

The role of self-regulatory deficits in the path from childhood adversity to risky and
problematic sexual behaviour

Mónica Bianca Da Costa Oliveira Reis

School of Psychology, University of Kent

Supervisors: Dr. Caoilte Ó Ciardha, Prof. Theresa Gannon, Prof. Aleksandra Cichocka

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Declaration

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Abstract

One of the most devastating consequences of adverse childhood experiences (ACEs) are its effects on children's psychosocial development. Such experiences can result in self-regulatory deficits including the inability to regulate affect and cope with stressors (Lackner et al., 2018; Poole et al., 2018). This is problematic given the longer-term implications of these deficits, including increased engagement in risky and problematic sexual behaviours (RPSBs). To date, research has yet to fully conceptualise the longitudinal and causal interplay between ACEs, emotion dysregulation, maladaptive coping, and RPSBs. In a series of six studies this thesis examined the role of emotion dysregulation and maladaptive coping as proximal self-regulatory mechanisms underlying the relationship between ACEs and RPSBs. Studies 1 and 2 provided insight into the momentary and longitudinal associations between these constructs. Study 3 examined the validity of a behavioural analogue task for sexual aggression to allow for more robust inferences regarding sexually problematic behaviour to be drawn. Studies 4a, 4b, and 5 experimentally manipulated the saliency of ACEs and the use of coping strategies to examine the knock-on effect on coping and RPSBs, respectively. Limited evidence was found to suggest that emotion dysregulation and maladaptive coping represented key pathways in the association between ACEs and RPSBs. Whilst ACEs did longitudinally precede emotion dysregulation and avoidance coping, these mechanisms were not consistently associated with RPSBs. Despite this, findings presented important theoretical and practical implications for secondary intervention and highlight the need to better understand these constructs within community samples.

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1. Chapter One: Introduction and Literature Review

Risky and problematic sexual behaviours remain prevalent. Official reports of workplace sexual harassment, date rape, multi-perpetrator sexual assault, and unwanted sexual attention provide only a glimpse into the magnitude of this problem. The emergence of victim-focused movements such as #MeToo and Time's Up—alongside more controversial movements such as the Q-Anon conspiracy focused on the United States and concern over “grooming gangs” within the United Kingdom media/social media—continue to galvanise global media attention and have placed these behaviours not only at the forefront of political and social discourse, but also public consciousness. Engaging in both risky and problematic sexual behaviours can lead to numerous adverse health outcomes. For instance, casual sex with strangers or having multiple sexual partners may increase the likelihood of contracting sexually transmitted infections (STIs) and/or result in unplanned pregnancies (Eaton et al., 2012). Such behaviours can also confer a risk of sexual harm including unwanted sexual advances/behaviours if a partner's sexual intentions are misinterpreted due to the short-term nature of the acquaintance (Jacques-Tiura et al., 2007; Wegner & Abbey, 2016).

Consequently, such behaviours warrant examination given the financial and human cost on both an individual and societal level that may be directly or indirectly incurred through both risky and problematic sexual behaviours (Ellis et al., 1981; Tyson, 2020; Yazdkhasti et al., 2015).

Crucially, risky and problematic sexual behaviours are potentially more widespread and problematic than anticipated. At present, the examination of risky sexual behaviours has predominantly relied on the use of proxy measures such as examining the statistical prevalence of STIs in the general population as an indication of sexual risk-taking. Similarly, when examining problematic sexual behaviours such as instances of sexual aggression, statistics from police recorded crimes are often used to capture the extent of these behaviours.

Whilst such measures allow researchers to obtain estimates of both risky and problematic sexual behaviours, these only provide a lower-limit threshold of the number of individuals who may engage in some form of risky or problematic sexual behaviour. This is illustrated through the disparity between figures published by the Crime Survey of England and Wales—which is a victim survey that is independent of police recorded crime—and official statistics based on police records. Specifically, according to the Crime Survey of England and Wales only 16% of female and 19% of male sexual assault victims reported their abuse to the police (Office for National Statistics, 2021). Similarly, according to the UK Health Security Agency (2023) in 2022 there was an increase in the overall rates of STIs compared to the previous year, including an 8.2% increase in admission to services providing sexual health advice and support. However, such approximations underestimate the true extent of instances of sexual risk-taking and problematic sexual behaviours as undiagnosed cases of STIs or crimes which were not reported to the police are not captured. Collectively, this suggests that these behaviours would benefit from further examination to better understand the underlying causes of these behaviours and how these may be mitigated.

Risky and problematic sexual behaviours encompass two separate but related concepts. I refer to *problematic sexual behaviours* as behaviours which pose a risk of sexual harm to others. This typically concerns non-consenting sexual acts, forced or otherwise (for a similar definition relating to sexual violence refer to Basile et al., 2014), and encompasses a spectrum of behaviours such as exposing non-consenting parties to unwanted sexual materials/experiences (Durán & Rodríguez-Domínguez, 2023), sexually coercive practices (Benbouriche & Parent, 2018), and unwanted sexual contact (Banyard et al., 2007). Similarly, *risky sexual behaviours* broadly constitute behaviours which confer a risk of sexual harm to oneself and others (Hoyle et al., 2000). Such behaviours can include, but are not limited to, having sex with strangers, early sexual initiation, having multiple sexual partners, and/or

engaging in high-risk sexual encounters such as having unprotected sex (Hoyle et al., 2000). Although these behaviours are often regarded as two largely separate bodies of research, there is an intersection and close conceptual link between risky and problematic sexual behaviours (RPSBs; Davis et al., 2018; Malamuth et al., 1991). For this thesis and following Davis and colleagues' (2018) conceptualisations, I focused on both constructs in conjunction and jointly referred to them as risky and problematic sexual behaviours (RPSBs). As noted by Davis and colleagues (2018) risky and problematic sexual behaviours are both conceptually and empirically related and may benefit from being studied holistically rather than separately. Although risky sexual behaviours may not be inherently problematic, these behaviours often pave the way for more harmful and problematic behaviours to occur. Likewise, problematic sexual behaviours may reflect a risk of further and escalating harm following the perpetration of the initial behaviour (Ward & Beech, 2016). Consequently, I refer to RPSBs throughout this thesis as capturing these two related areas.

To date research has largely identified the situational factors which precede and enable RPSBs. For instance, alcohol-facilitated sexual aggression and sexual risk-taking has garnered considerable research interest (for a review see Abbey et al., 2022; Brown et al., 2017). Whilst such research has undoubtedly contributed to the understanding of the context within which RPSBs are likely to occur, research on the underlying mechanisms of such behaviours has yet to match this level of interest (Huang et al., 2011). One line of research has identified adverse childhood experiences (ACEs) as a potential antecedent to the development of RPSBs (Centres for Disease Control and Prevention, 2014; Fox et al., 2015). According to meta-analytic findings, individuals who have experienced some form of adversity in childhood are 1.59 times more likely to engage in RPSBs in later life compared to those who report no such history of adversity (Abajobir et al., 2017). In particular, child sexual abuse and neglect have been found to predict sexual risk-taking behaviours in later life

including, an unrestricted sociosexuality (Simpson & Gangestad, 1992; Yost & Zurbriggen, 2006), early sexual initiation (Black et al., 2009; Majer et al., 2014), and a greater propensity for sex with strangers (Banducci et al., 2014; Lestrade et al., 2013). Research has also examined incarcerated populations and found that ACEs are most common amongst individuals who sexually offended (Jespersen et al., 2009; Reavis et al., 2013). In fact, Reavis and colleagues (2013) and Levenson and colleagues (2016) found that individuals who sexually offend are more likely to report a history of childhood adversity compared to a general population and offenders who have not committed sexual crimes. Worryingly, Levenson and colleagues (2016) also found that while 46% of individuals with a history of sexual offenses reported four or more adverse experiences in childhood, only 16% of individuals in this sample reported experiencing no adversities in childhood. Evidently, ACEs constitute one possible pathway into later RPSBs.

It is worth noting however that childhood adversity constitutes a distal predictor of RPSBs. One notable model which considers the role of childhood adversity as a distal factor in the development of sexually aggressive behaviours is Malamuth and colleagues' (1991) Confluence Mediation Model of Sexual Aggression. According to this model, childhood trauma is a distal predictor of sexual aggression, in which hostile attitudes towards women and engaging in impersonal sex are said to arise because of these early adverse experiences. According to Malamuth and colleagues (1991), individuals who experience adversities in childhood are more likely to engage and socialise with delinquent peers due to feelings of powerlessness in the home. Consequently, these delinquent peer groups may foster a culture of toxic masculinity leading to the adoption of behaviours associated with the derogation of women and the expression of hyper-masculinity related traits (Alexander, 2018; Malamuth et al., 1993; Malamuth et al., 1995). This multifactorial pathway model provides a more nuanced conceptualisation of the relationship between ACEs and subsequent sexual

aggression perpetration by considering the proximal mechanisms which underlie this association. Thus, identifying the more proximal psychosocial deficits resulting from these early experiences of adversity are key to explaining how adversity in childhood translates into RPSBs in later life.

One potential proximal mechanism underlying the relationship between ACEs and RPSBs is self-regulatory deficits. One model that has accounted for this mechanism in the relationship between early adversity and subsequent sexual offending is Stinson and colleagues' (2008) Multimodal Self-Regulation Theory. Similarly to Malamuth et al.'s (1991) confluence mediation model, this framework took an integrative approach when conceptualising sexual offending. Stinson and colleagues (2008) maintained that punitive and neglectful parenting styles may lead to self-regulatory difficulties which consequently result in sexual aggression perpetration. Within this model, Stinson and colleagues also acknowledged that other factors such as biological predispositions and personality characteristics could exacerbate these regulatory difficulties. According to Stinson and colleagues (2008) problematic and harmful sexual behaviours are conceptualised as a form of maladaptive self-regulatory strategy used by individuals to cope. These behaviours, albeit maladaptive, may be functional in helping individuals cope in the short-term with stressors, which consequently reinforces and sustains their use. This theory offers valuable insight into the role that self-regulation plays in the relationship between ACEs and RPSBs, and highlights—similarly to Malamuth and colleagues (1991)—that ACEs constitute a distal predictor of subsequent sexually aggressive behaviours.

The arguments within the confluence mediation model of sexual aggression (Malamuth et al., 1991) and the multimodal self-regulation theory (Stinson et al., 2008) are important and informative for the present thesis for two reasons. Firstly, these theoretical frameworks provide the foundation for understanding and conceptualising the relationship

between ACEs and RPSBs. Secondly, these frameworks highlight the importance of identifying more proximal mechanisms which may underlie the relationship between ACEs and subsequent RPSBs. There is strong theoretical and empirical support for both the confluence mediation model of sexual aggression perpetration (Abbey et al., 2006; Malamuth et al., 1995; Nguyen & Parkhill, 2014; Parkhill & Abbey, 2008; Tharp et al., 2013; Vega & Malamuth, 2007) and the multimodal self-regulation theory (Stinson et al., 2008; Stinson et al., 2011; Stinson et al., 2022). The ideas presented in these models, namely that ACEs constitute a distal predictor of subsequent sexually aggressive behaviours and that self-regulatory deficits present a potential underlying mechanism in this relationship, also align with the existing literature which a) examines the impact of childhood adversities on psychosocial functioning (Horan & Widom, 2014), and b) literature which examines how self-regulation influences RPSBs.

Developmental research has established that early childhood is a key developmental milestone as it enables the formation and development of processes related to executive functioning, including self-regulation (McClelland et al., 2018; Rothbart et al., 2011; Thompson, 1991). Research has also shown that when early childhood experiences are marked by disorganised and chaotic environments, a lack of positive interpersonal caregiver interactions, exposure to neglectful, inconsistent, and harsh parenting styles—which are typically characteristic of ACEs—this can inhibit the development of regulatory functioning (Rothbart et al., 2011; Thompson, 1991). On the other hand, findings by Eisenberg and colleagues (2005) and Piotrowski and colleagues (2012) found that children demonstrated greater self-regulatory skills when their parents exhibited more consistent and nurturing parenting styles, were present rather than neglectful, and reinforced their child's sense of autonomy.

In relation to RPSBs, the existing literature has highlighted two key types of self-regulatory deficits that act as strong risk factors in the commission of RPSBs: emotion dysregulation and maladaptive coping. One of the reasons that the present research focuses predominately on emotion regulation and the use of maladaptive coping strategies is largely due the finding that the processes underlying a child's ability to regulate their emotions and cope in an adaptive manner are particularly sensitive to the influence of ACEs (Wadsworth, 2015; Weiss et al., 2013). Furthermore, research examining the characteristics of individuals who sexually offend has noted that these populations have high levels of emotional lability (Gillespie & Beech, 2016) and difficulties with managing adverse emotions such as anger (Smallbone & Milne, 2000), both of which are markers of emotional dysregulation. When coping with distress, individuals who sexually offend are also more likely to engage in maladaptive sexualised coping strategies as opposed to utilising more adaptive forms of coping (Cortoni & Marshall, 2001). In a similar scope, individuals with higher levels of emotion dysregulation are also more likely to experience more extreme adverse emotions which consequently leads to a greater engagement in sexual risk-taking related behaviours (Hessler & Katz, 2010). The use of maladaptive coping strategies to manage distress—for instance behavioural disengagement—have also shown to be linked to greater risky sexual behaviours including having multiple sexual partners and unprotected sexual encounters (Schwartz et al., 2008). Thus, emotion dysregulation and the use of maladaptive coping represent potential mechanisms in the relationship between ACEs and RPSBs.

To date, research has yet to fully conceptualise the relationship between ACEs and RPSBs and the underlying proximal influence of emotion dysregulation and maladaptive coping strategies. Research which has examined how self-regulatory deficits more generally influence RPSBs in the context of adversity have overwhelmingly used offending or clinical samples as opposed to community-based samples. Whilst studying these samples is

informative and allows researchers to capture more extreme behaviours, research has shown that individuals within the general population who are not known to the police are the main perpetrators of sexual violence (Benbouriche & Parent, 2018). Therefore, conceptualising the interplay between these associations in a more general community sample is warranted. In light of this, the present thesis draws on the notion that ACEs constitute a distal predictor in their association with subsequent RPSBs, as well as the notion that specific self-regulatory deficits, namely emotion dysregulation and the use of maladaptive coping are proximal mechanisms underlying the relationship between ACEs and RPSBs. These constructs were also examined within a predominantly community-based sample. In doing so, I aimed to not only better understand the causal sequence underlying the proposed associations, but additionally, to help inform practitioners and provide them with targetable secondary intervention initiatives by examining the proximal mechanisms through which ACEs translate into later RPSBs. The main research aim for this thesis is as follows:

A1: Examine the underlying role that emotion dysregulation and the use of maladaptive coping strategies play in the association between adverse childhood experiences and risky and problematic sexual behaviours. Cross-sectional, longitudinal, and experimental research designs will be used to examine this association.

The following sections of this chapter provide a detailed review of the supportive evidence and literature for the associations between ACEs, emotion dysregulation, maladaptive coping, and RPSBs.

1.1. ACEs and RPSBs

Despite the heterogeneous nature of adverse childhood experiences (ACEs), research has typically operationalised such experiences as the exposure to (physical, sexual and/or emotional) abuse, as well as experiences of neglect and/or dysfunction in the home (Felitti et

al., 1998; McLean, 2016). ACEs are often characterised as highly stressful events occurring during childhood or early adolescence. These can be singular or prolonged instances of abuse, which children are either witness or are victim to (Anda et al., 1999; Felitti et al., 1998). As such, childhood adversity can affect children directly, by being victim to physical, emotional, and/or sexual abuse and neglect, as well as indirectly. Indirect exposure to environmental stressors may include instances such as observing familial conflict or living in a household where a family member is affected by substance misuse or mental illness. All the mentioned instances have been found to constitute significant stressors to a child's early neurological development (Mueller & Tronick, 2019; Ruben et al., 2016). Worryingly, extensive prior research has demonstrated that such contextual risk factors rarely occur in isolation and often co-occur with other instances of abuse (Anda et al., 1999; Putnam, 2003).

Traumagenic experiences in childhood are often linked with a host of adverse psychological and behavioural sequelae (Bick & Nelson, 2016; Fox et al., 2010; Putnam, 2003). For instance, poor mental health outcomes (De Venter et al., 2013), including depression and suicidality (Chapman et al., 2004; Kessler et al., 2010; Reuben et al., 2016), interpersonal violence (Mersky et al., 2011; Messman-Moore et al., 2010) and aggressive behaviours (Cicchetti & Banny, 2014; Duke et al., 2010), engaging in health-risk related behaviours (Garrido et al., 2018), exhibiting greater emotion and conduct problems (Levenson et al., 2016; Nagy et al., 1994) and poorer psychosocial functioning (Pechtel & Pizzagalli, 2011) are a few of the externalising problem behaviours which result from the cumulative impact of victimisation in childhood (see also Alcalá et al., 2017; Campbell et al., 2016).

