

| Site of data collection |                               | Purpose in Life  |        | Self-acceptance |       |
|-------------------------|-------------------------------|------------------|--------|-----------------|-------|
|                         |                               | PBJW             | GBJW   | PBJW            | GBJW  |
| Brunei                  | Gadong                        | .16              | .05    | .33**           | .09   |
| Indonesia               | Banjarbaru, South Kalimantan  | .20*             | -.02   | .37***          | -.02  |
|                         | Denpasar, Bali                | .09              | .01    | .09             | -.03  |
|                         | Jakarta                       | .16              | .08    | .19             | -.05  |
|                         | Jatinangor, West Java         | .22**            | .19*   | .17*            | .11   |
|                         | Makassar, South Sulawesi      | .17 <sup>†</sup> | .06    | .04             | .01   |
|                         | Samarinda, East Kalimantan    | .16**            | .04    | .18**           | -.04  |
|                         | Surabaya, East Java           | .17*             | .25**  | .12             | .09   |
|                         | Yogyakarta                    | .26*             | -.01   | .36**           | -.03  |
|                         | Malaysia                      | Bangi, Selangor  | .31*** | -.09            | .26** |
| Johor Baru, Johor       |                               | .16              | -.49** | .41**           | .33*  |
| Kota Kinabalu, Sabah    |                               | .14              | -.08   | .23*            | -.20* |
| Kota Samarahan, Sarawak |                               | .09              | .07    | .19**           | .01   |
| Kuala Lumpur            |                               | -.27             | -.30   | -.34            | .38   |
| Shah Alam, Selangor     |                               | .22**            | -.04   | .32             | -.05  |
| Penang                  |                               | .20*             | -.06   | .14             | .10   |
| Philippines             | Manila                        | .27***           | -.06   | .45***          | -.05  |
|                         | Outside Manila (e.g., Cavite) | .41 <sup>†</sup> | -.30   | .50*            | -.43* |
| Singapore               | Singapore                     | .42***           | -.02   | .40***          | .10   |
| Thailand                | Chiang Mai                    | .26***           | .03    | .35***          | .09   |
|                         | Khon Kaen                     | .19              | -.08   | .14             | -.15  |
|                         | Pattani                       | .13              | .01    | .24**           | -.10  |

| Site of data collection |             | Purpose in Life  |                   | Self-acceptance |      |
|-------------------------|-------------|------------------|-------------------|-----------------|------|
|                         |             | PBJW             | GBJW              | PBJW            | GBJW |
| Thailand                | Pathumthani | .18**            | .09               | .33***          | .05  |
|                         | Phuket      | .18 <sup>†</sup> | -.16 <sup>†</sup> | .29**           | -.13 |
|                         | Hanoi       | .22*             | -.00              | .28**           | -.03 |
| Vietnam                 | Ho Chi Minh | .30***           | -.14              | .39***          | -.07 |

<sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

## Appendix B

### Summary of overlapped results across Study 4 and 5

Table B1 Summary of individual and city-level moderators of PBJW as predictor of  
GBJW (Study 4 and 5)

| Moderator          | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|--------------------|-------|----------------------|--------------------|-----------|-----------|
| -                  | 1     | PBJW                 | GBJW               | +         | +         |
| Self-direction     | 1     |                      |                    | <i>ns</i> | <i>ns</i> |
|                    | 2     |                      |                    | +         | <i>ns</i> |
| Self-reliance      | 1     |                      |                    | <i>ns</i> | <i>ns</i> |
|                    | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
| Self-containment   | 1     |                      |                    | +         | <i>ns</i> |
|                    | 2     |                      |                    | +         | <i>ns</i> |
| Self-interest      | 1     |                      |                    | +         | <i>ns</i> |
|                    | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
| Self-expression    | 1     |                      |                    | +         | <i>ns</i> |
|                    | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
| Difference         | 1     |                      |                    | <i>ns</i> | <i>ns</i> |
|                    | 2     |                      |                    | -         | <i>ns</i> |
| De-contextualized  | 1     |                      |                    | <i>ns</i> | <i>ns</i> |
|                    | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
| Consistency        | 1     |                      |                    | <i>ns</i> | <i>ns</i> |
|                    | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
| Holistic Cognition | 1     |                      |                    | <i>ns</i> | +         |

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|                      |   |  |           |           |
|----------------------|---|--|-----------|-----------|
|                      | 2 |  | +         | +         |
| Belief in Karma      | 1 |  | <i>ns</i> | <i>ns</i> |
|                      | 2 |  | <i>ns</i> | <i>ns</i> |
| Negative Life Events | 1 |  | <i>ns</i> | <i>ns</i> |
|                      | 2 |  | <i>ns</i> | <i>ns</i> |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B2 Summary of Level 1 and 2 self-construal, belief in Karma and holistic cognition as predictors of PBJW (Study 4 and 5)

| Moderator | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|-----------|-------|----------------------|--------------------|-----------|-----------|
|           | 1     | Self-direction       | PBJW               | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | +         | +         |
|           | 1     | Self-reliance        |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Self-containment     |                    | -         | -         |
|           | 2     |                      |                    | -         | -         |
|           | 1     | Self-interest        |                    | -         | -         |
|           | 2     |                      |                    | +         | <i>ns</i> |
|           | 1     | Self-expression      |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | +         | <i>ns</i> |
|           | 1     | Difference           |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | -         | <i>ns</i> |
|           | 1     | De-contextualized    |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Consistency          |                    | +         | +         |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Holistic Cognition   |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | +         | <i>ns</i> |
|           | 1     | Belief in Karma      |                    | +         | +         |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |

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|   |                      |   |           |
|---|----------------------|---|-----------|
| 1 | Negative Life Events | - | <i>ns</i> |
| 2 |                      | - | <i>ns</i> |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B3 Summary of Level 1 and 2 self-construal, belief in Karma and holistic cognition as predictors of GBJW (Study 4 and 5)

| Moderator | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|-----------|-------|----------------------|--------------------|-----------|-----------|
|           | 1     | Self-direction       | GBJW               | <i>ns</i> | -         |
|           | 2     |                      |                    | +         | <i>ns</i> |
|           | 1     | Self-reliance        |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Self-containment     |                    | -         | -         |
|           | 2     |                      |                    | +         | <i>ns</i> |
|           | 1     | Self-interest        |                    | -         | -         |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Self-expression      |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Difference           |                    | <i>ns</i> | -         |
|           | 2     |                      |                    | -         | <i>ns</i> |
|           | 1     | De-contextualized    |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Consistency          |                    | +         | +         |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Holistic Cognition   |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | +         | -         |
|           | 1     | Belief in Karma      |                    | +         | +         |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |

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|   |                      |           |           |
|---|----------------------|-----------|-----------|
| 1 | Negative Life Events | <i>ns</i> | <i>ns</i> |
| 2 |                      | -         | <i>ns</i> |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B4 Summary of Level 1 and 2 self-construal, belief in Karma and holistic cognition as predictors of PBJW and GBJW difference (Study 4 and 5)

| Moderator | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|-----------|-------|----------------------|--------------------|-----------|-----------|
|           | 1     | Self-direction       | PBJW-GBJW Diff     | <i>ns</i> | +         |
|           | 2     |                      |                    | +         | +         |
|           | 1     | Self-reliance        |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Self-containment     |                    | <i>ns</i> | -         |
|           | 2     |                      |                    | +         | -         |
|           | 1     | Self-interest        |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | +         | <i>ns</i> |
|           | 1     | Self-expression      |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | +         | <i>ns</i> |
|           | 1     | Difference           |                    | <i>ns</i> | +         |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | De-contextualized    |                    | <i>ns</i> | +         |
|           | 2     |                      |                    | <i>ns</i> | +         |
|           | 1     | Consistency          |                    | +         | -         |
|           | 2     |                      |                    | <i>ns</i> | <i>ns</i> |
|           | 1     | Holistic Cognition   |                    | <i>ns</i> | <i>ns</i> |
|           | 2     |                      |                    | <i>ns</i> | +         |
|           | 1     | Belief in Karma      |                    | -         | -         |
|           | 2     |                      |                    | <i>ns</i> | -         |

---

|   |                      |           |           |
|---|----------------------|-----------|-----------|
| 1 | Negative Life Events | <i>ns</i> | <i>ns</i> |
| 2 |                      | <i>ns</i> | <i>ns</i> |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B5 Summary of just world beliefs as predictors of well-being across cities (Study 4 and 5)

| Moderator | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|-----------|-------|----------------------|--------------------|-----------|-----------|
| -         | 1     | PBJW                 | Life Satisfaction  | +         | +         |
|           |       | GBJW                 |                    | +         | +         |
|           |       | PBJW                 | Depression         | -         | -         |
|           |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |

*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B6 Summary of individual level moderators of PBJW and GBJW as predictors of life satisfaction (Study 4 and 5)

| Moderator          | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|--------------------|-------|----------------------|--------------------|-----------|-----------|
| Self-direction     | 1     | PBJW                 | Life Satisfaction  | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-reliance      |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-containment   |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | +         | <i>ns</i> |
| Self-interest      |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-expression    |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Difference         |       | PBJW                 |                    | +         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| De-contextualized  |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Consistency        |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Holistic Cognition |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Belief in Karma    |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |

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|                      |      |           |           |
|----------------------|------|-----------|-----------|
| Negative Life Events | PBJW | <i>ns</i> | <i>ns</i> |
|                      | GBJW | <i>ns</i> | <i>ns</i> |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B7 Summary of individual level moderators of PBJW and GBJW as predictors of depression (Study 4 and 5)

| Moderator          | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|--------------------|-------|----------------------|--------------------|-----------|-----------|
| Self-direction     | 1     | PBJW                 | Depression         | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-reliance      |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-containment   |       | PBJW                 |                    | +         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-interest      |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-expression    |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Difference         |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | -         |
| De-contextualized  |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | +         | <i>ns</i> |
| Consistency        |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Holistic Cognition |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Belief in Karma    |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | +         | <i>ns</i> |

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|                      |      |           |           |
|----------------------|------|-----------|-----------|
| Negative Life Events | PBJW | <i>ns</i> | <i>ns</i> |
|                      | GBJW | <i>ns</i> | <i>ns</i> |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B8 Summary of city-level moderators of PBJW and GBJW as predictors of life satisfaction (Study 4 and 5)

| Moderator          | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|--------------------|-------|----------------------|--------------------|-----------|-----------|
| Self-direction     | 2     | PBJW                 | Life Satisfaction  | +         | +         |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-reliance      |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-containment   |       | PBJW                 |                    | +         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-interest      |       | PBJW                 |                    | +         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-expression    |       | PBJW                 |                    | +         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | +         |
| Difference         |       | PBJW                 |                    | +         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| De-contextualized  |       | PBJW                 |                    | +         | +         |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Consistency        |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Holistic Cognition |       | PBJW                 |                    | +         | +         |
|                    |       | GBJW                 |                    | +         | <i>ns</i> |
| Belief in Karma    |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |

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|                      |      |   |           |
|----------------------|------|---|-----------|
| Negative Life Events | PBJW | - | <i>ns</i> |
|                      | GBJW | - | +         |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

Table B9 Summary of city-level moderators of PBJW and GBJW as predictors of life satisfaction and depression (Study 4 and 5)

| Moderator          | Level | Independent variable | Dependent variable | Study 4   | Study 5   |
|--------------------|-------|----------------------|--------------------|-----------|-----------|
| Self-direction     | 2     | PBJW                 | Depression         | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | -         |
| Self-reliance      |       | PBJW                 |                    | +         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-containment   |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-interest      |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Self-expression    |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Difference         |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| De-contextualized  |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Consistency        |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Holistic Cognition |       | PBJW                 |                    | -         | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |
| Belief in Karma    |       | PBJW                 |                    | <i>ns</i> | <i>ns</i> |
|                    |       | GBJW                 |                    | <i>ns</i> | <i>ns</i> |

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|                      |      |   |           |
|----------------------|------|---|-----------|
| Negative Life Events | PBJW | + | <i>ns</i> |
|                      | GBJW | + | <i>ns</i> |

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*Note:* + significant positive result, - significant negative result, *ns* non-significant result