Importantly within the present thesis, ACEs were also identified as a potential antecedent in the aetiology of RPSBs. The influence of ACEs on subsequent RPSBs is most evident when examining the histories of individuals who sexually offend. Meta analytic

findings indicated that instances of adversity in childhood were most evident in individuals who sexually offend compared to individuals within the general population (Levenson et al., 2014). In fact, research indicates that individuals who sexually offend are disproportionately more likely to have experienced multiple instances of abuse in childhood across a prolonged period (Baglivio et al., 2014). Jespersen and colleagues (2009) also provided evidence in support of the hypothesis that those who are sexually abused are more likely to go on to sexually abuse others (Seto, 2008; Ward et al., 2006), noting that across 17 studies individuals who sexually offended were more likely to have suffered from sexual abuse in childhood compared to their non-sexual offending counterparts. This evidence suggests that there is a notable link between sexual violence perpetration and greater experiences of adversity in childhood (Levenson & Socia, 2015; Widom & Massey, 2015).

Whilst it is important to examine the presence of adversity within offending populations, research has shown that between 50-60% of individuals within the general population report experiencing at least one form of adversity in childhood (Di Lemma et al., 2019; Merrick et al., 2018). Moreover, Merrick and colleagues (2018) found that 24.6% of individuals within the general population reported experiencing three or more adverse events in childhood, whilst Di Lemma and colleagues (2019) noted that 13% of individuals had experienced four or more adverse events in childhood. These findings fit in line with previous research by Hughes and colleagues (2017) which has shown that individuals who experience ACEs typically experience more than one type of adversity. Similarly, RPSBs are not isolated to sexual offending prison populations. In fact, RPSBs are noticeably prevalent within public domains such as within the workplace and university campuses (Black et al., 2011; Fisher et al., 2000; Lăzăroiu et al., 2018; McDonald, 2011; Perera & Abeysena, 2018), which is unsurprising given that Benbouriche and Parent (2018) noted that most perpetrators of sexually problematic behaviours are not known to the police.

ACEs are also consistently identified as precursors to behaviours that may predispose individuals towards risky and problematic sexual behaviours. Neglect in childhood, for instance, has been found to strongly predict early sexual initiation (Black et al., 2009) and having multiple sexual partners (Anda et al., 2006; Holmes, 2005). Similarly, experiencing childhood sexual abuse is associated with an orientation towards impersonal sex (Abbey et al., 2011) and a greater propensity towards unprotected sexual encounters (especially with strangers; Banducci et al., 2014; Lestrade et al., 2013; Richter et al., 2014). Furthering this, the long-term impact of childhood trauma has been found to culminate in the adoption of risk-related sexual attitudes (Abbey & Jacques-Tiura, 2010), a greater tendency to misperceive a partner's sexual intent (Abbey et al., 2012), as well as illicit drug-use and problem drinking (Dir et al., 2014; Walsh et al., 2014)—all of which may indirectly precipitate the risk for risky and problematic sexual behaviours. Childhood trauma is also predictive of a greater propensity towards antisociality (Appleyard et al., 2005; Kessler & Magee, 1993), substance abuse (Dube et al., 2002), impulsivity (Laucht et al., 2007), engaging in sexual risk-taking (Noll et al., 2009).

1.2. The Developmental Impact of ACEs on Self-Regulatory Functioning

According to Grady and colleagues (2016) four unique yet interconnected constructs pave the way for sexual violence perpetration. This includes regulatory problems, social and intimacy deficits, offense-supportive beliefs, and deviant sexual attraction. Whilst each has been investigated to a varying degree, Ward (2017) argues that self-regulation has taken somewhat of a backseat within the existing sexual offending literature. Self-regulation refers to the internal and external processes which allow individuals to achieve 'personally relevant goals' through the monitoring and inhibition of behavioural responses and affective states (Moilanen, 2007, p. 835; Ward et al., 1998). Processes related to self-regulation have been found to be essential to ones' socio-cognitive and emotional development (Carlson et al.,

2013; Diamond, 2002) and instrumental in the maintenance and development of one's overall wellbeing (Galla & Duckworth, 2015; Moffitt et al., 2011). According to Quinn and Fromme (2010) individuals with the ability to self-regulate have also ranked highly on various social competency measures (see also Massey et al., 2008). On the other hand, a growing body of research has found that self-regulatory deficits precipitate the risk for later externalising problem behaviours including engaging in sexual risk-taking (Crockett et al., 2006; Hanson & Morton-Bourgon, 2005), sexual coercion (Davis & Logan-Greene, 2012), substance misuse (Pahl et al., 2014), and aggression (Denson et al., 2012).

Crucially for the present thesis, experiencing stressors in early life has been shown to compromise cognitive and affective functioning (Pechtel & Pizzagalli, 2011). For instance, children who were maltreated were more likely to experience regulatory difficulties and had greater difficulty discriminating between affective experiences compared to their non-maltreated counterparts (Cicchetti et al., 1991). Research has also shown that children with a history of adversity exhibit information processing biases which predisposes them to attend more to threatening rather than neutral stimuli (Dannlowski et al., 2012). McLaughlin and colleagues (2019) also found evidence that children who had been exposed to violence in childhood had greater difficulty in distinguishing between threat and safety related cues compared to children with no such history of adversity.

The impact of ACEs on self-regulatory functioning likely arises as early childhood typically constitutes a period which is critical for the development of skills related to executive functioning such as self-regulation (McClelland et al., 2018). As highlighted in the developmental literature, this means that self-regulation and related processes including inhibitory control and delay gratification are susceptible to repeated or prolonged experiences of (or exposure to) stress (c.f., Blair, 2010; Dvir et al., 2014). Consequently, adverse

childhood experiences may disrupt the development of key areas related to self-regulatory functioning. This may occur through several processes.

1.2.1. Impact of ACEs on Brain Development

Heightened stress levels have been shown to hinder the development of the prefrontal cortex which is responsible for executive functioning, including self-regulation and decision making (Arnsten et al., 2015). Consequently, this has shown to affect a child's ability to respond to stressful situations in the later life. Similarly, evidence from neuroimaging and electrophysiological studies suggests that areas associated with self-regulation, such as the medial prefrontal cortex and the anterior cingulate cortex (Brown et al., 2006) are susceptible to influences of stress and early experiences of trauma (Dvir et al., 2012). One study (Mueller et al., 2010) examined the use of the stop-signal paradigm as a measure of executive control. Findings showed increased activation in regions associated with executive control when completing the task, including the medial prefrontal cortex and the anterior cingulate cortex. This activation was especially evident in individuals with a history of early adversity, which was interpreted as individuals exerting greater effortful control during task performance. This not only replicated similar existing findings (Blair, 2010; Blair & Raver, 2015), but it also supported the idea that a history of adversity compromises the development of processes associated with self-regulatory functioning.

Interestingly however, in their longitudinal examination of the relationship between self-regulation and childhood victimisation, Danese and colleagues (2016) came to a different conclusion and noted that greater executive control deficits were attributed to pre-existing cognitive vulnerabilities. It is worth noting however, that Mueller and colleagues (2010) implemented the inclusion of a control group who had not been exposed to early adversities. This control group was also matched on both intelligence and socioeconomic status which

allows for greater confidence that findings were not due to the extraneous influence of individual differences. Overall, this strengthens the notion that early experiences of adversity hinders the development of self-regulatory functioning, which is known to precipitate a risk for later problematic sexual behaviours (see Crockett et al., 2006; Hanson & Morton-Bourgon, 2005; Pahl et al., 2014).

1.2.2. Attachment Style and Influence of Parenting

Attachment theory (Bowlby, 1973) offers one explanation for the sustained impact of childhood adversity on later externalising problem behaviours. According to attachment theorists, infants form an initial attachment or bond with their primary caregiver(s). This bond determines what is known as an individual's internal working model (Bretherton, 1992). The internal working model is a cognitive-affective representation which stores knowledge of past interactions and serves as a template for future interactions, as well as knowing what to expect from these interactions. Attachment theorists maintain that an infant's attachment to their caregiver significantly affects their ability to regulate their emotions, manage behavioural responses, and acquire the skills needed for enacting appropriate social and emotional functioning in later life (Ainsworth & Bell, 1970; Bowlby, 1973; Rutter, 2002). The quality of this attachment is dependent upon a caregiver's responsiveness, and the consistency of these responses in meeting an infant's needs (Benoit, 2004; Bowlby, 1973; Shillkret & Shillkret, 2011). According to Benoit (2004), if a caregiver is consistent and responsive to the needs of their child then infants will use their caregiver as a means through which to explore and interact with their surroundings.

Hazan and Shaver (1987) noted that a child can either form a secure or an insecure attachment to their primary caregiver due to these early interactions. Secure attachments are marked by prosocial interactions and where a child knows that they can turn to their caregiver

for comfort when they are experiencing distress. Secure attachments can help cultivate appropriate emotional development (Furnivall, 2011) whereby caregivers provide infants with the necessary scaffolding to learn skills (e.g., emotional control) for managing future distress appropriately (Fox & Calkins, 2003; Shilkret & Shilkret, 2011). On the other hand, individuals may develop insecure attachments which are characterised as avoidant, disorganised, or anxious insecure attachments (Hazan & Shaver, 1987; Main & Solomon, 1990). Attachment insecurity is typically fostered in environments where caregiving is inconsistent, abusive, and/or neglecting (Shilkret & Shilkret, 2011). If infants perceive their caregiver(s) as unpredictable and threatening they may resort to using primitive and maladaptive strategies for alleviating and managing their own distress (Wadsworth, 2015).

Research investigating the impact of attachment styles has found that attachment insecurity in individuals tends to be more strongly associated with problematic behavioural outcomes in later life, and deficits in psychosocial functioning compared to their securely attached counterparts (Hudson et al., 1999). Developmental theorists argue that inconsistent responsiveness, poor parental supervision, and/or authoritarian parenting styles foster later conduct problems in addition to difficulties with emotional and cognitive regulation (Bogaerts et al., 2005; Cicchetti & Banny, 2014; Hudson & Ward, 2000; Rutter et al., 2006). Insecure attachment has also consistently been found to correlate with numerous externalising self-regulatory problem behaviours, including displays of aggression and substance misuse (Ford et al., 2012). Findings by Beech and Mitchell (2005, 2011) furthered this. They argued that poor attachment styles can have a sustained impact on an individual's neurological development beyond hindering their ability to effectively self-regulate. In fact, they found further evidence of a link to sexual violence. This association has become increasingly well established and there is a growing body of research attesting to this association. In one study, adult male sex offenders who displayed insecure attachments also

reported a higher tolerance for the use of violence and tended to display higher levels of aggression within relationships (Lyn & Burton, 2005). Therefore, this fits in line with Grady and colleagues (2016) theoretical framework which explains how individuals who experience early adversities and trauma are more likely to develop insecure attachments, which consequently culminates in various psychosocial deficits that present a risk for the perpetration of subsequent sexual violence.

Parenting practices may also result in self-regulatory deficits. Early child-caregiver interactions are known to form the basis of an infant's future interactions with the environment and others around them (Swain et al., 2007), and research has shown that the absence of prosocial interpersonal interactions with a caregiver and/or stressful and disorganised home environments strongly predicts cognitive and socioemotional development (Shields & Cicchetti, 1998). If an infant feels secure in their environment due to having their needs met, they are free to explore and develop their cognitive and social functioning skills (Bohlin et al., 2000). This, in turn, leaves children better equipped for managing future distress (Piotrowski et al., 2013). Comparably, parenting styles which restrict opportunities for children to practice their self-regulatory skills and whereby the caregiver does not provide appropriate role modelling of regulatory behaviours—which is typically characteristic of ACE households—hinders the development of such skills (Bowers et al., 2011). In this latter case, such parenting styles may ultimately deprive infants of the necessary social interaction and sensory inputs/stimulation required to ensure synaptic connectivity and neuronal survival (Gould & Tanapat 1999). Consequently, children may suffer structural and physiological differences in their neurological make-up due to stress and may also be unable to reach certain social and cognitive developmental milestones (Perry, 2002; Teicher, 2000). According to theorists, a combination of these factors likely results in children exhibiting

poorer self-regulation (Baumrind, 1971), and children being less resilient to subsequent externalising problem behaviours (Eisenberg et al., 2005).

Collectively, these findings suggest that self-regulatory deficits merit greater attention as a potential mechanism in the path between ACEs and later RPSBs, especially if we aim to try and mitigate the impact of such adversities. To date, several models have conceptualised the interplay between experiences of adversity in childhood and self-regulatory deficits in the path to problematic sexual behaviours. Namely, the integrated etiological theory of sexual offending (Marshall & Barbaree, 1990), the pathways model (Ward & Siegert, 2002), Stinson and colleagues multimodal self-regulation theory (2008) which is outlined earlier in this chapter, and the integrated theory of sexual offending (Ward & Beech, 2006). As a brief overview of the three theories which have not yet been discussed, the integrated etiological theory of sexual offending (Marshall & Barbaree, 1990) maintains that individuals who are exposed to adversity in childhood are more likely to experience deficits in relation to both interpersonal and emotion regulation skills. As a result, these individuals may be more likely to face rejection particularly during adolescence as they are poorly equipped to form and maintain social relationships. This can lead to deviant sexual fantasies and the use of sexualised coping strategies to manage adverse states and arousal. According to Marshall and Barbaree, the use of such strategies acts to reinforce deviant sexual fantasies and sexualised behaviours become normalised and may provide a template for subsequent sexual offending behaviours.

Ward and Seigert's (2002) pathways model drew on previous theoretical frameworks—including Marshall & Barbaree's integrated etiological theory (1990)—using a theory knitting approach and noted that four core mechanisms give rise to five pathways leading to sexual offending. These four core mechanisms include a) having limited intimacy and social skills, b) greater emotion dysregulation, c) deviant sexual scripts, and d) distorted

and antisocial cognitions. To highlight one of these pathways, the emotion dysregulation pathway states that a limited competency to regulate emotions coupled with adverse emotional states such as anger and diminished self-worth can contribute to sexual offending as a means of coping with adverse affect. According to this theory, the other core mechanisms also constitute pathways leading to the commission of sexual offences, as well as a final general pathway constituting of multiple deficits.

Ward and Beech's (2006) integrated theory of sexual offending is similar in some aspects to the models outlined previously and highlighted the multifactorial pathways which may lead to, and maintain sexual offending behaviours. According to this model an individual's brain development and their ecological niche (combination of proximal and distal personal, social, and cultural factors) constitute vulnerabilities which can predispose individuals to having disrupted neuropsychological functioning. This neuropsychological functioning can include how individuals manage their emotions and motivations, how individuals act and whether they are able to control certain behaviours, and how individuals perceive, interpret, and remember experiences. Disruptions or deficits in neuropsychological functioning can give rise to clinical symptoms which are associated with sexual offending.

These clinical symptoms include social and emotion regulation difficulties, cognitive distortions and disrupted empathy, and sexual deviance. Following the commission of the sexual offence, behaviours may be maintained and further escalated as the experience of having committed the sexual offence will feed back into an individual's ecological niche, which individuals subsequently draw on and which will also feed into their neuropsychological functioning. It is worth noting that I have only briefly outlined the broader aspects of these models which contain a lot more nuance. Therefore, I refer to respective sources highlighted for a more comprehensive review of these theories.

Generally, these models acknowledge the role that self-regulation, as well as emotion regulation more specifically, play in the path to subsequent sexually problematic behaviours. However, these models also tend to conceptualise maladaptive coping strategies as an extension of emotion dysregulation—thereby treating both constructs in a unified way. Moreover, these models provide an explanatory framework for either specific sexual offences such as sexual violence against children or more general sexual offending behaviours. Within the present thesis, I conceptualise emotion dysregulation and the use of maladaptive coping strategies as two largely separate constructs. The reason I consider these constructs separately is to a) tease apart the individual causal influence that each of these mechanisms had in relation to risky and problematic sexual behaviours, and b) to examine the use of coping strategies more generally including the use of avoidance and social support seeking strategies. With regards to maladaptive coping strategies, previous frameworks have largely focused on the use of sexualised coping strategies. Whilst considering the use of such strategies is important particularly within the context of sexual offending, within the present thesis I consider risky and problematic sexual behaviours—which may pose a risk of sexual harm to both the individual and others—within community samples, thus it was more informative to consider the use of coping strategies more generally. Arguably however, an extension of existing frameworks can be used to inform the construction of more specific pathway theories surrounding RPSBs. It is important to note that the overarching aim of the present thesis was not to propose an alternative to these models and frameworks, but rather to determine whether these frameworks can similarly help to inform understanding in the relationship between ACEs, emotion dysregulation, maladaptive coping strategies, and RPSBs within community samples.

1.3. The Emotion Dysregulation Mechanism

1.3.1. ACEs and Emotion Dysregulation

Similarly to self-regulation more broadly, emotion regulation has received empirical attention as a psychosocial deficit resulting from experiences of adversity (Gratz & Roemer, 2004; Weiss et al., 2013). Emotion regulation refers to the specific aspect of self-regulation which involves the monitoring and modulation of internal emotional states and affective responses (Gross, 1998). Emotion regulation is typically viewed as a multifaceted construct concerning domains such as emotional awareness, ability to engage in goal directed behaviour, and emotional clarity, amongst others (Gratz & Roemer, 2004). This construct can also be viewed in terms of the specific regulatory strategies used to manage affect (Gross, 1999), or it can be conceptualised more broadly as an overall ability (or difficulty) to regulate emotions (Gratz & Roemer, 2004). According to Gratz and Roemer (2004) dysregulation of emotions occurs when an individual's capacity for engaging in one or more of these domains is limited. Within the present thesis I more closely examined the impact of general deficits in emotion regulation domains in relation to risky and problematic sexual behaviours.

The ability to regulate emotions depends on an individual being aware and mindful of their emotional states, being able to correctly identify emotional states, as well as using the appropriate cognitive strategies to effectively regulate these emotional states (Eisenberg et al., 2005). The ability to regulate emotions is a key skill that serves an adaptive role in enabling individuals to tolerate and manage distress (Naragon-Gainey et al., 2017). This ability develops and is utilised during childhood (Stansbury & Zimmerman, 1999), and, similarly to self-regulatory functioning, is susceptible to experiences of adversity.

Early experiences of (or exposure to) adversity has been shown to hinder socioemotional development leaving individuals unable to correctly identify or regulate emotions appropriately (Weiss et al., 2013). This includes having a lack of emotional awareness, heightened emotional intensity, and the inability to tolerate distress (Gratz & Roemer, 2004; Weiss et al., 2013). Both self-report and neuroimaging studies have shown

that exposure to stressors including community violence, familial conflict, and experiencing the loss of a parent can result in children exhibiting increased levels of emotional reactivity (Heleniak et al., 2015; McLaughlin et al., 2009; Pollak & Kistler 2002; Pollak & Tolley-Schell 2003). Increased emotional reactivity in children who are victims of adversity can result in a greater detection of threatening stimuli and emotions. For example, McLaughlin and colleagues (2015) noted that children with a history of adversity experienced heightened emotional reactivity and were able to identify anger more readily compared to other emotions (Shackman et al., 2007) as a consequence of ACEs.

Support for the association between ACEs and emotion dysregulation is also evident in recent meta-analytic studies. Lavi and colleagues (2019) reviewed evidence from 58 studies and concluded that children who experienced maltreatment were emotionally dysregulated, experienced higher levels of negative emotions, and displayed more aggressive behaviours compared to children who had not been maltreated. Likewise, in a meta-analysis of 35 studies Gruhn and Compas (2020) found that maltreatment was associated with emotion dysregulation. They also found that maltreatment was related to maladaptive strategies for regulating emotions, such as emotional suppression. Collectively, Rudenstine and colleagues (2018) found that several domains of emotion regulation, such as engaging in goal-directed behaviour and impulse control, having emotional clarity and awareness, and accepting emotions were limited among individuals exposed to childhood adversity.

The experience of childhood adversity may impact the ability to regulate emotions in several ways. One such way is through ineffective modelling behaviours provided by caregivers. Caregivers represent a primary source through which children learn to regulate their emotions (Eisenberg et al., 1998). In the case of childhood adversity, there may be a lack of a suitable role model to scaffold emotion regulation skills, and the opportunities to learn and practice more adaptive means of regulating emotions (Gruhn & Compas, 2020). For

instance, Shipman and colleagues (2000) noted that compared to children who experience no adversity, children exposed to neglect were less able to understand negative emotions and had limited access to adaptive regulatory strategies. Alternatively, children who were maltreated by their caregiver modelled similarly ineffective regulatory strategies for managing distress (Oshri et al., 2015). For example, Silk and colleagues (2006) noted that children whose mothers suffered from depression engaged in similar avoidant or passive strategies to cope with their emotions as observed in their mothers. Consequently, this evidence indicates that ineffective parenting styles which are typical of adverse childhood experiences contribute to the development (or lack thereof) of emotion dysregulation.

Adverse childhood experiences also impact the development of neurobiological regions involved in emotion regulation. Neurobiological evidence has demonstrated that there are volumetric reductions in certain limbic regions including the amygdala, which is primarily responsible for modulating mood and the regulation of emotions (for a critical review see Hart & Rubia, 2012; Yehuda et al., 2015), amongst those experiencing abuse in childhood (Schmahl et al., 2003; Teicher et al., 2002). Research has suggested that a possible explanation for these changes in brain structure could be due to ACEs constituting a significant stressor thereby leading to increased cortisol production (stress hormone; Nicolson et al., 2010). Research has found that chronic exposure to stress, which results in elevated cortisol levels, is associated with volumetric reductions in grey matter (Lu et al., 2013). This, in turn, hinders emotion regulation and underpins future problematic outcomes (Anda et al., 2006; Anda et al., 2010).

1.3.2. Emotion dysregulation and RPSBs

The inability to regulate adverse affective states has been shown to have numerous detrimental effects on individual's psychosocial development and functioning. This is even

the case when controlling for other risk factors (Paulus et al., 2016). Interpersonal violence (Espeleta et al., 2016), engaging in risky sexual behaviours (Ullman et al., 2014), and sexually aggressive behaviours (Donahue et al., 2014) are amongst the behaviours most strongly associated with emotion dysregulation. A systematic review of the existing neurological literature concluded that there were ‘predictable differences’ in the development of executive functioning skills amongst individuals experiencing maltreatment in childhood which subsequently led to problematic outcomes (McCrory & colleagues, 2017, p. 339). A longitudinal examination into the development of emotion dysregulation aimed to determine the causal sequence of this association and whether impairments in the ability to regulate emotions preceded and predicted the emergence of externalising disorders (Halligan et al., 2013). Their findings showed that individuals who demonstrated poorer emotion regulation faced a comparably greater risk for developing externalising disorders including psychopathology later in life. Kim-Spoon and colleagues (2013) similarly found that greater negative affect predicted internalising symptomatology in a sample of maltreated children.

Research has also found evidence that emotion dysregulation translates into risky and problematic sexual behaviours. For example, Tull and colleagues (2012) found that emotion dysregulation was positively associated with the number of times sexual services were paid for and negatively associated with safe sexual practices including condom use. Weiss and colleagues (2019) noted that specific aspects of emotion dysregulation were associated with sexual risk taking. Namely impulse control difficulties and difficulties with goal-directed behaviour were associated with intentions to engage in sexually risky behaviours including having unprotected anal sex and having sex whilst under the influence of alcohol and other substances. Moreover, the inability to accept emotions was associated with sexual impulsivity such as having unexpected sexual encounters. Importantly, emotion dysregulation has been found to mediate the link between childhood adversity and RPSBs. Weiss and colleagues

(2013) provided evidence of an indirect effect of emotion dysregulation in the path from childhood trauma to later problematic sexual behaviours, and Arttime and Peterson (2012) found that impulse control difficulties and not having access to effective strategies for regulating emotions mediated the relationship between child sexual abuse severity and having a greater number of sexual partners in adulthood.

Research also found a link between the perpetration of sexual violence and difficulties in regulating emotions (Gillespie & Beech, 2018; Ward & Hudson, 2000), as well as identifying emotion dysregulation as a causal factor in the commission of sexual offending (Polaschek & Ward, 2002). According to Gillespie and colleagues (2012), individuals who sexually offend are prone to experiencing more adverse emotions, and do so to a greater degree, compared to non-sexual offenders and non-offending populations. Findings by Jones and colleagues (2016) further evidenced this link noting that there were behavioural and neurological differences in emotion regulation for adolescents with a history of sexual violence perpetration compared to those with no such history. Specifically, adolescents who had sexually offended were more likely to self-report difficulties regulating emotions and showed comparably greater activation in brain regions associated with executive functioning whilst completing an emotion reappraisal task—potentially suggesting that greater cognitive effort was required to regulate emotions.

Emotion dysregulation may lead to RPSBs in two ways. Firstly, emotion dysregulation may lead individuals to engage in maladaptive ways of coping as a way of reducing distress and negative emotional experiences that subsequently predispose them to engaging in risky and problematic sexual behaviours. For example, Bonn-Miller and colleagues (2008) found that individuals with emotion dysregulation were more likely to misuse substances compared to those who were better equipped to regulate their emotions. Although these behaviours provide short-term relief from negative emotional states and serve

to distract individuals (Briere & Elliott, 1994; Heatherton & Baumeister, 1991), such behaviours like substance misuse may disinhibit individuals and increase the likelihood of engaging in RPSBs (Beauregard et al., 2014; Finkelhor et al., 2016).

As well as utilising maladaptive strategies such as substance misuse to manage distress, which subsequently increases the propensity for RPSBs, individuals with emotion dysregulation may also resort to RPSBs directly as a method of alleviating their negative affect. For example, Gillespie and colleagues (2012) found that individuals who sexually offend were more likely to engage in repetitive negative thinking and consequently were less able to distance themselves from adverse emotions. This may consequently have led to sexual offending as a means by which to manage distress. Supporting this conclusion, Gillespie and colleagues (2012) also noted that individuals who sexually offend are more likely to re-offend following release if they are struggling to regulate more adverse emotions. Importantly, Tull and colleagues (2012) found that emotion dysregulation predicted engagement in RPSBs even when other risk factors such as substance misuse and sensation seeking were controlled for.

1.4. The Maladaptive Coping Mechanism

1.4.1. ACEs and maladaptive coping

Maladaptive coping refers to the specific behavioural and cognitive strategies that are implemented to modulate adverse affective states (Marroquin et al., 2017). As indicated above, maladaptive coping strategies are linked to emotion dysregulation, in which emotion dysregulation can give rise to maladaptive coping behaviours as a way of alleviating negative affect. The use of maladaptive coping strategies usually indicates affective dysregulation or typically proceeds other psychosocial deficits (Tull et al., 2007). According to Cicchetti and colleagues (1991), children who experience emotion regulation difficulties as a result of early

experiences of maltreatment may also engage in maladaptive coping behaviours. McCrory and colleagues (2017) also concluded that individuals with impaired functioning, resulting from experiences of early adversity, were still able to identify emotions and cope with distress (albeit to a lesser extent than their non-maltreated counterparts) via the use of maladaptive coping strategies. Although these strategies may have been adaptive in the short-term for alleviating distress, they conferred a latent vulnerability for later socioemotional and behavioural problems (see also McCrory & Vidling, 2015).

Collectively, this suggests that maladaptive coping strategies and emotion regulation appear to be inextricably linked and it follows that individuals who experience repeated or prolonged instances of abuse, and as a consequence are ill-equipped to regulate their emotions, would be more likely to use maladaptive coping strategies in the absence of more adaptive means by which to regulate affect (Dvir et al., 2014; Kim & Cicchetti, 2010). Despite their close conceptual link (Cole et al., 2004; Modecki et al., 2017), within this thesis I explore emotion dysregulation and maladaptive coping as separate mechanisms in the link between ACEs and RPSBs, with emotional dysregulation focusing on the affective deficits that may contribute to RPSBs and maladaptive coping focusing on the behavioural deficits.

Research largely supports the notion that maladaptive coping stems from ACEs. Findings by Follette and colleagues (2006) found that individuals were more likely to engage in experiential avoidance, denial, and cognitive or behavioural disengagement strategies to manage distress following early traumatic experiences. Experiential avoidance has also been shown to mediate the relationship between childhood maltreatment and negative internalising symptomatology (Kingston et al., 2010; Roche et al., 2018). According to Zaleski and colleagues (1998) and Maniglio (2011) this occurs due to the absence of more adaptive coping mechanisms, but also, because such strategies (albeit maladaptive) provide short-term relief from distress which reinforces their use. Therefore, maladaptive coping strategies act as

a tool to reduce heightened negative emotionality following the occurrence of a stressor. Zaleski and colleagues provided evidence in support of this. Their findings suggested that under conditions of heightened stress, students were more likely to resort to using maladaptive coping strategies such as coping using sex and coping using drugs and alcohol to attenuate stress if previous adaptive attempts at regulation had failed. This is problematic as the use of such strategies has been shown to lead to a diminished risk perception (Choudhry et al., 2014), poor decision making, a risk towards interpersonal violence, and risky and problematic sexual behaviours (Choudhry et al., 2014; Looman et al., 2013; Orcutt et al., 2005).

According to developmental theorists, the development of an adaptive and effective repertoire of coping skills depends on the presence of moderate stress and positive role models who provide the necessary co-regulation and scaffolding for children to acquire these skills (Abaied & Rudolph, 2010; Compas, 2009). Under ideal circumstances, child-caregiver interactions are characterised by a secure attachment. This allows for the child to feel secure and able to develop their regulatory abilities whilst becoming more autonomous self-regulatory agents (Eisenberg et al., 2009). Research has shown that secure relationships with ones' caregiver can buffer against the adverse effects of over activating the stress response in infants (Gunnar & Donzella, 2001; Tronick, 2017). From the available neurodevelopmental literature, it is evident that the maturation of the prefrontal cortex in childhood enables the development of self-regulatory functioning (Diamond, 2002). Moreover, infants are also equipped with the necessary attentional and sensory subsystems to facilitate the detection of threats which may cause distress. However, it is through positive and responsive caregiver interactions that infants cultivate these skills and learn to modulate distress and cope with adverse stressor-related affect (Ainsworth, 1979; Fuertes et al., 2006).

On the other hand, the absence of such interactions not only impedes a child's neurological and socioemotional development (Cicchetti & Rogosch, 2009) but it also perpetuates the reliance on primitive maladaptive coping strategies (for a review see Zimmer-Gembeck & Skinner, 2011). There is increasing evidence suggesting the use of cognitive and behavioural avoidance strategies especially amongst children experiencing chronic stress (Evans et al., 2005; Santiago & Wadsworth, 2009). Theorists argue that these primitive coping strategies (albeit maladaptive) may provide adaptive value in the absence of more prosocial and adaptive means by which to self-regulate. According to Shields and Cicchetti (1998) maladaptive coping can be functionally adaptive in the short-term for maintaining affective homeostasis and minimising distress, however, an overreliance on these strategies in the long-term may confer a risk of harm for later sexual victimisation and perpetration (see also Evans et al., 2005; Santiago & Wadsworth, 2009).

Given the unpredictable nature of ACEs it is often difficult for children to actively implement adaptive coping strategies such as problem solving (Wadsworth & Compas, 2002). Such strategies are more cognitively taxing and less easily accessible compared to disengagement and avoidance-based strategies (Masten, & Cicchetti, 2010). In addition, attempts at active coping such as problem solving can lead to undesirable outcomes or put the child at risk if they try to intervene in a situation of conflict (Shelton & Harold, 2008). On the other hand, the sense of security associated with avoidance-based strategies and the physical/psychological protection it incurs are preferred, especially amongst those exposed to chronic stress (Cummings & Davies, 2002). The research presented thus far largely fits in line with a functional adaptation theory of stress (Blair & Raver, 2012; Wadsworth, 2015). This takes a more nuanced view of coping and moves beyond the traditional view of certain coping strategies as either 'good' or 'bad'. Instead, this theory acknowledges that coping may be functionally adaptive in response to certain situations. Conceptualising coping in this way is

beneficial for informing secondary coping interventions. This shifts the focus from trying to eliminate more primitive and maladaptive coping strategies, to acknowledging their usefulness in past instances, but focuses intervention on equipping children with more adaptive means by which to cope in the future.

1.4.2. Maladaptive coping and RPSBs

There is strong evidence that maladaptive coping strategies act as a pathway into risky and problematic sexual behaviours. In particular, maladaptive coping strategies may involve behaviours, such as substance abuse, which alleviate affective responses to stressors but are conducive to RPSBs. For example, McConnell and colleagues (2014) found that the use of disengagement based coping strategies in adolescents was positively associated with drug use. Likewise, disinhibition through drugs or alcohol is positively associated with sexual aggression (Beauregard et al., 2014; Finkelhor et al., 2016) and sexual risk taking (Yan et al., 2007). Indeed, there is much evidence that suggests a link between maladaptive coping and RPSBs. For example, Dariotis and Chen (2022) found that avoidance-based coping mediated the relationship between stressful life events and both substance use and risky sex, and Bianchi and colleagues (2021) found that avoidance-based coping positively predicted risky and emotional sexting. Maladaptive coping is also associated with more problematic sexual behaviours, as maladaptive coping strategies have consistently been shown to confer a risk of sexual harm (Malamuth et al., 1991). Moreover, research indicates that negative emotionality typically precedes the occurrence of sexual aggression (Pithers, 1990). This is especially evident amongst individuals who sexually offend (Looman, 1995; McKibben et al., 1994). Therefore, the inability to regulate one's emotions coupled with maladaptive coping could exacerbate the propensity towards sexual violence.