## Appendix C

### The measures introduced in Study 1

#### *Belief in a Just World (BJW)*

*Below you will find various statements. Read each statement carefully and decide to what extent you personally agree or disagree with it. Circle the number which corresponds to this judgement. Make sure you circle a number for every statement*

|  | Strongly Disagree<br>1 | Disagree<br>2 | Slightly Disagree<br>3 | Slightly Agree<br>4 | Agree<br>5 | Strongly Agree<br>6 |
|--|------------------------|---------------|------------------------|---------------------|------------|---------------------|
| <i>Personal Belief in a Just World scale (PBJW) (Dalbert, 1993, 1999)</i>  |                        |               |                        |                     |            |                     |
| I believe that, by and large, I deserve what happens to me.  | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I am usually treated fairly.   | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I believe that I usually get what I deserve.   | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| Overall, events in my life are just.   | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| In my life injustice is the exception rather than the rule.  | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I believe that most of the things that happen in my life are fair.   | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I think that important decisions that are made concerning me are usually just.   | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| <i>General Belief in a Just World (GBJW) (Dalbert et al., 1987)</i>  |                        |               |                        |                     |            |                     |
| I think basically the world is a just place.   | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I believe that, by and large, people get what they deserve.  | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I am confident that justice always prevails over injustice.  | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I am convinced that in the long run people will be compensated for injustices.   | 1                      | 2             | 3                      | 4                   | 5          | 6                   |
| I firmly believe that injustices in all areas of life (e.g., professional, family, politics) are the exception rather than the rule. | 1                      | 2             | 3                      | 4                   | 5          | 6                   |

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| I think people try to be fair when making important decisions. | 1 | 2 | 3 | 4 | 5 | 6 |
|--|---|---|---|---|---|---|

*Life satisfaction*

*Satisfaction With Life Scale (SWLS) (Diener et al., 1985)*

*Below are statements with which you may agree or disagree. Please indicate your level of agreement or disagreement with each statement by using the scale below.*

|  | <b>Strongly Disagree</b> | <b>Disagree</b> | <b>Slightly Disagree</b> | <b>Neither agree nor disagree</b> | <b>Slightly agree</b> | <b>Agree</b> | <b>Strongly Agree</b> |
|--|--------------------------|-----------------|--------------------------|-----------------------------------|-----------------------|--------------|-----------------------|
|  | <b>1</b>                 | <b>2</b>        | <b>3</b>                 | <b>4</b>                          | <b>5</b>              | <b>6</b>     | <b>7</b>              |
| In most ways my life is close to ideal.                      | 1                        | 2               | 3                        | 4                                 | 5                     | 6            | 7                     |
| The conditions of my life are excellent.                     | 1                        | 2               | 3                        | 4                                 | 5                     | 6            | 7                     |
| I am satisfied with my life.                                 | 1                        | 2               | 3                        | 4                                 | 5                     | 6            | 7                     |
| So far I have got the important things I want in life.       | 1                        | 2               | 3                        | 4                                 | 5                     | 6            | 7                     |
| If I could live my life over, I would almost change nothing. | 1                        | 2               | 3                        | 4                                 | 5                     | 6            | 7                     |

*Depression*

*Rasch-derived short form of the Center for Epidemiological Studies Depression scale*

*(CES-D) (Cole et al., 2004)*

*Please indicate how often you have felt or behaved in each of the following ways*

*DURING THE PAST WEEK. Please select one of the four possible answers using the following scale.*

|  | Rarely or none of the time (Less than 1 day) | Some or a little of the time (1-2 days) | Occasionally or a moderate amount of time (3-4 days) | Most or all of the time (5-7 days) |
|--|--|---|--|------------------------------------|
|  | 0  | 1                                       | 2  | 3                                  |
| I was bothered by things that usually don't bother me.                             | 0  | 1                                       | 2  | 3                                  |
| I felt that I couldn't stop feeling down even with help from my family or friends. | 0  | 1                                       | 2  | 3                                  |
| I felt that I was just as good as other people.                                    | 0  | 1                                       | 2  | 3                                  |
| I had trouble keeping my mind on what I was doing.                                 | 0  | 1                                       | 2  | 3                                  |
| I felt depressed.  | 0  | 1                                       | 2  | 3                                  |
| I felt that everything I did was an effort.  | 0  | 1                                       | 2  | 3                                  |
| I felt hopeful about the future.   | 0  | 1                                       | 2  | 3                                  |
| I thought my life had been a failure.  | 0  | 1                                       | 2  | 3                                  |
| I felt fearful.  | 0  | 1                                       | 2  | 3                                  |
| I felt lonely.   | 0  | 1                                       | 2  | 3                                  |
| People were unfriendly.  | 0  | 1                                       | 2  | 3                                  |

*Positive and negative affect*

*Affect scale adapted from Affect Valuation Index (Tsai et al., 2006) and psychological discomfort measure (Elliot & Devine, 1994)*

*Now, please rate how often you have had that feeling each of the following feelings*

*DURING THE LAST MONTH using the following scale.*

|               | Never | A small amount of the time | About half of the time | Most of the time | All of the time |
|---------------|-------|----------------------------|------------------------|------------------|-----------------|
|               | 1     | 2                          | 3                      | 4                | 5               |
| Uneasy        | 1     | 2                          | 3                      | 4                | 5               |
| Calm          | 1     | 2                          | 3                      | 4                | 5               |
| Uncomfortable | 1     | 2                          | 3                      | 4                | 5               |
| Unhappy       | 1     | 2                          | 3                      | 4                | 5               |
| Sad           | 1     | 2                          | 3                      | 4                | 5               |
| Worried       | 1     | 2                          | 3                      | 4                | 5               |
| Tense         | 1     | 2                          | 3                      | 4                | 5               |
| Upset         | 1     | 2                          | 3                      | 4                | 5               |
| Relaxed       | 1     | 2                          | 3                      | 4                | 5               |
| Satisfied     | 1     | 2                          | 3                      | 4                | 5               |
| Content       | 1     | 2                          | 3                      | 4                | 5               |
| Bothered      | 1     | 2                          | 3                      | 4                | 5               |
| Happy         | 1     | 2                          | 3                      | 4                | 5               |
| Lonely        | 1     | 2                          | 3                      | 4                | 5               |

## Appendix D

### The measures introduced in Study 2

*Belief in Karma Scale (Kopalle et al., 2010)*

*Please use the rating scale below to indicate your level of agreement with each of the statements.*

|  | Strongly Disagree | Disagree | Slightly Disagree | Neither agree nor disagree | Slightly agree | Agree | Strongly Agree |
|--|-------------------|----------|-------------------|----------------------------|----------------|-------|----------------|
|  | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |
| Good actions in the present lead to good outcomes in the future either in this life or in the hereafter. | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |
| Bad actions in the present lead to bad outcomes in the future either in this life or in the hereafter.   | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |
| I believe in Karma.  | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |
| I believe in rebirth.  | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |
| The universe is a continuous cycle.  | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |
| There is no beginning or end to the universe.  | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |
| The world was not formed by a once-for-all act of creation.  | 1                 | 2        | 3                 | 4                          | 5              | 6     | 7              |