Some authors have also conceptualised risky and problematic sexual behaviours as a maladaptive coping strategy. For example, Stinson and colleagues (2008) proposed that sexual offending constitutes a maladaptive regulatory strategy which individuals use to cope with distress. Indeed, an array of studies indicates that sexually related maladaptive coping strategies may be associated with RPSBs. Findings by Proulx and colleagues (1996; see also McKibben et al., 1994) indicated that there was a marked increase in deviant sexual fantasies and associated masturbation following the occurrence of a stressor among individuals who sexually offend. Likewise, Sterk and colleagues (2011) found that using sex as a coping strategy for managing stress was associated with engagement in risky sexual behaviours. Cortoni and Marshall (2001) similarly noted that individuals who sexually offend were comparably more likely to use coping using sex and to have a preoccupation with sex when experiencing distress compared to their non-offending counterparts. Similarly, other non-sexual maladaptive coping strategies, such as avoidance-based coping, are also associated with the use of sex as a coping strategy (Serran & Marshall, 2006). Consequently, risky and problematic sexual behaviours may arise as a result of maladaptive coping mechanisms, such as avoidance-based strategies like substance misuse, or risky sexual behaviours may directly constitute a maladaptive coping strategy via sexualised coping.

Although not the primary aim of this thesis, it is also worth noting that adaptive coping strategies are associated with more healthy behaviours. For example, problem-solving based coping strategies were associated with lower levels of substance use (Teva et al., 2010) and more frequent use of condoms (Schwartz et al., 2008). Likewise, social support seeking was negatively associated with unprotected anal sex (Folkman et al., 1992). These more adaptive coping strategies may offer a protective buffer from engaging in RPSBs. For example, adaptive coping strategies like social support seeking may prevent individuals from engaging in maladaptive coping strategies to cope with stress (Gebeyehu & Mulatie, 2021),

which subsequently reduces the likelihood of engaging in RPSBs. Furthermore, as adaptive coping strategies are linked to generally more positive outcomes and behaviours, such as higher levels of self-esteem (Dumont & Provost, 1999), such coping strategies may precipitate various other protective factors against RPSBs. Consequently, whereas maladaptive coping is likely to increase the risk of engaging in risky or problematic sexual behaviours, adaptive coping may provide a protective buffer against such behaviours.

1.5. Summary and Thesis Overview

In summary, this thesis aimed to explore the indirect mechanisms which underlie the relationship between childhood adversities and later risky and problematic sexual behaviours. The above evidence provides support for both emotion dysregulation and maladaptive coping as mechanisms through which adverse childhood experiences may translate into later risky and problematic sexual behaviours. Specifically, I argue that individuals who have experienced greater adversity in childhood are more likely to experience emotion dysregulation and use more maladaptive coping strategies in response to stressors. Consequently, these self-regulatory deficits will result in an increased likelihood of engaging in risky and problematic sexual behaviours. Knowledge of the mechanisms linking ACEs to later risky and problematic sexual behaviours allows for the identification of more proximal and targetable risk factors relevant to the perpetration of risky and problematic sexual behaviours. I also aimed to not only elucidate some of the proximal influences of risky and problematic sexual behaviour, but also that in doing so, these findings would go some way towards informing practice by highlighting targetable secondary interventions aims, where primary prevention efforts were not feasible (Abbiati et al., 2014; Klevens & Whitaker, 2007; Levenson, 2014).

The evidence presented thus far indicates a very clear theoretical link between adversity in childhood, self-regulatory deficits, and risky and problematic sexual behaviours. However, it is important to acknowledge that these factors may also play a role in the development of other types of offending behaviours such as intimate partner violence and animal abuse (Bright et al., 2018; Maloney et al., 2023; Schram, 2009; Wautheir et al., 2023). Likewise, other explanatory models for sexual offending behaviours (Marshall & Barbaree, 1990; Ward & Seigert, 2002) have also considered other mechanisms such as deviant sexual scripts and implicit theories in conjunction to self-regulatory deficits. However, within this thesis I have focused on the role of emotion dysregulation and maladaptive coping strategies specifically in relation to RPSBs. As a key aim of this thesis was to explore these pathways within a community-sample, these regulatory mechanisms may also be more prevalent and obvious within community samples compared to mechanisms such as deviant sexual scripts which may be more evident in offending samples, and therefore represent more appropriate constructs of study. The general outline of this thesis is as follows. Chapter two examined the everyday associations between maladaptive coping, emotion dysregulation, and risky and problematic sexual behaviours in the context of a stressor using ecological momentary assessment methods. Following this, chapter three extended the findings of chapter two by examining the longitudinal interplay between adverse childhood experiences, emotion dysregulation, maladaptive coping, and risky and problematic sexual behaviours over a longer period. By exploring the temporal precedence of these constructs chapter three aimed to assess the plausibility of any causal relationships between these constructs. Chapter four aimed to validate the sexual aggression analogue task as a suitable behavioural proxy measure for problematic sexual behaviour. Lastly, in a series of related experimental studies, chapter five aimed to a) experimentally manipulate the saliency of adverse childhood experiences to assess their effects on subsequent coping strategies, and b) experimentally

manipulate coping strategies to examine their effects on subsequent risky and problematic sexual behaviours.

2. Chapter Two: COVID-19 Impact on Everyday Coping, Emotion Dysregulation, and Risky and Problematic Sexual Behaviours

2.1. Theoretical background

Risky and problematic sexual behaviours (RPSBs) refer to behaviours which constitute a risk of sexual harm to the individual carrying out these behaviours and/or others (for a similar definition see Davis et al., 2014). Such behaviours can include but are not limited to unsafe sexual practices such as having unprotected sex, having sex whilst under the influence of drugs and alcohol, having multiple sexual partners, engaging in sexually coercive practices, and other forms of sexual aggression. Such acts can lead to deleterious outcomes for the self and others such as the increased risk of contracting sexually transmitted infections, unwanted pregnancies, as well as a potential risk of sexual violence victimisation (Davis & Logan-Greene, 2012; Hoyle et al., 2000).

Despite the well documented problematic outcomes associated with RPSBs, it is difficult to determine the true prevalence of such behaviours. Estimates of risky and problematic sexual behaviours are inferred based on proxy measures, such as prevalence estimates of sexually transmitted infections and official police recorded crime, both of which underestimate the true extent of RPSBs. Whilst figures from these sources may only provide researchers with a lower limit estimate of the number of people who engage in RPSBs, they are nonetheless informative. Figures published by the UK Health Security Agency (2023) indicate an increase in the rates of STIs and access to sexual health services. The Office for National Statistics (2023) similarly found that in 2022 approximately 1.1 million adults were victim to some form of sexual assault perpetration including unwanted sexual touching, indecent exposure, and or rape. This indicates that RPSBs remain prevalent and highlights the

importance of understanding the pathways underlying engagement in risky and problematic sexual behaviours.

To date, research has typically focused on identifying the situational risk factors which increase the risk of engaging in RPSBs. For instance, alcohol induced sexual aggression (Abbey et al., 2022; Cooper, 2010; Petruželka et al., 2018) and socialising with peers who justify the use of sexual violence (Ageton, 1983; Boeringer et al., 1991). Such factors have been argued to increase the subsequent likelihood of engagement in RPSBs including sexual aggression. As a result, research has overlooked the more proximal psychosocial mechanisms which can contribute to RPSBs. However, one prominent line of research, which has attempted to address this, examines how self-regulatory deficits can give rise to RPSBs (Raffaelli & Crockett, 2003; Stinson et al., 2008; Stinson et al., 2016). Of particular interest is research examining how facets of emotion dysregulation and the use of certain maladaptive coping strategies are associated with both sexual risk-taking and problematic sexual behaviours including sexual aggression. For instance, findings by Lee and colleagues (2020) and Shorey and colleagues (2011) highlighted that individuals with lower levels of impulse control were more likely to sexually aggress via intimate partner violence and dating violence, especially when experiencing more adverse emotions. Ortiz and colleagues (2015) also found that emotion regulation deficits coupled with increased alcohol consumption—as a means of managing heightened emotionality—was associated with higher levels of interpersonal sexual violence. A similar pattern was seen when examining emotion dysregulation and sexual risk-taking behaviours. Individuals who experienced greater impulsivity, sensation seeking tendencies, and disinhibition were more likely to engage in sexual risk-taking behaviours (Curry et al., 2018; Harris et al., 2023; Hoyle et al., 2000). Such behaviours included having multiple sexual partners (Derefinko et al., 2014), having sex

whilst under the influence of drugs and alcohol (Charnigo et al., 2013) and inconsistent condom use (Dir et al., 2014).

Interestingly, research has shown that exposure to stressors can exacerbate the relationship between emotion dysregulation and RPSBs (Denson et al., 2009). For instance, the aforementioned findings by Ortiz and colleagues (2015) were most evident within a university student sample. This could be because this is a population which typically faces various developmental stressors associated with early adulthood as well as various educational and or occupational related stressors (Shulman & Connolly, 2013). Hanson and Harris (2000) similarly found that sexual offending recidivists demonstrated increased anger and distress prior to their reoffence compared to non-recidivists, suggesting that these factors were dynamic predictors of future recidivism. Longitudinal research has further established that greater emotion dysregulation mediates the relationship between stressful life events and greater subsequent aggressive behaviour (Herts et al., 2012) as well as later internalising symptoms such as depression (McLaughlin et al., 2009). Developmental research also offers insight into this association as it is recognised that children who witness conflict in the home and experience greater stress at a young age have a lower sensitivity threshold to anger and poorer emotional understanding (Repetti et al., 2002). These deficits in comprehending and controlling emotions as a result of stress exposure in childhood is what is thought to lead to problematic outcomes in later life (Eisenberg et al., 1997; McLaughlin et al., 2011).

A second prominent factor that increases engagement in RPSBs, and which commonly co-occurs with emotion dysregulation is the use of maladaptive coping strategies. Repeated exposure to stress in early childhood has been shown to hinder an individual's socio-cognitive development which may result in individuals developing a limited coping repertoire (Shields & Cicchetti, 1998). As a result, individuals are more likely to use maladaptive cognitive and/or behavioural strategies to cope under conditions of heightened

stress as they may not have developed or be able to implement more adaptive coping strategies (Zaleski & colleagues, 1998). For instance, research has shown that individuals are more likely to engage in behavioural disengagement and avoidance based coping strategies such as using alcohol or drugs (Keyes et al., 2011; Sinha, 2008) and coping using sex (Folkman et al., 1992) to downregulate stress as opposed to using more adaptive problem-solving strategies to manage stress and more extreme emotions. Through an investigation into the motivations of those who engage in more problematic drinking styles Metzger and colleagues (2017) similarly noted that individuals reported engaging in such behaviours to cope with and alleviate distress. Consequently, the inability to use more adaptive strategies to cope when faced with stressors can result in an overreliance on using maladaptive coping strategies in later life (Sheffler et al., 2020).

Relying on the use of maladaptive coping strategies in later life is problematic as research has found that the use of certain maladaptive strategies such as sexualised coping and substance misuse are commonly associated with an increased propensity towards engaging in sexually aggressive behaviours such as sexual coercion (Ecott et al., 2020; Seto & Barbaree, 1995). For instance, key findings by Cortoni and Marshall (2001) and Marshall and colleagues (2000) highlighted that individuals who sexually offend were significantly more likely to use sexualised coping and self-blaming strategies to cope with immediate stressors compared to their non-offending counterparts. Folkman and colleagues (1992) also found that there was no direct association between stress and sexual risk-taking behaviours, however, they did find an association between how people coped with stress and engagement in riskier sexual practices. Namely, they found a significant and positive association between coping using sex and greater engagement in unprotected anal sex. In contrast, they also found negative associations between unprotected anal sex and the use of more adaptive coping strategies such as social support seeking and religious based coping strategies. Similarly to

emotion dysregulation, avoidance based coping strategies were also found to mediate the relationship between stressful life events and sexually risky behaviours, albeit only partially (Dariotis & Chen, 2023).

Collectively, these findings suggest two things; firstly, that emotion dysregulation and the use of maladaptive coping mechanisms are potential pathways leading to RPSBs. Secondly, that under situations of heightened stress, individuals may experience greater emotion dysregulation and maladaptive coping. Whilst the research considered thus far does establish the relationship between these constructs cross-sectionally, the majority of such research studies do not capture the day-to-day changes within these interactions. Research has yet to examine the real time impact between coping, emotion regulation, and RPSBs. Moreover, one of the commonly cited limitations of cross-sectional research is its reliance upon individuals retrospective accounts of, in this instance, how they coped and how they felt at the time of the stressor (Wang & Cheng, 2020). These accounts may be unreliable and prone to recall bias (Shiffman et al., 2008), thus providing limited insight when it comes to analysing change over time.

However, to gain a fuller understanding of the interplay between these constructs, and how these associations may be exacerbated by the impact of a stressor, it is important to understand the daily changes between these constructs and the between-participant factors that may influence these changes. The current study aimed to address this by employing ecological momentary assessment methods to examine the event-level associations between emotion regulation, coping, and RPSBs in the context of a stress-evoking event. In doing so, I aimed to gain a better understanding of how self-regulation and regulatory strategies impinge on RPSBs in the context of a stressor. Whilst the thesis more broadly examines these constructs in relation to adversity in childhood, the present study focused more on examining the proximal mechanisms of RPSBs in the context of an ongoing stressor occurring at the

time the study was conducted. This is because adverse childhood experiences constitute a largely stable (and unchanging) construct which is unlikely to fluctuate from day-to-day. In contrast, emotion regulation, one's use of coping, and RPSBs reflect more fluid constructs which are comparatively more likely to fluctuate situationally (and in response to ongoing stressors) and therefore represented a better subject of research within the present study design.

It is worth noting, however, that the use of ecological momentary assessment methods, particularly in the context of a volatile public health crisis, may likely result in recruitment challenges and high levels of attrition. This may be particularly relevant within the present study which plans to assess self-regulation and RPSBs across a 14-day period. Research has shown that studies employing this design with durations of longer than a week typically demonstrate a decline in responses to diary entries as the week progresses (Ono et al., 2019; Rintala et al., 2019). This is because ecological momentary assessment methods may require greater levels of effort and place greater demands on participants to respond within particular time frames. Consequently, these additional demands may become burdensome for participants resulting in attrition or a lack of willing volunteers to partake in the first instance. Nevertheless, the use of this design within the present study will allow for high resolution data which captures the real-time associations between constructs, allowing for greater ecological validity. Using ecological momentary assessment methods also offsets retrospective recall biases which are present within more traditional cross-sectional self-report methods (Lucas et al., 2020; Neubauer et al., 2020).

The coronavirus (COVID-19) pandemic has served to highlight the psychological ramifications that may arise as a result of exposure to a significant and prolonged stress-evoking event. Globally, following the coronavirus outbreak, people were faced with various social and economic challenges (Autrán-Gómez & Favorito, 2020) due to increasing public

health concerns and the imposition of national lockdowns and social distancing measures aimed at curbing the spread of the virus. Amongst other things, the pandemic saw an increase in stress and anxiety levels (Roy et al., 2020; Salari et al., 2020), increased isolation (Bu et al., 2020), and difficulties in managing and regulating emotions (Johnson et al., 2020; González-Jaimes et al., 2020). Unsurprisingly, this was also met with an increase in maladaptive coping behaviours including increased drug and alcohol misuse (Czeisler et al., 2020) and increased pornography consumption including excessive viewing (Lau et al., 2021) which may have prompted a more problematic reliance on the use of pornographic material as a way of coping with distress (Masaeli & Farhadi, 2021). Collectively, these findings indicate that the pandemic gave rise to greater affective dysregulation and the use of more maladaptive strategies by which to alleviate distress.

Similarly, the coronavirus pandemic also gave rise to problematic sexual behaviours including increased rates of interpersonal violence (Ochieng et al., 2022; Peitzmeier et al., 2022). Given the lockdown restrictions in place during this time and the fact that people were more likely to be at home, this increase was particularly evident within domestic settings. Looking at statistics published by the Office for National Statistics (2020) during this time, there was a 65% increase in calls being made to domestic violence helplines during the pandemic. Peitzmeier and colleagues (2022) similarly found evidence of an increase in intimate partner violence, including sexual violence perpetration against an intimate partner, since the start of the pandemic. Peitzmeier and colleagues (2022) noted that approximately 34% of respondents, who did not previously experience physical, psychological, or sexual abuse in their relationship reported such instances of abuse occurring following the start of the pandemic.