## Appendix E

### The measures introduced in Study 3

*the 72-item Self-construal Scale (Vignoles et al., 2016)*

*Below are some statements that someone might use to try to describe you. Probably some of the statements will describe you not very well, whereas others will describe you better. Please select a number beside each statement to show how well it describes you. For example, if the statement doesn't describe you at all, then circle 1. If the statement describes you very well, then circle 4. If you are undecided between two possible answers, you can circle the number in between (1½, 2½, 3½, 4½).*

*How well does each statement describe you?*

|  | doesn't describe me at all |    | describes me a little |    | describes me moderately |    | describes me very well |    | describes me exactly |  |
|--|----------------------------|----|-----------------------|----|-------------------------|----|------------------------|----|----------------------|--|
|  | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| You like being similar to other people.  | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| If someone in your family achieves something, you feel proud as if you had achieved something yourself.          | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| You always make your own decisions about important matters, even if others might not approve of what you decide. | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| You feel comfortable to depend on the people close to you.   | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| You show your true feelings even if it disturbs the harmony in your family relationships.                        | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| You often compromise your most important goals to meet the interests of your family.                             | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| You see yourself the same way even in different social environments.   | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| If someone wants to understand who you are, they would need to know about your social standing.                  | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |
| You see yourself as different from most people.  | 1                          | 1½ | 2                     | 2½ | 3                       | 3½ | 4                      | 4½ | 5                    |  |

|   |   |    |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|----|---|
| Your happiness is independent from the happiness of your family.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually ask your family for approval before making a decision.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Someone could understand who you are without needing to know about your social standing.                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You tend to rely on yourself rather than seeking help from others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to preserve harmony in your relationships, even if this means not expressing your true feelings. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually give priority to your personal goals, before thinking about the goals of others.                | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You feel that your actions can influence the reputation of your family.                                     | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself differently in different social environments.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone wants to understand who you are, they would need to know about the place where you live.         | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Being different from others makes you feel uncomfortable.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You would not feel personally insulted if someone insulted a member of your family.                         | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to do what you want without letting your family influence you.                                   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| In difficult situations, you tend to seek help from others rather than relying only on yourself.            | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You think it is good to express openly when you disagree with others.                                       | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You look after the people close to you, even if it means putting your personal needs to one side.           | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You behave in a similar way at home and in public.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Someone could understand who you are without needing to know about your place of origin.                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You like being different from other people.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

|  |   |    |   |    |   |    |   |    |   |
|--|---|----|---|----|---|----|---|----|---|
| If someone insults a member of your family, you feel as if you have been insulted personally.                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually follow others' advice when making important choices.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You feel uncomfortable in situations where you are dependent on others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try to adapt to people around you, even if it means hiding your feelings.                                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Your own success is very important to you, even if it disrupts your friendships.                                 | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You act very differently at home compared to how you act in public.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone wants to understand who you are, they would need to know which social groups you belong to.           | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself as similar to others.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Your personal view of yourself does not depend on your family or friends.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to say what you are thinking, even if it is inappropriate for the situation.                          | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You value good relations with the people close to you more than your personal achievements.                      | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself as unique and different from others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If a close friend or family member is sad, you feel the sadness as if it were your own.                          | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You decide for yourself what goals to pursue even if they are very different from what your family would expect. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Being able to depend on others is very important to you.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try not to disturb the harmony among the people around you.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You protect your own interests, even if it might sometimes disrupt your family relationships.                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You behave in the same way even when you are with different people.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Someone could understand who you are without needing to know anything about your family.                         | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

|  |   |    |   |    |   |    |   |    |   |
|--|---|----|---|----|---|----|---|----|---|
| You would rather be the same as others than be different.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If a close friend or family member had an important success or failure, your view of yourself would remain the same. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually do what people expect of you, rather than decide for yourself what to do.                                | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to rely completely on yourself rather than depend on others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to express your thoughts and feelings openly, even if it may sometimes cause conflict.                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually give priority to others, before yourself.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You behave differently when you are with different people.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone wants to understand who you are, they would need to know about your place of origin.                      | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try to avoid being the same as others.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If a close friend or family member is happy, you feel the happiness as if it were your own.                          | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually decide on your own actions, rather than follow others' expectations.                                     | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Someone could understand who you are without needing to know which social groups you belong to.                      | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to ask other people for help rather than rely only on yourself.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try not to express disagreement with members of your family.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You value personal achievements more than good relations with the people close to you.                               | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Your view of yourself does not depend on your family's reputation.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You always see yourself in the same way even when you are with different people.                                     | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone wants to understand who you are, they would need to know something about your family.                     | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try to avoid being seen as different from others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

|  |   |    |   |    |   |    |   |    |   |
|--|---|----|---|----|---|----|---|----|---|
| You would feel personally shamed if a close friend or family member did something shameful.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to follow your family's advice on important matters.                              | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try to avoid being reliant on others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You like to discuss your own ideas, even if it might sometimes upset the people around you.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You would sacrifice your personal interests for the benefit of your family.                  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself differently when you are with different people.                             | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Someone could understand who you are without needing to know about the place where you live. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

## Appendix F

### The measures introduced in Study 4

*the 48-item Self-construal Scale (Vignoles et al., 2016)*

*Below are some statements that someone might use to try to describe you. Probably some of the statements will describe you not very well, whereas others will describe you better. Please select a number beside each statement to show how well it describes you. For example, if the statement doesn't describe you at all, then circle 1. If the statement describes you very well, then circle 4. If you are undecided between two possible answers, you can circle the number in between (1½, 2½, 3½, 4½).*

*How well does each statement describe you?*

|  | doesn't describe me at all | 1½ | describes me a little | 2  | 2½ | describes me moderately | 3 | 3½ | describes me very well | 4 | 4½ | describes me exactly | 5 |
|--|----------------------------|----|-----------------------|----|----|-------------------------|---|----|------------------------|---|----|----------------------|---|
|  | 1                          | 1½ | 2                     | 2½ | 3  | 3½                      | 4 | 4½ | 5                      |   |    |                      |   |
|  | 1                          | 1½ | 2                     | 2½ | 3  | 3½                      | 4 | 4½ | 5                      |   |    |                      |   |
| You like being similar to other people.  | 1                          | 1½ | 2                     | 2½ | 3  | 3½                      | 4 | 4½ | 5                      |   |    |                      |   |
| If someone in your family achieves something, you feel proud as if you had achieved something yourself.          | 1                          | 1½ | 2                     | 2½ | 3  | 3½                      | 4 | 4½ | 5                      |   |    |                      |   |
| You always make your own decisions about important matters, even if others might not approve of what you decide. | 1                          | 1½ | 2                     | 2½ | 3  | 3½                      | 4 | 4½ | 5                      |   |    |                      |   |

|   |   |    |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|----|---|
| You show your true feelings even if it disturbs the harmony in your family relationships.                   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself the same way even in different social environments.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Your happiness is independent from the happiness of your family.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually ask your family for approval before making a decision.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Someone could understand who you are without needing to know about your social standing.                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You tend to rely on yourself rather than seeking help from others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to preserve harmony in your relationships, even if this means not expressing your true feelings. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually give priority to your personal goals, before thinking about the goals of others.                | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone wants to understand who you are, they would need to know about the place where you live.         | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You would not feel personally insulted if someone insulted a member of your family.                         | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| In difficult situations, you tend to seek help from others rather than relying only on yourself.            | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You behave in a similar way at home and in public.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

|  |   |    |   |    |   |    |   |    |   |
|--|---|----|---|----|---|----|---|----|---|
| Someone could understand who you are without needing to know about your place of origin.                         | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You like being different from other people.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone insults a member of your family, you feel as if you have been insulted personally.                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually follow others' advice when making important choices.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try to adapt to people around you, even if it means hiding your feelings.                                    | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Your own success is very important to you, even if it disrupts your friendships.                                 | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You act very differently at home compared to how you act in public.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone wants to understand who you are, they would need to know which social groups you belong to.           | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself as similar to others.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You value good relations with the people close to you more than your personal achievements.                      | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself as unique and different from others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If a close friend or family member is sad, you feel the sadness as if it were your own.                          | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You decide for yourself what goals to pursue even if they are very different from what your family would expect. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

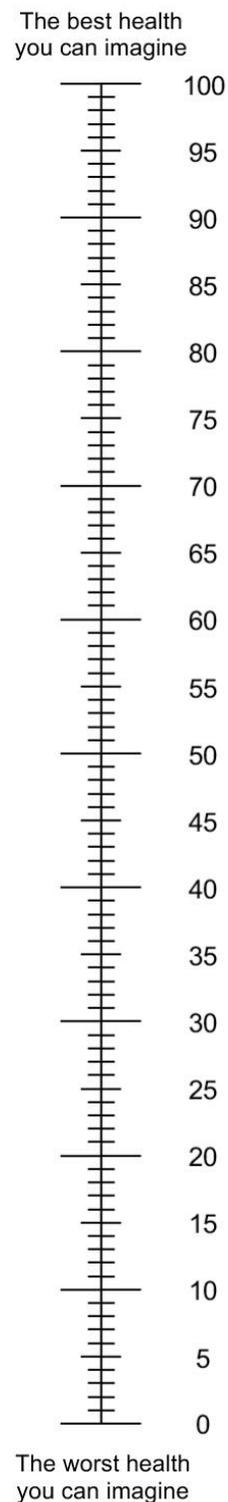
|   |   |    |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|----|---|
| Being able to depend on others is very important to you.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You protect your own interests, even if it might sometimes disrupt your family relationships.     | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You behave in the same way even when you are with different people.                               | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You would rather be the same as others than be different.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually do what people expect of you, rather than decide for yourself what to do.             | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to rely completely on yourself rather than depend on others.                           | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You prefer to express your thoughts and feelings openly, even if it may sometimes cause conflict. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually give priority to others, before yourself.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You behave differently when you are with different people.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If someone wants to understand who you are, they would need to know about your place of origin.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try to avoid being the same as others.  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| If a close friend or family member is happy, you feel the happiness as if it were your own.       | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You usually decide on your own actions, rather than follow others' expectations.                  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| Someone could understand who you are without needing  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

|   |   |    |   |    |   |    |   |    |   |
|---|---|----|---|----|---|----|---|----|---|
| to know which social groups you belong to.  |   |    |   |    |   |    |   |    |   |
| You prefer to ask other people for help rather than rely only on yourself.                  | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try not to express disagreement with members of your family.                            | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You try to avoid being reliant on others.   | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You like to discuss your own ideas, even if it might sometimes upset the people around you. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You would sacrifice your personal interests for the benefit of your family.                 | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |
| You see yourself differently when you are with different people.                            | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 |

*Perceived health status*

*Health-Related Quality of Life Scale (EQ-5D-5L) (Herdman et al., 2011)*

- We would like to know how good or bad your health is **TODAY**.
- This scale is numbered from 0 to 100.
- 100 means the **best** health you can imagine.
- 0 means the **worst** health you can imagine.
- Mark an X on the scale to indicate how your health is **TODAY**.
- Now, please write the number you marked on the scale in the box below.



*Negative mental health*

*The Mental Health Inventory 5 (MHI5) (Berwick et al., 1991)*

*Please read each question and select one number by the **ONE** statement that best describes how things have been **FOR YOU** during the past month.*

|  | None of the time | A little of the time | Some of the time | A good bit of the time | Most of the time | All of the time |
|--|------------------|----------------------|------------------|------------------------|------------------|-----------------|
|  | 0                | 1                    | 2                | 3                      | 4                | 5               |
| During the past month, how much of the time were you a happy person?   | 0                | 1                    | 2                | 3                      | 4                | 5               |
| How much of the time, during the past month, have you felt calm and peaceful?                                    | 0                | 1                    | 2                | 3                      | 4                | 5               |
| How much of the time, during the past month, have you been a very nervous person?                                | 0                | 1                    | 2                | 3                      | 4                | 5               |
| How much of the time, during the past month, have you felt downhearted and blue?                                 | 0                | 1                    | 2                | 3                      | 4                | 5               |
| How much of the time, during the past month, have you felt so down in the dumps that nothing could cheer you up? | 0                | 1                    | 2                | 3                      | 4                | 5               |

*Negative Life Events Scale (Gudjonsson et al., 2009)*

*Please answer about the following events happening in your life or not by selecting **yes** or **no**.*

|   | <b>Yes</b> | <b>No</b> |
|---|------------|-----------|
| You have experienced a serious accident.                        | Yes        | No        |
| You have suffered serious illness.                              | Yes        | No        |
| Your parents are divorced or separated.                         | Yes        | No        |
| You have had serious arguments with your parents.               | Yes        | No        |
| You have witnessed a serious argument between your parents.     | Yes        | No        |
| You have witnessed physical abuse at home involving an adult.   | Yes        | No        |
| You have experienced physical abuse at home involving an adult. | Yes        | No        |
| Your parents or sibling has died.                               | Yes        | No        |
| Your friend has died.   | Yes        | No        |
| You have been rejected by friends or boyfriend/girlfriend.      | Yes        | No        |
| You have experienced sexual abuse.                              | Yes        | No        |
| You have had serious financial problems                         | Yes        | No        |