It is evident that the coronavirus pandemic therefore presented a natural stress-evoking event within which the daily associations between emotion dysregulation, the use of

maladaptive coping strategies, and engagement in risky and problematic sexual behaviours could be assessed. The current study therefore aimed to examine the real time impact of a stressor on these associations using ecological momentary assessment methods. Overall, I aimed to obtain a more nuanced picture of the day-to-day associations between these constructs and better understand the dynamic and proximal influences on RPSBs. In the current study, I hypothesized the following:

H1: Individuals more significantly impacted by the coronavirus pandemic and lockdown restrictions on a day-to-day basis will experience greater emotion dysregulation, use more maladaptive coping strategies, and engage in greater RPSBs in lockdown.

H2: Greater emotion dysregulation and the use of maladaptive coping will be significantly and positively associated with greater daily risky and problematic sexual behaviours in lockdown.

2.2. Study 1

Method

2.2.1. Participants²

Participants were recruited through opportunity sampling via online advertisements shared throughout the researcher's social and institutional networks. The inclusion criteria for the present study required participants to be over 18 years of age and have a good comprehension of written English. Participants were also required to be either single, or if in a relationship, they must not have been living with their romantic partner whilst participating in this study. Participants who did not report complying with COVID-19 restrictions (put in place where they were living at the time) to a moderate degree, who did not feel at least some

² Ethnicity descriptives breakdown for all studies within the thesis have been included in Appendix C.

degree of stress related to the COVID-19 pandemic, and who did not have a suitable mobile device that would support the download of a mobile application were also excluded from participating in the study.

Overall, 151 participants with ages ranging from 18-54 years ($M = 26.77$, $SD = 6.03$) completed the initial baseline survey which assessed eligibility and prompted interested participants to take part in the second phase of the study. Of these participants, 27 identified as male, 120 identified as female, two identified as gender non-conforming, and two did not specify. Fifty-three participants provided their email addresses for follow up and 33 completed the 2-week diary study and returned their datasets (resulting in a 79.1% dropout rate). Of the 33 who took part in the 2-week diary study, 26 identified as female, five identified as male, one participant identified as gender non-conforming, and one participant did not specify. Participant age ranges varied from 21-42 years ($M = 26$, $SD = 4.99$). Of the total participants, 42.4% reported an exclusive sexual attraction to either men or women and 3.0% reported being attracted to both. Across the two-week period within which the daily diary surveys were administered, participants completed on average 12 daily survey entries out of a total of 14 entries.

2.2.2. Measures

The study was split into two main sections. Participants completed an initial baseline survey to assess eligibility, following which, participants completed daily surveys every day for two weeks. The baseline survey measures as well as the measures used in daily surveys are outlined below.

Baseline measures

Outlined below are the measures administered for the initial baseline survey.

Demographics. General demographic information pertaining to participants age, gender, ethnicity, and language fluency was obtained. Sexual attraction was also assessed using a 7-point Likert scale (1 = *Females only*, 7 = *Males only*) in which participants were asked to indicate which point on the scale best represented who they were sexually attracted to. This was loosely based on the Kinsey scale for sexual orientation (Kinsey et al., 1948).

To assess eligibility for the current study, relationship and cohabitation status was assessed using a single item. Participants were asked to select the statement which best described their current relationship status: I am in a relationship and live with a romantic partner, I am in a relationship but do not live with a romantic partner, I am not currently in a relationship. Participants were also asked to indicate to what extent they had complied with existing social distancing measures put in place to help tackle the coronavirus pandemic. Responses were coded on a 5-point Likert scale (1 = *Not at all*, 5 = *A great deal*). A single dichotomous (1 = *yes*, 2 = *no*) item also assessed whether participants had felt some degree of stress relating to the coronavirus pandemic.

Emotion dysregulation. The Difficulties in Emotion Regulation scale (DERS; Gratz & Roemer, 2004) was used to assess dispositional difficulties in regulating one's emotions. This 36-item self-report measure comprised of six subscales which assessed various dimensions relating to emotion dysregulation: including, a lack of emotional clarity (5 items) and awareness (6), the inability to accept emotions and emotional responses (6) difficulties engaging in goal-oriented behaviour when experiencing negative emotions (5) and impulse control difficulties (6), as well as having limited access to strategies that facilitate effective emotion regulation (8). Participants were asked to indicate how often statements such as 'I pay attention to

how I feel' applied to them on a 5-point Likert scale (1 = *Almost never*, 5 = *Almost always*). One overall total sum score was computed, and 11 items were reverse coded following the scoring and interpretation guidelines outlined by Gratz and Roemer (2004). Higher scores indicated greater general emotion dysregulation. Computing a total DERS score has shown high levels of internal consistency among non-clinical samples (Gratz & Roemer, 2004; Johnson et al., 2008).

Maladaptive coping. The Brief-COPE (Carver, 1997) was used to assess the strategies that people typically use to cope with stressful situations. This measure consisted of 14 two-item subscales examining both the cognitive and behavioural coping strategies that individuals use to cope including positive reframing, self-blame, and denial. In the present study the dispositional scale format was used, for similar formatting see Carver and colleagues (1989) who adopted a similar format for the original COPE scale. Participants were instructed to indicate to what extent they usually cope in a way outlined in the items (e.g., 'I say to myself this isn't real') and how often they coped in this way on a 4-point Likert scale (1 = *I usually don't do this at all*, 4 = *I usually do this a lot*). Higher scores on each subscale indicated greater use of that respective coping strategy.

Risky and problematic sexual behaviours in lockdown. Ten items were used to measure both risky and problematic sexual behaviours that occurred during lockdown. Participants were asked to indicate a) the extent to which they engaged and b) the extent to which they seriously considered engaging in sexually risky and problematic behaviours since lockdown restrictions were introduced where they lived. Items touched on both in-person behaviours which violated social distancing restrictions in place at the time (e.g., 'Have you ignored social distancing advice and met up with someone for sex?') and online behaviours (e.g., 'Have you sent sexually

explicit or suggestive images/videos of yourself to someone who you do not know well?’). Responses were scored on a 5-point Likert scale (1 = *Definitely not*, 5 = *Definitely yes*) and average scores were computed. Higher scores indicated greater engagement and intention to engage in sexually risky and problematic behaviours in lockdown. Within the present study, this measure demonstrated acceptable levels of internal consistency ($\alpha=.77$)³.

Ecological momentary assessment measures

Outlined below are the measures administered as part of the daily surveys.

Daily stressor impact. The daily impact felt by the coronavirus pandemic and social distancing measures in place was assessed with a single item. This item asked participants to report how strongly the ongoing measures impacted them that day on a 5-point Likert scale (1 = *Not at all*, 5 = *A great deal*). Higher scores reflected greater impact felt in relation to the ongoing pandemic and resulting restrictions.

Daily sexual arousal. Momentary sexual arousal was also assessed with a singular item which asked participants to think about their current sexual thoughts and arousal and report on how ‘horny’ they felt that day. This item was measured on a 5-point Likert scale (1 = *Not at all*, 5 = *Extremely*) in which higher scores reflected greater levels of sexual arousal experienced.

Daily emotion dysregulation. To the best of the authors knowledge, there was no published or validated EMA measures at the time which assessed emotion

³ Participants were also exposed to two additional measures that were not included in the analysis. The first was a 5-item scale (the sexual coping scale; Ó Ciardha & Crumb, 2016) which assessed levels of sexualised coping and the second was a single item which assessed individuals’ endorsement of conspiracy theories on a 9-point bipolar rating scale ranging from 1 (Completely false) to 9 (Completely true). With the former, as sexualised coping was not included as part of the ecological momentary assessment measures this was not analysed further. With the latter, this item was included as part of a pilot to a wider study and was also not included within the analyses for the present study.

dysregulation. Therefore, to ensure brevity and thus greater retention rates within the daily surveys a shortened version of the original Difficulties in Emotion Regulation scale was created (DERS; Gratz & Roemer, 2004) which could be applied situationally and consisted of 6 items. Following findings from Shorey and colleagues (2011; see also Watkins et al., 2014) two of the six DERS subscales (impulse control difficulties and difficulties in engaging in goal-oriented behaviour) were found to be associated with and were predictive of sexual and physical violence. These two subscales were therefore used when creating the daily shortened version of the DERS scale. Confirmatory factor analysis data from a study which ran concomitantly⁴ was used to determine which items to include across both subscales. From this previous data, the top three loading marker items for each subscale were taken to be used in the daily shortened version of the DERS scale. Items asked participants to indicate how much statements such as ‘I am having difficulty concentrating’ applied to them in that current moment on a 5-point Likert scale (1 = *Not at all*, 5 = *Completely*). Both the statement and item response options were modified from the original scale to elicit situational responding. No reverse coding of items was required, and a daily score was computed for both subscales. Higher scores indicated greater difficulties in impulse control and in engaging in goal-oriented behaviour.

⁴ Data was taken from study 2 (chapter three) in which the DERS scale measure (Gratz & Roemer, 2004) was used. It is worth noting that study 2 data comprised of two waves of data collection. Wave one, which was used for the confirmatory factor analysis, was collected prior to the launch of the current study. Confirmatory factor analysis with maximum likelihood estimation was conducted to determine whether taking the top three loading marker items from across the DERS subscales would present adequate model fit. Research indicates that developing shorter versions of established scales using this method is a suitable solution (outlined in Robinson, 2017), providing that scale reliability remains acceptable and that other criteria such as having a minimum of three indicators per scale factor are met (Marsh et al., 1998). Moreover, taking guidance from previous research on which of the DERS subscales were most highly correlated with sexual aggression (Shorey et al., 2011), only the following two subscales were used: impulse control difficulties and difficulties in engaging in goal-oriented behaviour. Only the top three marker items in these two subscales were included within the final daily emotion dysregulation measure.

Daily coping. Using similar logic to that outlined above in the daily emotion dysregulation scale measure, a shortened version of the situational Brief-COPE measure (Carver, 1997) was created to assess daily situational coping. This shortened version was created using data from a previous study⁵. A higher-order four factor model was imposed (outlined in Baumstarck et al., 2017) on the 14-subscales of the Brief-COPE scale. The four higher order factors were: social support seeking, problem solving, positive thinking, and avoidance coping. For each of these four higher order factors the top three marker items were taken across each factor's relevant subscales to construct the shortened scale. Participants were asked to indicate the answer that 'best captured how they were currently responding to the ongoing pandemic and social distancing measures'. Items captured a range of coping strategies from social support seeking (e.g., 'I've been getting emotional support from others') to avoidance coping (e.g., 'I've been giving up trying to deal with it'). Responses were coded on a 4-point Likert scale (1 = *Not at all*, 4 = *A lot*) whereby higher scores indicated greater use of certain strategies. Daily composite scores were created for each higher-order factors considered (social support seeking, problem solving, avoidance, and positive thinking).

Daily risky and problematic sexual behaviours in lockdown. To assess daily engagement in risky and problematic sexual behaviours in lockdown, a modified version of the risky and problematic sexual behaviours in lockdown scale (outlined above; Da-Costa-Oliveira-Reis & Ó Ciardha, unpublished) was used. Instructions were modified to capture daily engagement in certain behaviours; for instance, participants were asked whether in the last 24 hours they had either engaged or

⁵ As with the daily emotion dysregulation scale created, data was used from wave one of study 2 (chapter three) which used the Brief-COPE as a scale measure and where this factor structure was imposed. It is worth noting that data collection for wave one of study 2 occurred prior to the launch of the current study.

seriously considered engaging in risky and problematic sexual behaviours (e.g., ‘Ignoring social distancing advice in order to meet up with someone for sex’). Daily mean scores were computed, whereby higher scores indicated greater engagement in daily risky and problematic sexual behaviours.

2.2.3. Design

The present study aimed to examine the effect of everyday coping strategies and emotion dysregulation on risky and problematic sexual behaviours in the context of a stress evoking event. An intensive longitudinal within-participant design using experience sampling methods across a two-week period was used. The daily associations between COVID-19 impact and coping strategies, emotion dysregulation, and RPSBs in lockdown were examined. COVID-19 impact was treated as a primary independent variable and RPSBs in lockdown was treated as a primary outcome. All other variables were treated as both independent and dependent variables.

2.2.4. Procedure

The present study received full ethical approval from the School of Psychology Ethics Committee at the University of Kent (Ethics ID: 202015889258616486). Participants recruited via online advertisement (advertised across the researchers social and academic networks) were asked to complete an initial 10-minute baseline survey which assessed eligibility to take part in the study. The baseline survey also provided data for validating the shortened versions of the measures used in the daily diaries. All participants received standardised instructions and survey materials through the online survey platform Qualtrics. Participants were first presented with the initial pre-screening questions and asked to read through the information sheet and complete the consent forms. Participants who did not meet the eligibility criteria or who did not consent were not allowed to continue. Eligible

participants were then asked to provide general demographic information and completed the baseline survey measures in a randomised order. The only exception to the randomisation was that the daily risky and problematic sexual behaviours in lockdown measure was presented last following guidelines by Krosnick (2018, p. 264) due to the more sensitive nature of the items.

Participants were then given the opportunity to sign up to the second phase of the study (completing daily surveys for a 2-week period) by providing their email address and agreeing to be contacted at a later date by the researcher. For data anonymity purposes, email addresses were recorded on a separate Qualtrics survey. Participants were reminded that participation was voluntary and that they could withdraw from the study at any time without providing reason. Participants that provided their email were contacted by the researcher and provided with detailed instructions on how to download and use the PIEL survey application (Jessup et al., 2012; used to complete the daily surveys) and how to participate in the daily surveys. Upon downloading the PIEL survey application participants completed an in-built practice survey to ensure they understood how to navigate the application and complete the daily surveys. The daily survey notifications commenced a day after the application was downloaded. Participants received daily notifications every day for a two-week period. Notifications were scheduled for random moments during the day (between 10:00am and 20:30pm). The daily surveys asked participants to report their momentary self-regulatory and coping abilities as well as how much impact they felt with respect to the coronavirus pandemic and lockdown measures at that moment. Participants were also asked to report on any sexually risky and problematic thoughts and behaviours they may have engaged (or considered engaging) in. All participants were exposed to the same survey items across the two-week period.

Once prompted, participants had 60 minutes to respond to the notification and start the survey. During this time, participants received two reminders five and 10 minutes after the original notification to prompt a response if they had not already completed the survey. Once participants started the survey, they were given 12 minutes to complete and submit their response. Surveys not completed during this time were registered as a non-response. Nearing the end of the two-week period, participants were sent a second email by the researcher reminding them that their daily surveys might be coming to an end and were provided with survey termination instructions and instructions on how to email their data across to the researcher. Participants then received a final email containing a full debrief, were thanked for their participation, and were given the chance to sign up to a £50 amazon voucher prize draw.

2.3. Results

2.3.1. Preliminary analyses

Exploratory Factor Analysis. Exploratory factor analysis was conducted on the RPSBs in lockdown measure. As this was not a previously validated measure, it was important to determine whether the items represented a homogeneous construct. Analysis was conducted on the baseline data collected from the 151 participants who completed the initial baseline measures. Maximum likelihood estimation using Promax rotation was used to extract the factors. Overall, analysis of the scree plot indicated that four factors underlined the data. Factor loadings for each factor are reported in Table 1. Analysis of the factor loadings indicated that one item ('if you are on a dating app or website, has anyone you've 'matched' with blocked or reported you for things that you have said to them?') cross-loaded on multiple factors and therefore was removed from further analysis (following guidance from Costello & Osborne, 2019). Items across the four factors represented the following

constructs: sending/receiving explicit images, ignoring lockdown guidelines for sex, engaging in illegal sexual activity, pornography use.

Table 1*Factor Loadings for Exploratory Factor Analysis (Study 1)*

	Factor 1 (24.39%)	Factor 2 (16.51%)	Factor 3 (15.82%)	Factor 4 (15.52%)	Communality
Sending_Explicit_Images	1.00	-.08	.05	-.08	.93
Considered_Sending_Explicit_Images	.90	-.12	.04	.02	.78
Asked_For_Explicit_Images	.68	.04	.04	.02	.51
Blocked_From_Dating_App	.39	.31	-.26	.12	.31
Engaged_In_Illegal_Sexual_Activity	-.14	1.06	-.09	.03	.99
Considered_Engaging_In_Illegal_Sexual_Activity	.01	.61	.19	-.06	.52
Considered_Ignoring_Social_Distancing_For_Sex	.07	.09	1.01	.01	.99
Ignored_Social_Distancing_For_Sex	.01	.14	.64	-.03	.52
Concern_Over_Pornography_Consumption	-.03	-.07	.14	.71	.50
Watching_More_Extreme_Pornographic_Content	-.04	.04	-.04	1.01	.99

Note. Percentage accounts for the variance explained by each factor.