*Analytic-holistic cognition*

*Triad Categorization Tasks (Ji et al., 2004)*

*Each of the following pages has a picture of three different objects on it. The two objects at the top of the page are labeled A and B. The bottom object has an arrow pointing to it.*

*Decide whether object A or object B GOES WITH the object that has the arrow pointing to it. Circle your choice, A or B. Do not spend too much time on any single item.*

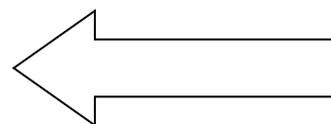
*There are no right or wrong answers.*



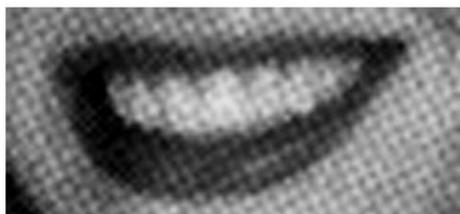
A



B



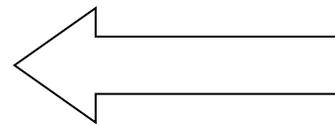
What goes with this? A or B



A



B



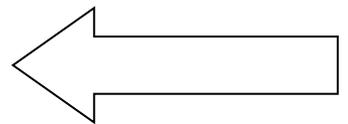
What goes with this? A or B



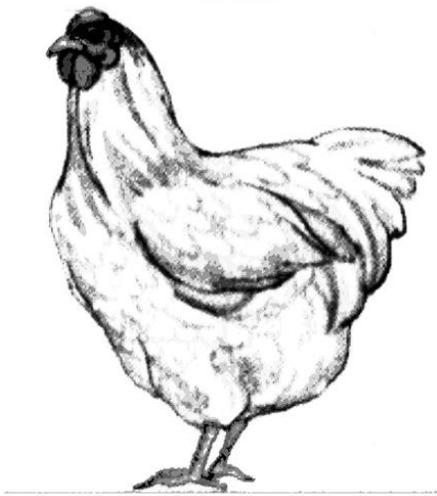
A



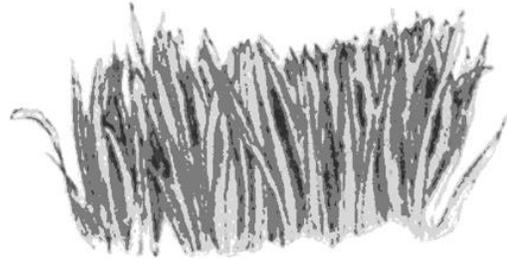
B



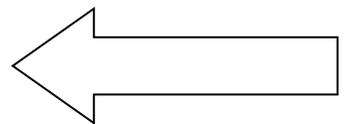
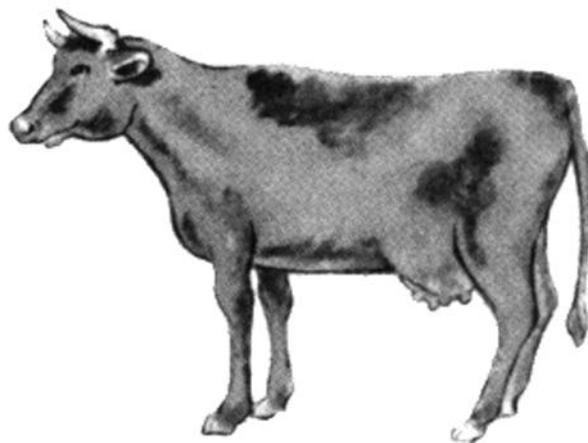
What goes with this? A or B



A



B



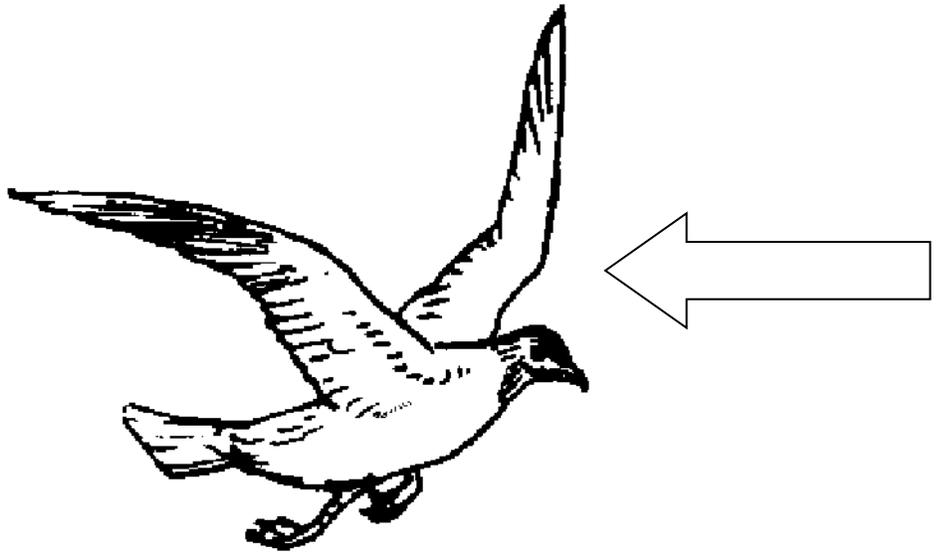
What goes with this? A or B



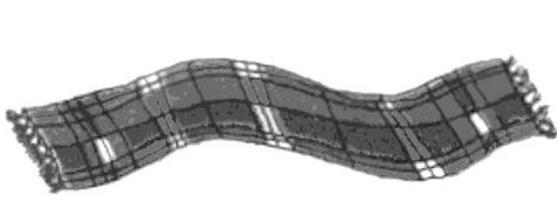
A



B



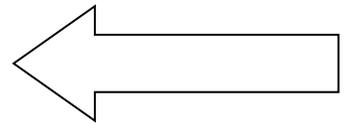
What goes with this? A or B



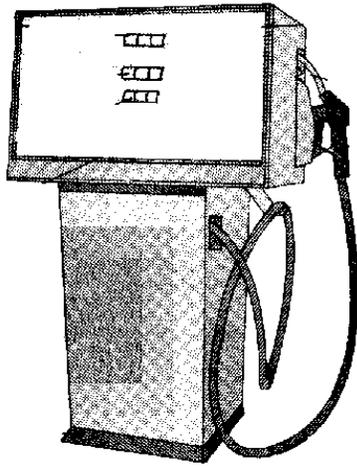
A



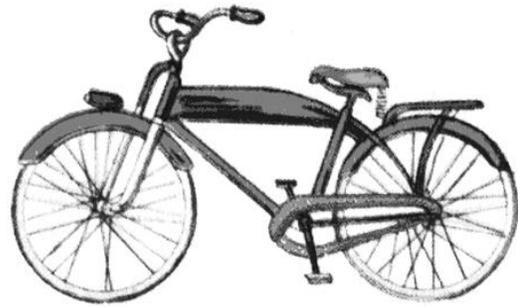
B



What goes with this? A or B



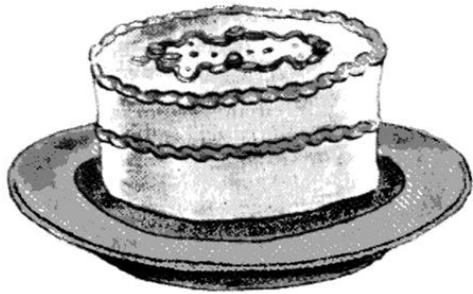
A



B



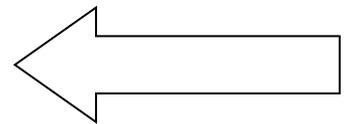
What goes with this? A or B



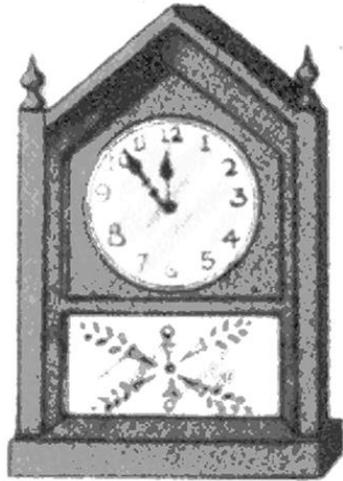
A



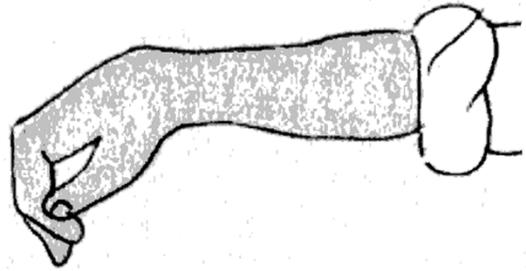
B



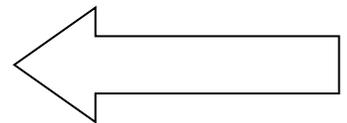
What goes with this? A or B



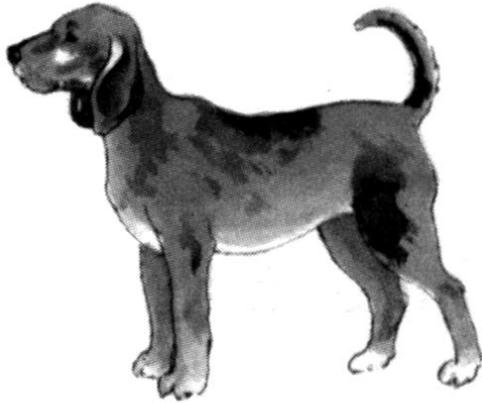
A



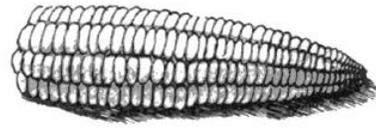
B



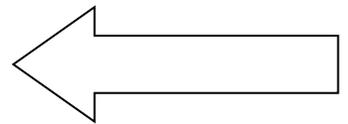
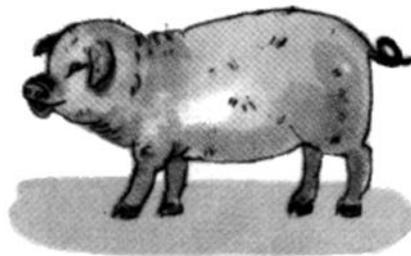
What goes with this? A or B