Confirmatory Factor Analysis. Confirmatory factor analysis (CFA) with maximum likelihood estimation was conducted on the baseline data obtained from the 151 individuals who completed the initial baseline measures. CFA was conducted using the lavaan package in R (Rosseel, 2012) to confirm that the shortened version of the DERS and Brief-COPE scales as well as the RPSBs in lockdown scale assessed conceptually distinct constructs. A 10-factor model was estimated consisting of four cope subscales (social support seeking, problem solving, positive thinking, and avoidance), two emotion dysregulation subscales (difficulties in impulse control and difficulties in engaging in goal-oriented behaviour) and the four subscales for RPSBs in lockdown measure identified from the exploratory factor analysis (sending/receiving explicit images, ignoring lockdown guidelines for sex, engaging in illegal sexual activity, pornography use). Items were loaded onto their relevant subscales.

The Root Mean Square Error of Approximation (RMSEA), and the Comparative Fit Index (CFI) were used alongside the chi-square goodness of fit statistic (χ^2) to estimate the goodness of model fit given the χ^2 sensitivity to sample size. The model demonstrated excellent model fit within the current sample [$\chi^2(279) = 375.33; p < .001; RMSEA = 0.048; CI_{RMSEA} = .034 - .060; CFI = 0.94$]. Table 2 summarises the factor loadings within the model. This suggests that the shortened version of the DERS and Brief-COPE scales, as well as the RPSBs in lockdown scale demonstrated respective homogeneous constructs and were appropriate for use within the current sample.

Table 2

Standardized loadings for Confirmatory Factor Analysis 10-Factor Model (Study 1)

Item	Standardised loadings
Avoidance Factor	

COPE6_behavioural_disengagement_1	.806
COPE16_behavioural_disengagement_2	.772
COPE13_self-blame_1	.494
Social Support-Seeking Factor	
COPE5_emotional_support_1	.735
COPE23_instrumental_support_1	.821
COPE10_instrumental_support_2	.945
Positive Thinking Factor	
COPE12_positive-reframing_1	.862
COPE17_positive-reframing_2	.816
COPE20_acceptance_1	.522
Problem Solving Factor	
COPE7_active_2	.716
COPE14_plan_1	.811
COPE25_plan_2	.731
Difficulties in Impulse Control Factor	
DERS_impulse_control_1	.622
DERS_impulse_control_3	.775
DERS_impulse_control_5	.726

Difficulties in Engaging in Goal-oriented

Behaviour Factor

DERS_goal_oriented_behaviour_2	.830
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DERS_goal_oriented_behaviour_4	.867
--------------------------------	------

DERS_goal_oriented_behaviour_5	.667
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Sending/Receiving Explicit Images Factor

RPSB_sent_images	.941
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RPSB_asked_for_images	.712
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RPSB_considered_sending	.900
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Engaging in Illegal Sexual Activity Factor

RPSB_actual_engaged	.553
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RPSB_considered_engaging	1.211
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Ignoring Lockdown Guidelines for Sex Factor

RPSB_considered_meeting	1.178
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RPSB_actual_meet	.587
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Pornography Use Factor

RPSB_concern_over_porn_use	.764
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RPSB_viewing_more_extreme_porn	.907
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Based on the CFA, composite scores for the DERS, the Brief-COPE, and RPSBs in lockdown scales were computed and used in analysing the daily surveys. For the shortened

version of the DERS scale, sum scores were computed (following guidance from how the original measure was scored) for the two subscales. For the shortened version of the Brief-COPE and the RPSBs in lockdown scales mean scores were computed for each subscale. As some participants had missing data on the composite measures, linear regression imputation was used to impute missing data values using the MICE package in R (Van Buuren & Groothuis-Oudshoorn, 2011).

Reliability analyses. Reliability analyses were also conducted to assess the internal consistency of the shortened version of the DERS and the Brief-COPE measure, as well as the RPSBs in lockdown measure. Levels of internal consistency were assessed according to guidelines outlined in George and Mallery (2003). Table 3 shows the means, standard deviations, and scale alphas for each subscale. Alpha levels ranged from acceptable to good however one subscale showed poor reliability. Overall, this indicated that these measures were generally reliable at capturing their respective constructs.

Table 3

Means, Standard Deviations, and Alpha levels for subscales (Study 1)

Scale	Mean	SD	α
COPE_Avoidance	2.09	.71	.72
COPE_Social Support Seeking	2.71	.87	.87
COPE_Problem Solving	2.94	.72	.80
COPE_Positive Thinking	2.77	.75	.76
DERS_Goal_Oriented_Behaviours	7.46	3.50	.81
DERS_Impulse Control	5.89	2.11	.57
RPSB_Sending Explicit Images	1.56	1.10	.88

RPSB_Engaging in Illegal Sexual Activity	1.29	.81	.78
RPSB_Pornography Use	1.74	1.11	.82
RPSB_Ignoring Social Distancing Rules	1.95	1.37	.81

Note. scale reliabilities, means, and SD were computed from the baseline measures data.

2.3.2. Main analyses

Repeated measures correlation. The *r* package in R (Bakdash & Marusich, 2017) was used to estimate the repeated measures correlations between constructs of interest across time (see Table 4). Repeated measures correlations are conceptually comparable to estimating a null multilevel model with a random-intercept and common slope for each participant (Bakdash & Marusich, 2017), with the null model typically being a first model estimated before progressing onto more advanced multilevel models which include the addition of random slopes (Sommet & Morselli, 2017). According to Marusich and Bakdash (2021) the use of repeated measures correlations can be an informative tool when used prior to conducting more substantive multilevel modelling analyses. Therefore, repeated measures correlations were first used to examine the associations between constructs across time. Significant correlations were used as a basis for determining whether to conduct more detailed multilevel analysis which included the addition of random slopes.

As seen in Table 4, findings of interest indicated that greater COVID-19 impact was significantly associated with greater pornography use, avoidance coping, social support seeking, problem solving, impulse control difficulties, and difficulties in engaging in goal-oriented behaviour. As expected, this suggested that individuals who experienced greater impact as a result of the coronavirus were more likely to engage in maladaptive coping strategies, have greater emotion regulation difficulties, and engage in certain RPSBs such as

porn use. Interestingly, individuals who experienced greater impact were also more likely to seek social support and use more problem-solving strategies, which was unexpected. There was limited evidence to suggest that RPSBs in lockdown were correlated with maladaptive coping and emotion dysregulation as expected. Findings suggested that greater impulse control difficulties were associated with greater pornography use, and that lesser positive thinking was associated with greater breaking of social distancing rules. Findings also indicated that greater problem solving and social support seeking strategies were associated with greater pornography use, and that greater avoidance coping was associated with less sending and receiving of explicit images, which was unexpected.

Table 4*Correlation Matrix for Repeated Measures Correlations (Study 1)*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. RPSB_Explicit_Images	-										
2. RPSB_Illegal_Sexual_Activity	.10*	-									
3. RPSB_Pornography_Use	.15**	.15**	-								
4. RPSB_Breaking_Social_Distancing_Rules	.38***	.23***	.19***	-							
5. COPE_Avoidance	-.14**	-.03	.01	-.09	-						
6. COPE_Social_Support	-.04	-.04	.17***	.01	.22***	-					
7. COPE_Problem_Solving	-.03	-.01	.10*	.02	.13**	.53***	-				
8. COPE_Positive_Thinking	-.01	-.06	.08	-.11*	-.03	.33***	.49***	-			
9. DERS_Goal_Oriented_Behaviour	-.04	-.02	.08	-.09	.40***	.20***	.26***	.11*	-		
10. DERS_Impulse_Control	-.09	-.03	.16***	-.05	.56***	.23***	.29***	.11*	.73***	-	
11. Impact_of_COVID	-.06	-.02	.11*	-.04	.37***	.19***	.20***	.01	.57***	.60***	-

Note. * = <.05, ** = <.01, *** = .001. *N* = 158

Multilevel modelling (MLM). Nine⁶ separate multilevel models were estimated using the lme4 Package in R software (version 4.2.1; Bates et al., 2015) to further explore the relationship between variables which showed a significant correlation, and which were directly relevant to the hypotheses of interest. Six models (see Table 5) estimated the impact of COVID-19 on avoidance coping, social support seeking, problem solving, difficulties in engaging in goal-oriented behaviour, impulse control difficulties, and pornography use respectively. Three models (see Table 6) estimated how social support seeking, impulse control difficulties, and problem-solving influenced pornography use. Across all models, observations (level 1) were nested within participants (level 2) and time was included as a control (level 1). As MLMs include both a random intercept and a random slope, this allowed for the examination of whether the slope also varied between people. The intraclass correlation coefficient (ICC) was used as a further indication of the suitability of estimating the multilevel models, as it accounts for the amount of variability that can be attributed to between group differences. According to Musca and colleagues (2011) if the ICC is above $>.10$, this would warrant the use of MLM. As can be seen from Table 5 and 6, which outline the results for all the models estimated, MLM was relevant in all cases, as ICC levels ranged between $.27$ and $.73$ and were all above $>.10$.

As indicated in Table 5, there were significant positive fixed effects meaning that the more COVID-19 impact experienced, the more individuals reported greater use of avoidance, social support seeking and problem-solving strategies. This was also the case for individuals reporting greater difficulties in engaging in goal-oriented behaviour and in impulse control. However, this was not found to be the case for pornography use, for which the fixed effect

⁶ Multilevel models for the relationship between positive thinking and RPSB (breaking social distancing rules), and avoidance and RPSB (sending/receiving explicit images) were not estimated due to a lack of variance in some measures which meant that random effect variances could not be computed, and multilevel modelling was not appropriate for these relationships.

was not significant. This suggests that when accounting for the variability between participants in their slopes the fixed relationship between COVID-19 impact and pornography use as found in the rmcrr analysis was no longer significant. There was also significant variability in the random slope coefficient across all other models, indicating that the relationship between COVID-19 impact on avoidance, social support seeking, problem-solving, difficulties in engaging in goal-oriented behaviour, and difficulties in impulse control differed between people. Overall, this indicates that these correlations found in the rmcrr analysis were robust and held when accounting for the variability between participants.

As indicated in Table 6, there was evidence of a significant positive fixed effect of social support seeking and pornography use, and this also varied across participants. However, the fixed effects of impulse control and problem solving on pornography use were not significant when differences across participants were taken into account.

Table 5

Multilevel Model Coefficients showing Avoidance, Social Support Seeking, Problem Solving, Difficulties in Engaging in Goal-Oriented Behaviour, Difficulties in Impulse Control, and Pornography Use as Influenced by COVID-19 Impact (Study 1).

Outcome Variable	B	95% LCI	95% UCI	SE	<i>t</i>	ICC
Avoidance						0.37
<i>Fixed Effects</i>						
Intercept	1.41	1.21	1.60	0.10	14.36	
COVID Impact	0.16	0.10	0.22	0.03	5.62	
Time	-0.02	-0.03	-0.01	0.01	-3.30	
<i>Random Effects</i>						
Intercept (SD)	0.30	0.16	0.46			
COVID Impact Slope Variance (SD)	0.08	0.004	0.15			
Residual Variance (SD)	0.49	0.46	0.53			
Social Support						0.60
<i>Fixed Effects</i>						

Intercept	2.20	1.97	2.43	0.12	18.56
COVID Impact	0.08	0.003	0.15	0.04	2.06
Time	-0.02	-0.03	-0.01	0.01	-2.71

Random Effects

Intercept (SD)	0.43	0.26	0.62		
COVID Impact Slope Variance (SD)	0.13	0.05	0.21		
Residual Variance (SD)	0.53	0.50	0.57		

Problem Solving

0.53

Fixed Effects

Intercept	2.48	2.23	2.72	0.12	20.03
COVID Impact	0.09	0.004	0.17	0.04	2.05
Time	-0.03	-0.04	-0.01	0.01	-3.83

Random Effects

Intercept (SD)	0.46	0.29	0.66		
COVID Impact Slope Variance (SD)	0.17	0.09	0.25		
Residual Variance (SD)	0.54	0.50	0.57		

Goals

0.27

Fixed Effects

Intercept	2.22	1.09	3.33	0.57	3.90
COVID Impact	1.64	1.28	2.00	0.18	9.03
Time	-0.10	-0.17	-0.04	0.03	-3.07

Random Effects

Intercept (SD)	2.00	1.20	2.88		
COVID Impact Slope Variance (SD)	0.68	0.29	1.07		
Residual Variance (SD)	2.66	2.49	2.86		

Impulse

0.42

Fixed Effects

Intercept	1.77	0.92	2.62	0.43	4.11
COVID Impact	1.27	0.98	1.56	0.15	8.63
Time	-0.09	-0.13	-0.04	0.02	-3.72

Random Effects

Intercept (SD)	1.68	1.14	2.32		
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COVID Impact Slope Variance (SD)	0.62	0.36	0.90		
Residual Variance (SD)	1.82	1.70	1.95		
Pornography Use					0.73
<hr/>					
<i>Fixed Effects</i>					
Intercept	1.35	1.15	1.56	0.11	12.84
COVID Impact	0.03	-0.05	0.11	0.04	-2.72
Time	-0.01	-0.02	-0.003	0.001	0.77
<i>Random Effects</i>					
Intercept (SD)	0.47	0.33	0.63		
COVID Impact Slope Variance (SD)	0.20	0.14	0.27		
Residual Variance (SD)	0.37	0.35	0.40		
<hr/>					

Table 6

Multilevel Model Coefficients showing Social Support Seeking, Difficulties in Impulse Control, and Problem-Solving Predicting Pornography Use (Study 1)

Predictor Variable	B	95% LCI	95% UCI	SE	<i>t</i>	ICC
Social Support						0.62
<i>Fixed Effects</i>						
Intercept	1.28	0.89	1.36	0.12	9.69	
Social Support	0.12	0.004	0.23	0.06	2.06	
Time	-0.01	-0.02	-0.002	0.00	-2.33	
<i>Random Effects</i>						
Intercept (SD)	0.42	0.24	0.62			
Social Support Slope Variance (SD)	0.26	0.18	0.36			
Residual Variance (SD)	0.39	0.36	0.41			
Impulse Control						0.68
<i>Fixed Effects</i>						
Intercept	1.36	1.15	1.57	0.11	12.94	
Impulse Control	0.01	-0.02	0.03	0.01	0.50	
Time	-0.01	-0.02	-0.003	0.01	-2.75	
<i>Random Effects</i>						

Intercept (SD)	0.50	0.37	0.67
Impulse Control Slope Variance (SD)	0.06	0.04	0.08
Residual Variance (SD)	0.37	0.34	0.40

Problem Solving

0.72

Fixed Effects

Intercept	1.30	0.96	1.65	0.17	7.58
Problem Solving	0.05	-0.08	0.17	0.06	0.77
Time	-0.01	-0.02	-0.003	0.004	-2.66

Random Effects

Intercept (SD)	0.81	0.54	1.13
Problem Solving Slope Variance (SD)	0.31	0.22	0.41
Residual Variance (SD)	0.36	0.34	0.39

2.4. Discussion

The current study used ecological momentary assessment methods to gain a more nuanced understanding of the day-to-day associations between self-regulatory deficits and risky and problematic sexual behaviours in the context of a stress-evoking event. Primarily, I was interested in examining whether individuals who experienced greater daily impact due to the coronavirus pandemic would also experience greater daily emotion dysregulation and use more maladaptive coping strategies, respectively. I was also interested in examining whether emotion dysregulation and maladaptive coping strategies would be associated with greater risky and problematic sexual behaviours in lockdown across time. Greater COVID-19 impact was hypothesised to be positively associated with greater emotion dysregulation, greater use of maladaptive coping strategies, and greater risky and problematic sexual behaviours in lockdown respectively across time. I further hypothesised that there would be a significant positive association between emotion dysregulation and the use of maladaptive coping strategies and risky and problematic sexual behaviours in lockdown across time.

Findings from both the repeated measures correlations as well as the multilevel analyses suggested that COVID-19 impact was significantly and positively associated with greater use of avoidance based coping strategies, and both difficulties in engaging in goal-oriented behaviour and impulse control difficulties across time. This provided support for my preliminary hypotheses and suggested that the more daily impact individuals experienced as a result of the coronavirus pandemic, the more they were likely to report greater dysregulation and the use of certain maladaptive strategies to cope. This supports existing research which indicates that emotion dysregulation and the use of maladaptive strategies to cope are exacerbated under conditions of heightened stress (Wadsworth, 2016). A lot of the child development literature in relation to managing emotions and coping suggests that exposure to mild or moderate levels of stress is one of the key factors in the development of a healthy

coping repertoire. Findings by Wadsworth (2015) are particularly relevant as their research indicates that poor cognitive, emotional, and behavioural self-regulatory practices are a direct result of exposure to extreme stress. However, it is worth noting that the reliability for the impulse control difficulties subscale was poor, therefore suggesting that findings should be interpreted with some caution.

The current findings extend on existing findings in two crucial ways. Firstly, these findings established that greater stressor-related impact felt is associated with more emotion dysregulation and the greater use of maladaptive coping strategies, and that this association persisted over time. Secondly, the multilevel analyses demonstrated that the slope varied for different participants suggesting that stressor-related impact not only influences emotion dysregulation and the use of maladaptive coping strategies, but this impact will be more severe for some individuals and less severe for others. This indicates that there may be underlying unexplored moderating factors which impact how resilient individuals are to the impact of a stressor. For instance, previous research has shown that various dispositional factors such as higher emotional intelligence (Ciarrochi et al., 2022; Extremera et al., 2009) and greater dispositional optimism (Chang, 1998) can act as protective factors moderating an individual's resiliency to stressful situations. Whilst examining these factors is beyond the scope of the present study, this would be an interesting avenue for future research to explore.

Surprisingly, findings also suggested that the more COVID-19 impact experienced, the more individuals engaged in social support seeking and problem-solving strategies. There was also a fixed effect of social support seeking on pornography use in the multilevel model. Whilst this was not in line with my preliminary hypotheses, this was not wholly unexpected. This is because the coronavirus pandemic, whilst an extremely isolating experience (Smith & Lim, 2020), did encourage people to reach out virtually to friends and family for support to combat loneliness (De' et al., 2020). This was evidenced by the increased popularity of

certain social networking applications such as Houseparty (Rubin, 2016) during the peak of the coronavirus pandemic, which was discontinued shortly after lockdown restrictions were lifted (Milmo, 2021). Emerging research suggests that increased virtual communication during the pandemic not only helped people to combat feelings of loneliness brought about by social distancing measures (Poon & Holder, 2020), but also allowed individuals to seek support virtually which ultimately aided in coping during the pandemic (Berkowsky et al., 2018). Bianchi and colleagues (2021) similarly noted that seeking social support mediated the relationship between stress induced by the COVID-19 pandemic and sexting practices. This led Bianchi and colleagues (2021) to the conclusion that individuals may have engaged in sexting to engage with others socially to cope with pandemic related stressors such as loneliness. Therefore, the finding that the more individuals felt the impact of the pandemic, the more this prompted the use of active coping strategies such as social support seeking fits in line with the emerging literature surrounding the COVID-19 pandemic.

The second finding, that there was a significant fixed effect of social support seeking on pornography use, was also an interesting one. A potential reason for this effect could be accounted for by underlying dispositional factors such as extraversion. Research indicates that highly extraverted individuals are more likely, compared to their introverted counterparts, to seek out support from others in times of stress (McCrae & Costa, 1986). Extraversion has also been shown to be positively correlated with problematic pornography viewing including excessive use and control difficulties in relation to pornography consumption (Borgogna & Aita, 2019). Therefore, it is plausible that individuals who were more likely to seek social support were also more likely to engage in pornography use due to an underlying tendency towards extraversion.

A second reason that could account for the significant fixed effect of social support seeking on pornography use could be due to the fact that the majority of participants in this

study identified as female. This is important because according to research by Romero-Estudillo and colleagues (2014) male participants are more likely to engage in high-risk sexual practices such as reporting a greater number of sexual partners and engaging in more casual sex more so than their female counterparts. For instance, in a review of 20 studies, Anderson and colleagues (2021) noted that 19 studies found that men self-reported greater overall rates of sexual aggression compared to women, including sexual coercion and the use of drugs, alcohol, and/or force to pressure an unwilling partner into sex. In a similar scope, research has also highlighted a gender difference in the way that people cope. Specifically, female populations are more likely to use active and approach-oriented coping strategies such as social support seeking and problem solving, whereas men were more likely to use avoidant coping strategies (Eschenbeck et al., 2007; Griffith et al., 2000; Hampel & Petermann, 2005). Therefore, it is evident that women represent a smaller subpopulation of individuals who engage in RPSBs and whose regulatory responses to stressful events may differ and not be fully representative of the way in which male populations would have responded.

With regards to RPSBs in lockdown, it was expected that there would be a significant and positive longitudinal association between emotion dysregulation and maladaptive coping strategies with RPSBs in lockdown. Contrary to what was hypothesised however, there was no evidence of a significant association between RPSBs in lockdown and the use of maladaptive coping strategies or emotion dysregulation. It is worth noting that there was correlative evidence to suggest that both greater impulse control difficulties and the lesser use of problem-solving strategies were associated with greater pornography use. However, these associations did not hold when variability between participants was considered. There could be a few reasons for the absence of the expected associations between RPSBs in lockdown and emotion dysregulation and maladaptive coping. One of the main reasons for this could be due to the lack of variability in responses in the RPSBs in lockdown outcome measure used.

Low means and small standard deviations indicated the presence of floor effects within participant responses suggesting a lack of variability in scores on this measure. This could potentially explain the absence of significant associations between this and other constructs.

A potential reason for the presence of floor effects could be due to the possible stigmatising nature of the questions which asked participants to report and admit to potentially illegal activity such as meeting up with someone for sex (this was considered illegal given the lockdown restrictions in place at the time). As a result, this could have prompted socially desirable responding which is not uncommon in diary studies. According to Sudman and Ferber (1979) keeping a daily diary could act as a constant reminder to participants of their undesirable behaviours and bring greater awareness to the fact that the participant is engaging in such behaviours. As a result, participants may engage in increased social monitoring and impression management in the form of underreporting these undesirable behaviours (see also Toh et al., 2006). Consequently, this may bias the accuracy of responses and the overall validity of findings.

A second related reason for the absence of the expected association could be that behaviours captured by the RPSBs in lockdown measure could have been confounded by a general willingness (or lack thereof) to break rules. For example, some items assessed whether people considered or engaged in rule breaking behaviours such as ignoring social distancing rules in place to meet up with someone for sex. Whilst these items capture an element of risky and problematic sexual behaviour, they may also capture a tendency towards rule breaking. This could explain why significant correlations were only observed between items touching on behaviours that did not explicitly break established laws but were nonetheless risky and potentially problematic (such items asking about whether participants had viewed more extreme pornographic content during the pandemic and whether they were

concerned about their own pornography consumption), but not items that would have been seen as breaking the rules.

It is worth noting the general shortcomings of the present study. A portion of responses were predicted scores from data imputation methods used and therefore may not be a true representation of how people may have responded. However, it is worth noting that missing data when using ecological momentary assessment methods is not uncommon. In fact, Slipetz and colleagues (2023) recommend the use of data imputation methods as a way of limiting missing data which may prevent the use of certain analyses. On a related note, it is also worth acknowledging that findings may have been constrained by the potential lack of representativeness of the current sample. As noted earlier, most of the sample within the present study was female. Research has shown that female populations differ from male populations in that they are less likely to engage in RPSBs and are more likely to cope in more active coping strategies such as social support seeking (Romero-Estudillo et al., 2014; Eschenbeck et al., 2007). Future research should therefore examine whether the present findings extend to non-female populations, and whether larger and more representative samples may yield findings more consistent with previous theory—particularly in relation to the use of maladaptive coping strategies and RPSBs.

A second limitation was that the outcome measure used to capture RPSBs in lockdown was not as homogenous as anticipated. As indicated by the exploratory and confirmatory factor analysis, whilst this measure comprised of items touching on related behaviours, the current findings suggested that items represented conceptually different components of risky and problematic sexual behaviours. This suggested that this measure was more indicative of specific subsets of risky and problematic sexual behaviours in lockdown, rather than capturing more generic RPSBs as intended. Arguably, if a more unified measure of risky and problematic sexual behaviours had been used, this may have provided

findings more consistent with the hypotheses for the present study. However, it is worth noting that each dimension of the RPSBs in lockdown scale significantly correlated with each other and therefore the scale reflected related albeit distinct aspects of RPSBs. Another limitation worth considering is that in order to reduce dropout rates within the daily surveys, only two subscales of the DERS scale were used. As such, the associations between emotion dysregulation and other constructs are limited examining the difficulties in impulse control and in engaging in goal-oriented behaviour and do not capture the full spectrum of emotion dysregulation. Future research should examine these relationships using broader aspects of emotion dysregulation. A final potential limitation of this study was that it was conducted in the context of a global pandemic. Whilst this provided a natural manipulation of a stressor, it was also an extreme context to measure these associations and may have amplified these associations. Future research is therefore required to validate these findings and it would be interesting to investigate whether such associations hold for more micro day-to-day stressors. For instance, exploring how daily stressors faced in an occupational or educational settings may elicit emotion dysregulation and the use of maladaptive coping strategies would be especially informative for occupational health professionals.

Collectively, although overall there was no evidence of longitudinal associations between COVID-19 impact, emotion dysregulation, and maladaptive coping with risky and problematic sexual behaviours respectively, findings indicated that stressor-related impact was associated with individuals' self-regulatory behaviours and strategies longitudinally. This suggests that people in stressful situations may be more vulnerable and may need greater support in a) managing their emotions and b) engaging in more adaptive coping strategies to prevent potentially further problematic behaviours. These findings have various wider reaching implications. For instance, the existing literature tells us that emotion dysregulation and the use of maladaptive coping strategies oftentimes precede sexual violence and

aggression (Espeleta et al., 2016; Ullman et al., 2014; Looman et al., 2013; Orcutt et al., 2005). It is also evident that offending populations are more likely to experience stress (Moore et al., 2013; Slocum, 2010). Therefore, it is important that practitioners are mindful of the fact that stressful situations may perpetuate day-to-day poor self-regulatory behaviours and coping strategies used, which can lead to more significant adverse outcomes. This will allow practitioners to be better equipped at mitigating the impact of stressful situations.

3. Chapter Three: A Longitudinal Examination into Whether Emotion Dysregulation and Maladaptive Coping Mediate the Relationship Between Adverse Childhood Experiences and Risky and Problematic Sexual Behaviours

3.1. Brief chapter summary

In the previous chapter the proximal influences of self-regulatory deficits on risky and problematic sexual behaviours (RPSBs) in relation to a stress-evoking event were examined. Whilst the findings of the previous chapter were informative and highlighted the day-to-day associations between the constructs of interest, the data had some limitations. For instance, due to sample size constraints and the frequency of measurement a large portion of missing data had to be imputed and there were limitations in the statistical inferences that could be drawn from the data. In the present chapter I aim to extend on these findings and build on these limitations by exploring the longitudinal relationships between self-regulatory deficits and RPSBs within a larger sample and over an extended period of time.

Moreover, whereas the previous chapter explored the impact of a life stressor, which occurred at the time the study was conducted, on self-regulatory deficits and RPSBs, the present study aims to explore the impact of more distal stressors namely adverse childhood experiences (ACEs).

3.2. Theoretical background

In the wider literature ACEs are typically characterized by the exposure to emotional, physical, or sexual abuse, experiences of neglect by the primary caregiver, and/or experiencing dysfunction in the home (Felitti et al., 1998; Finklehor et al., 2015). According to figures obtained by the Crime Survey for England and Wales an estimated 8.5 million people between the ages of 18-74 reported experiencing abuse prior to the age of 16 (Office

for National Statistics, 2020). Of those surveyed, approximately 44% reported experiencing multiple instances of abuse. Childhood abuse and neglect is a major public health problem. This problem is compounded when we consider findings which indicate that a propensity towards sexual violence and engaging in sexual risk-taking behaviours is comparably greater amongst individuals with a history of adversity compared to individuals with no such history of adversity (Banducci et al., 2014; Bellis et al., 2014; Fox et al., 2015).

The association between ACEs and later risky and problematic sexual behaviours is well established within the existing literature (Abajobir et al., 2017; Felitti et al., 1998; Fox et al., 2015; Hughes et al., 2017; Levenson et al., 2014). Research has indicated that childhood sexual abuse is associated with a greater proclivity towards sexual risk-taking including engaging in unprotected sexual encounters (Banducci et al., 2014), inconsistent condom use (Richter et al., 2014), and having sex with strangers (Lestrade et al., 2013). Similarly, neglect was found to predict early sexual initiation and having sex with multiple partners (Anda et al., 2006; Majer et al., 2014). Such behaviours are more likely to be associated with subsequent problematic sexual outcomes such as unwanted pregnancies and increased risk of contracting sexually transmitted infections (Li et al., 2015). Childhood trauma has also been shown to indirectly increase the risk for problematic sexual behaviours through problem drinking and drug-use (Dube et al., 2003; Walsh et al., 2014). Substance misuse behaviours can directly lead individuals to engage in aggression and sexual violence related behaviours (Levenson et al., 2016), or they can lead to greater experiences of diminished risk perception (Messman-Moore & Brown, 2006) and experiencing greater maladaptive sexual beliefs (Meston et al., 1999), which subsequently lead to RPSBs.

Research findings have also suggested that there is a link between experiences of childhood adversity and sexual violence (Levenson & Grady, 2016; Levenson et al., 2016). Gilchrist and colleagues (2017) found evidence of a cumulative effect whereby experiencing

more than one instance of childhood adversity cumulatively predicted a greater likelihood of sexual violence perpetration in adulthood. A longitudinal examination of how child sexual abuse influences subsequent sexual aggression perpetration further found that experiences of contact sexual abuse or sexual exploitation in childhood predicted higher odds of individuals engaging in subsequent sexual aggression in early adulthood (Krahé et al., 2023). Research has also shown that experiences of child sexual abuse and neglect are most commonly reported amongst individuals who sexually offend, and violent offenders compared to their non-offending counterparts (Weeks & Widom, 1998). Polyperpetration (committing multiple acts of perpetration) is also most evident in cases where male offenders were exposed to child sexual abuse (Voith et al., 2017).

Evidently, the exposure to adversity in the formative years increases one's vulnerability to engaging in RPSBs. However, despite the robustness of the research exploring this association, the complex pathways underlying this association are less well understood. ACEs constitute static and unchangeable experiences and are considered a distal predictor of later problematic outcomes. Therefore, understanding the resultant self-regulatory deficits through which childhood trauma translates into subsequent RPSBs may provide practitioners with targetable secondary intervention efforts where primary prevention may no longer be feasible (for a review see Klevens & Whitaker, 2007). To date however, the existing literature has not systematically determined whether possible psychosocial deficits resulting from this adversity, namely emotion dysregulation and maladaptive coping, are causally linked to and may, in fact, influence subsequent RPSBs.

Moreover, a wider criticism of the ACEs literature points to an overreliance on cross-sectional methods when examining these associations (World Health Organization, 2009). Whilst cross-sectional studies are useful for establishing preliminary evidence of the associations between constructs (Wang & Cheng, 2020), they do not allow researchers to

draw causal inferences or rule out the possibility of reverse causation. Cross-sectional methods are also highly susceptible to issues of common method variance (Rindfleisch et al., 2008) which has been shown to artificially inflate associations between constructs and increase the likelihood of type I errors (Podsakoff et al., 2012). Collectively, this suggests a need to examine the longitudinal interplay between these constructs, as well as identify the proximal mechanisms which enable experiences of adversity in childhood to manifest into later problematic sexual behaviour. In the current study I aimed to mitigate against some of these shortcomings by conducting a two-wave longitudinal examination into whether self-regulatory deficits, namely, emotion dysregulation and maladaptive coping mediate the link between ACEs and RPSBs.

3.2.1. ACEs, emotion dysregulation, and RPSBs

Self-regulatory deficits following traumagenic experiences in childhood is a prominent line of research (Grady et al., 2016; Hillis et al., 2001). Poor self-regulation such as emotion dysregulation and the use of maladaptive coping strategies have also been associated with sexual offending and sexual risk-taking related behaviours (Gannon et al., 2010; Crockett et al., 2006; Ward & Beech, 2006; Hanson & Morton-Bourgon, 2005). However, the causal relationships between these constructs are less well understood. Emotion dysregulation and maladaptive coping strategies are often seen as inextricably linked, this is because the use of maladaptive coping strategies usually follow the inability to appropriately regulate adverse affective states (Modecki et al., 2017; Tull et al., 2007). Emotion regulation refers to the processes which allow individuals to become aware of and manage their affective states (DeSteno et al., 2013; Gross, 1998), whereas coping refers to the specific cognitive and behavioural strategies used to respond to ‘stressor-related emotions’ (Marroquin et al., 2017, p. 257; Folkman & Lazarus, 1988).