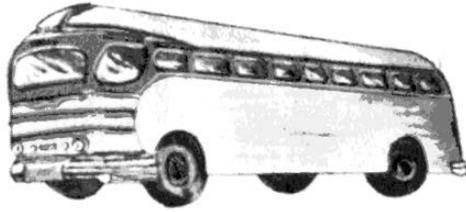
A



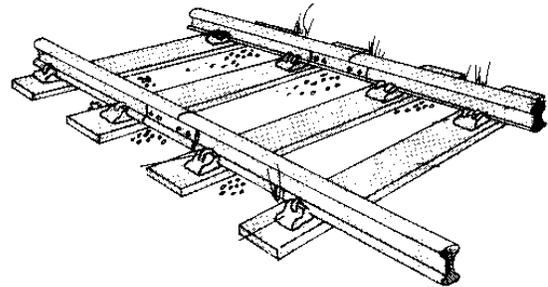
B



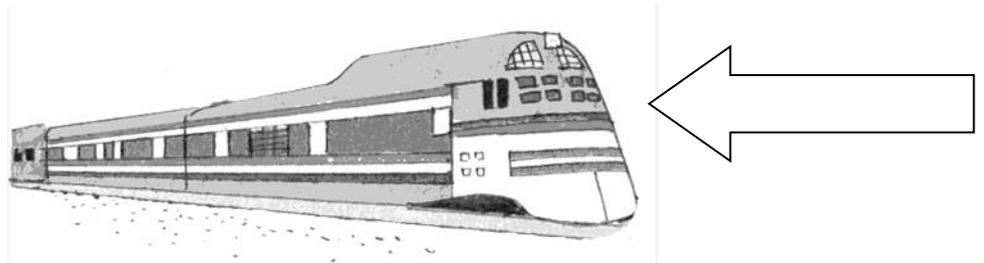
What goes with this? A or B



A



B

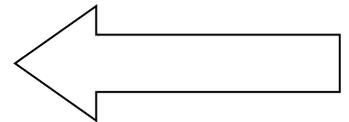


What goes with this? A or B

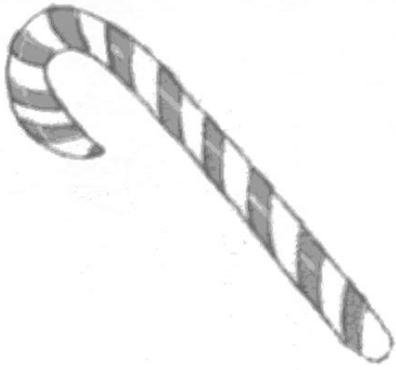


A

B



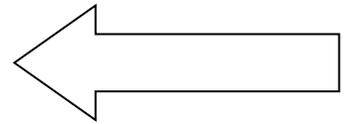
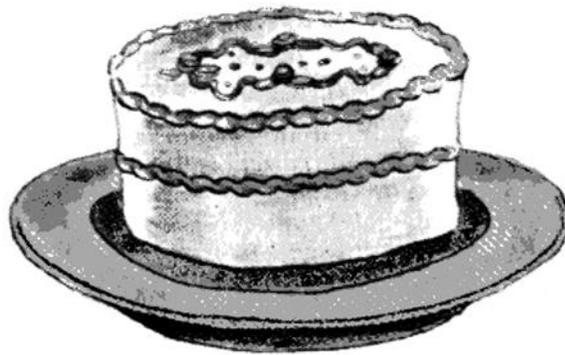
What goes with this? A or B



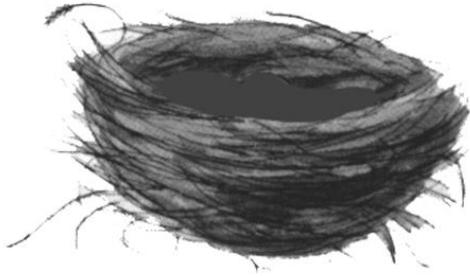
A



B



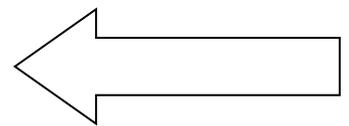
What goes with this? A or B



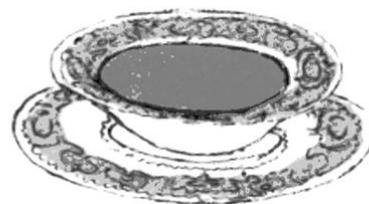
A



B

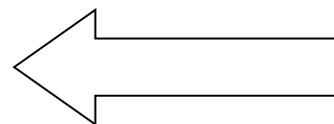


What goes with this? A or B



A

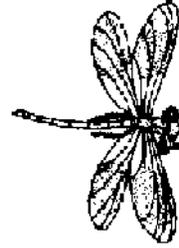
B



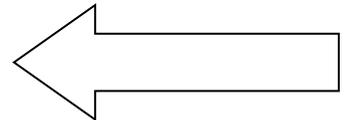
What goes with this? A or B



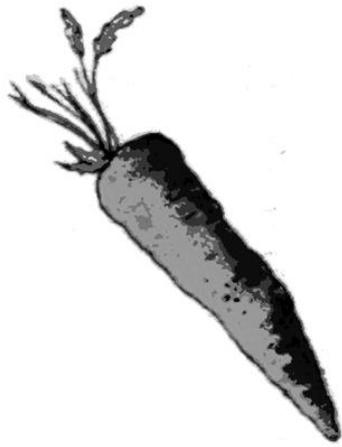
A



B



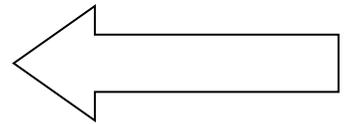
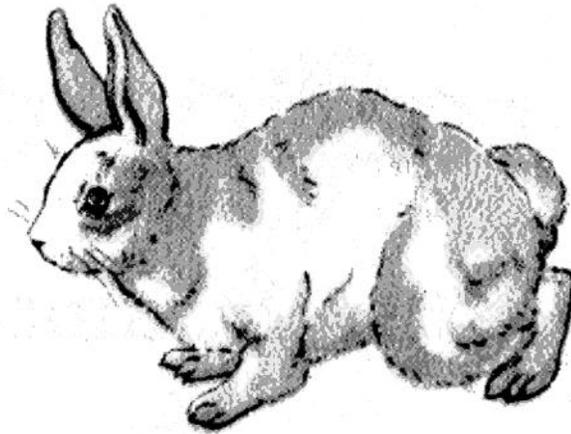
What goes with this? A or B



A



B



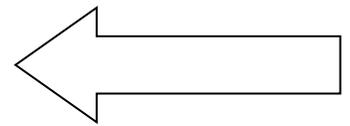
What goes with this? A or B



A



B



What goes with this? A or B

## Appendix G

### The measures introduced in Study 5

*Belief in a Just World Scale (BJW) (Lipkus et al., 1996)*

*For each question, please select the number that best reflects your view. 0 = “strongly disagree” and 6 = “strongly agree”*

*Belief in a Just World to the Others (BJW-O)*

*How well do you think the following statements apply to people other than yourself.*

|   | Strongly Disagree |   |   |   |   |   | Strongly Agree |
|---|-------------------|---|---|---|---|---|----------------|
|   | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that the world treats people fairly.   | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that people get what they deserve.   | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that people treat each other fairly in life.                                 | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that people earn the rewards and punishments they get.                       | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that people treat each other with the respect they deserve.                  | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that people get what they are entitled to have.                              | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that a person’s efforts are noticed and rewarded.                            | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |
| I feel that when people meet with misfortune, they have brought it upon themselves. | 0                 | 1 | 2 | 3 | 4 | 5 | 6              |

*Belief in a Just World to the Self (BJW-S)*

*How well do you think the following statements apply to you.*

|   | <b>Strongly<br/>Disagree</b> |          |          |          |          |          | <b>Strongly<br/>Agree</b> |
|---|------------------------------|----------|----------|----------|----------|----------|---------------------------|
|   | <b>0</b>                     | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b>                  |
| I feel that the world treats me fairly.                                 | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |
| I feel that I get what I deserve.                                       | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |
| I feel that people treat me fairly in life.                             | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |
| I feel that I earn the rewards and punishments I get.                   | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |
| I feel that people treat me with the respect I deserve.                 | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |
| I feel that I get what I am entitled to have.                           | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |
| I feel that my efforts are noticed and rewarded.                        | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |
| I feel that when I meet with misfortune, I have brought it upon myself. | 0                            | 1        | 2        | 3        | 4        | 5        | 6                         |