According to developmental theorists, stressful and disorganised environments and/or unresponsive caregiving (often characteristic of childhood adversity) can disrupt critical periods of neurodevelopment associated with self-regulatory functioning, including the acquisition of affective homeostasis (Shields & Cicchetti, 1998). One of the consequences associated with such disruption is the inability to correctly identify and differentiate between emotions (Anda et al., 2006; Morris et al., 2007), which is what may lead to inappropriate emotional responses (Herba & Phillips, 2004; Wells et al., 2021). Repeated or severe exposure to childhood adversities has further been shown to hinder the development of brain regions including the prefrontal cortex which is responsible for self-regulatory functioning (Teicher & Samson, 2016). More specifically, disruption in neuronal development has been associated with reduced emotional clarity, experiencing emotions more intensely, and the inability to tolerate distress (Gratz & Roemer, 2004; Weiss et al., 2013) which can prompt greater emotion dysregulation and the use of maladaptive coping strategies (Fox et al., 2015). Research has also suggested that heightened sensitivity to adverse emotional states as well as the inability to manage feelings of anger and frustration are associated with exposure to familial conflict and experiences of physical abuse in childhood (Cicchetti & Toth, 2005; McLaughlin & Hatzenbuehler, 2009). Findings from a review by Repetti and colleagues (2002) suggested that children within such adverse environments are more likely to rely on suppressing and avoiding their emotions in response to conflict or stress which may arise. Whilst this may provide individuals with an immediate short-term relief from stressful situations, this reliance in the long-term may impede the development of more appropriate means by which to manage emotions (Cook et al., 1994).

The converging theoretical literature suggests that a reason for these deficits in self-regulatory processes following adversity may stem from an absence of self-regulatory models as well as a lack of opportunities to practice self-regulation in childhood (Cicchetti & Banny,

2014; Dvir et al., 2014). Typically, until children develop effective self-regulation and can practice this autonomously, caregivers act as co-regulators and provide an external source of regulatory support for children to manage stressors (Mueller & Tronick, 2019). Thus, repeated or prolonged exposure to stress, coupled with the absence of prosocial caregiver interactions which aid in scaffolding age-appropriate coping skills, as well as a lack of opportunities to emulate and practice these skills could explain resulting self-regulatory deficits in adulthood as a consequence of adversity (Abaied & Rudolph, 2010; Compas, 2009; Kim & Cicchetti, 2010; Ehring & Quack, 2010).

It is important to address these deficits as research indicates that regulatory patterns acquired in childhood often persist into adulthood (DeSteno et al., 2013). Moreover, research has shown that individuals who are less able to regulate their emotions have a greater propensity for engaging in RPSBs (De La Torre, 2020; Berzenski & Yates, 2010). Findings in a meta-analysis by Compas and colleagues (2017) suggest that this is because one's ability to regulate emotions and cope with stressors is a key determinant in whether individuals can buffer against the risk of later internalising and externalising psychopathology, or whether this risk is amplified due to dysregulation and a lack of coping. According to Grant and colleagues (2003, 2006) these findings are consistent with Nolen-Hoeksema and Watkins' (2011) heuristic model which maintains that in the association between stressors and later internalising and externalising psychopathology, stressors constitute a distal predictor which are mediated and moderated by more proximal risk factors such as how individuals cope with the stressor and whether they can effectively emotionally regulate. This proximal risk factor is what in turn attenuates or exacerbates internalising and externalising symptomology.

Findings by Noll and colleagues (2011) extend on this idea as they found that emotional and cognitive dysregulation coupled with a preoccupation for sex mediated the relationship between childhood maltreatment and later risky sexual behaviours. Similarly,

research by De La Torre (2020) and Espeleta (2018) found evidence of an indirect effect of emotion dysregulation in the relationship between ACEs and subsequent behaviours which posed a health risk such as engaging in risky sexual behaviours and behaviours related to alcohol misuse. In a similar scope, Ramirez and colleagues (2015) found higher levels of uncontrolled anger amongst men who sexually offend when they reported a history of adversity in childhood compared to no such history of adversity. These findings demonstrate that individuals who have experienced adversity in childhood are more susceptible to difficulties in regulating their emotions, and in turn, may engage in riskier and more problematic sexual behaviours. Meta-analytic findings by Gruhn and Compas (2020) also support this conclusion. Their findings highlighted that maltreatment in childhood was not only positively associated with an inability to emotionally regulate, but they also reported significant positive medium effects between maltreatment, avoidance coping, and emotion suppression as well as the expression of emotions such as anger. This is problematic given Compas et al.'s (2017) earlier findings that coping and emotion dysregulation were strongly associated with later internalising and externalising problem behaviours amongst an adolescent sample.

3.2.2. ACEs, maladaptive coping, and RPSBs

Research has also suggested that underdeveloped and maladaptive coping is a potential causal mechanism which connects early experiences of adversity with later externalising problem behaviours (Auerbach et al., 2010; Shelton & Harold, 2008). The reliance on maladaptive coping strategies such as behavioural and cognitive disengagement, avoidance, or denial as a primary form of coping with stress is not only suggestive of an underdeveloped coping repertoire due to childhood adversity (Maniglio, 2011), but it is also predictive of later problematic outcomes including sexual risk-taking behaviours (Orcutt et al., 2005). Research has shown that individuals who are exposed to early adversities are more

likely to demonstrate the use of avoidant and emotion focused coping strategies rather than approach and problem focused coping strategies (Evans & Kim, 2013; Gipple et al, 2006; Leitenberg et al., 2004). Individuals who engage in avoidance and emotion focused coping strategies are more likely to avoid and disengage when presented with stressful situations as opposed to actively trying to manage the situation. Therefore, victims of childhood adversity are more likely to manage stress by withdrawing from others and avoiding the situation rather than actively problem solving and trying to see how they can overcome stressors (Evans & Kim, 2013).

There is a consensus in the existing literature that a reliance on avoidant and emotion focused coping strategies may be detrimental to individuals (Jaser et al., 2005), especially in the long-term, and such strategies are therefore regarded as maladaptive. Approach and problem focused strategies on the other hand, are largely regarded as more adaptive strategies to use (Skinner et al., 2003). However, it is worth noting that a growing body of research advocates taking a functional adaptation view of coping. This perspective maintains that certain strategies, albeit maladaptive in the long term, can be considered contextually helpful and self-protective in the short term when managing more immediate stressors (Kashdan et al., 2006; Wadsworth, 2015). Thus, labelling certain strategies as inherently (mal)adaptive is an overly reductionistic way of conceptualising responses to stress. Nonetheless, on the whole research maintains that strategies such as avoidance are typically seen as a problematic tool given the risk incurred for subsequent problematic outcomes later in life owing to the use of such strategies (Maniglio, 2011).

Research has found that children with a history of adversity are especially at risk of adopting maladaptive coping strategies when faced with conflict and distress in later life and are less likely to use problem-focused strategies (Sheffler et al., 2020). Moreover, there appears to be a greater reliance on maladaptive coping strategies under conditions of

increased stress and when more adaptive coping strategies are inaccessible to individuals (Zaleski et al., 1998), as is often the case for individuals with a history of adversity (Evans & Kim, 2013). Worryingly however, research has also demonstrated that the use of such strategies are more likely to translate into greater aggressive and overly sexualised behaviours in later life (Beech & Mitchell, 2016). In fact, the use of maladaptive coping strategies to regulate negative affect is more common in populations of individuals who sexually offend relative to other offending populations (Looman et al., 2004; Whitaker et al., 2008).

Similarly to emotion dysregulation, maladaptive coping strategies such as sexualised coping have also been identified as having an indirect effect in the relationship between adversity in childhood and RPSBs such as sexual coercion perpetration in later life (Ecott et al., 2020). Findings by Cortoni and Marshall (2001) also suggested that an overreliance on strategies such as sexualised coping can lead to more sexually aggressive means by which to obtain sex if intimacy needs are not met or are denied (see also Marshall, 1989; Ward et al., 2000). Moreover, Shorey and colleagues (2014) noted that even when controlling for factors such as alcohol use, greater experiential avoidance was significantly associated with higher rates of sexual aggression perpetration amongst male college students.

Individuals may also turn to other strategies such as using drugs and/or alcohol as an emotional numbing tool for coping with latent childhood trauma (Anda et al., 2006; Enoch, 2011; Schuck & Widom, 2001). Research has shown that greater alcohol consumption is associated with risky sexual behaviours such as inconsistent condom use and riskier sexual practices with multiple sexual partners (Choudhry et al., 2014). Findings by Looman and colleagues (2004), and Abracen and colleagues (2000) noted that individuals who sexually offend report higher overall substance misuse compared to other offending populations. Therefore, it is possible that engaging in substance misuse behaviours as a way of coping with trauma may also increase the risk for more subsequent risky and problematic sexual

behaviours (Craissati et al., 2002). This increased risk may be attributed to substance misuse resulting in a diminished risk perception and interfering with decision making (Choudhry et al., 2014). Alcohol misuse can also lead to a misperception of a partner's sexual intent which may consequently lead to greater instances of sexual aggression (Abbey et al., 1998).

Therefore, like emotion dysregulation, maladaptive coping is also characteristic of latent trauma and may constitute a proximal mechanism in the relationship between childhood adversity and RPSBs (Craissati et al., 2002).

Theoretically, the findings outlined in relation to ACEs, emotion dysregulation and the use of maladaptive coping, and RPSBs align with the main tenet of Stinson et al.'s (2008) multimodal self-regulation theory—outlined in greater detail in chapter one. Namely these findings tie in with the idea that self-regulatory deficits stemming from experiences of adversity may elicit RPSBs as a way of coping. Despite this theoretical support, there has been limited empirical research which has examined the specific longitudinal pathways between ACEs, emotion dysregulation, RPSBs and ACEs, maladaptive coping, and RPSBs. The present chapter therefore aimed to extend upon existing empirical work by examining the interplay between these constructs across time, and to determine whether maladaptive coping strategies and emotion dysregulation underlie the relationship between ACEs and RPSBs.

This research also aimed to add to the evidence base supporting Stinson and colleagues' (2008) multimodal self-regulation theory by empirically examining the proximal influence of specific self-regulatory deficits (emotion dysregulation and maladaptive coping) in the pathway from ACEs to subsequent RPSBs. The key difference when considering Stinson and colleagues' (2008) model is that within the present study RPSBs are conceptualised as separate to emotion dysregulation and maladaptive coping strategies, whereas Stinson and colleagues (2008) conceptualises sexual offending as a form of maladaptive self-regulation strategy. The reason for considering them as separate is because

maladaptive coping strategies tend to primarily pose consequences to the self, whereas RPSBs also pose a potential risk of sexual harm to others. In order to assess whether emotion dysregulation and the use of maladaptive coping strategies give rise to RPSBs, I therefore position RPSBs as an outcome to these more proximal mechanisms (emotion dysregulation and maladaptive coping strategies).

The present study examined the cross-sectional and the longitudinal associations between the aforementioned constructs in two strands. In the first strand, path analysis was used to examine the cross-sectional associations between constructs as well as to examine whether emotion dysregulation and maladaptive coping mediated the relationship between ACEs and RPSBs. In the second strand, cross-lagged path analysis was used to examine the associations between constructs across time. Cross-lagged path analysis is a modelling technique which allows for the measurement of multiple constructs and their associations across different measurement occasions. Cross-lagged path analysis enables researchers to examine the autoregressive effects (the stability of a construct at one measurement occasion compared to the previous measurement occasion) and the cross-lagged effects (how one construct influences another construct across measurement occasions). In doing so, this allows researchers to make inferences regarding the stability of constructs across time, as well as the directionality and temporal precedence of certain constructs in relation to other constructs longitudinally (Hecht & Zitzmann, 2021).

For the cross-sectional strand of this study the following hypotheses were made.

H1: I hypothesised that there would be a significant and positive direct association between ACEs and RPSBs.

H2: I also hypothesised that maladaptive coping and emotion dysregulation would mediate the association between ACEs and RPSBs. Namely, that higher levels of ACEs

would be associated with greater emotion dysregulation and greater use of maladaptive coping strategies and consequently, that greater emotion dysregulation and maladaptive coping would be associated with greater levels of engagement in RPSBs.

For the two-wave longitudinal strand of this study the following hypotheses were made.

H3: I hypothesised that there would be a significant cross-lagged effect between greater self-reported ACEs at time one and greater use of maladaptive coping and emotion dysregulation respectively at time two.

H4: I also hypothesised that there would be a significant cross-lagged effect between greater emotion dysregulation and maladaptive coping at time one and greater engagement in RPSBs at time two.

3.3. Study 2

Method

3.3.1. Participants

Participants were recruited via convenience sampling through Prolific (online crowdsourcing platform). In exchange for their participation (15 minutes), participants were compensated with standardised financial incentives (£1.50). The inclusion criteria across both waves required participants to be over 18 years of age and have a good understanding of written English. Participants were only sampled from countries where English was the native language. This included the United Kingdom and Ireland, New Zealand, the United States of America, Canada, and Australia. A reason for this was to account for the sensitive nature of some of the materials presented and to ensure that participants fully understood the nature of the questions being asked and were able to fully consent to answering these questions.

Overall, 221 participants were included in the overall two-wave longitudinal sample and final analyses. In wave one, there was a total of 342 participants with ages ranging from 18-69 years ($M = 33.71$, $SD = 11.40$). Of the total sample, 45.3% of participants identified as males, 53.8% identified as females, 0.3% identified as transgender males, 0.3% identified as transgender females, and 0.3% identified as gender non-conforming. In relation to sexual attraction, 68.7% of participants reported an exclusive sexual attraction to either men or women and 3.5% reported being attracted to both. There was approximately a 20-month time interval between both waves which resulted in a 35.4% attrition rate. Of the remaining 221 participants who took part in wave two, ages ranged from 20-71 years ($M = 36.50$, $SD = 11.91$). The sample consisted of approximately 40.3% of participants identifying as males, 57.9% identifying as females, 0.5% identifying as transgender males, 0.9% identifying as gender non-conforming, and 0.5% identified as having a different identity. Of the 221 participants, 66.5% reported an exclusive sexual attraction to either men or women and 4.5% reported being attracted to both.

3.3.2. Measures⁷

Demographic information. General demographic information was obtained across both waves (including gender, age, & ethnicity). Sexual attraction was also obtained by asking participants to indicate their sexual attraction on a 7-point Likert scale (1 = *Females-only*, 7 = *Males-only*). This was adapted from the Kinsey scale for sexual orientation (Kinsey et al., 1948).

Adverse childhood experiences. The Adverse Childhood Experiences-Revised scale (ACE-R; Finklehor et al., 2015) was used to capture the frequency of exposure to adversities in childhood. This included experiences falling under the scope of neglect, abuse (emotional,

⁷ As outlined in Chapter two, internal consistency guidelines provided by George and Mallery (2003) were used to determine scale reliability, this was also the case within the current study.

sexual, and physical), and dysfunction in the home. This self-report measure comprised of 14 items and asked participants to indicate whether they had experienced various adversities prior to their 18th birthday, (e.g., ‘was a biological parent ever lost to you...?’). Responses on this scale were binary coded (0 = *No*, 1 = *Yes*) and scoring was cumulative, indicating that higher scores represented higher experiences of adversity in childhood. According to Finklehor and colleagues (2015) this measure has previously shown good construct validity. Within the present study, this measure also demonstrated acceptable and good levels of internal consistency across waves one ($\alpha = .76$) and two ($\alpha = .82$) respectively.

Emotion dysregulation. The Difficulties in Emotion Regulation scale (DERS; Gratz & Roemer, 2004) is a self-report measure which consists of 36 items assessing dispositional difficulties in regulating emotions. This measure consists of six subscales assessing: lack of emotional clarity (5 items) and emotional awareness (6), difficulties in controlling one’s impulses (6) and engaging in goal-oriented behaviours (5), having limited access to emotion regulation strategies (8), and a non-acceptance of emotional responses (6). This measure required participants to indicate how often items (e.g., ‘I am clear about my feelings’) applied to the way in which they usually regulate emotions on a 5-point Likert scale (1 = *Almost-never*, 5 = *Almost-always*). Scoring was cumulative and some items required reverse-coding. For the present study, a total DERS sum score was computed whereby higher scores indicated higher emotion dysregulation. This measure—using a total DERS score—has shown high levels of internal consistency and predictive validity within the existing literature (Kuo et al., 2014). Within the current study, this measure also demonstrated good internal consistency across waves one ($\alpha = .85$) and two ($\alpha = .82$) respectively.

Maladaptive coping. A modified version of the Brief-COPE scale (Carver, 1997) examined individuals’ use of coping strategies when managing stress. This is a 28-item self-report measure comprising of 14 two-item subscales. The original instructions assessed

individual's situational coping in relation to being told they were going to have an operation. Within the current study the instructions of this measure were modified to assess ways of coping in general and adopted the dispositional instructions and item phrasings outlined in Carver (1997). Research has previously categorised these 14 subscales into higher-order factors. Such efforts have led to varying and largely sample-dependent factor structures (see Carver et al., 1989). For ease of analysis, Baumstarck and colleagues' (2017) four-factor higher-order model was used to categorise the 14 subscales. Baumstarck and colleagues (2017) validated this higher order factor model and found that it demonstrated acceptable levels of internal consistency, and it was psychometrically sound. This structure has also been used in other studies when analysing the brief-COPE (Nizet et al., 2023). The four higher order factors are as follows: social support seeking (8 items), problem solving (4), avoidance (10), and positive thinking (6)—higher scores indicated greater use of certain strategies.

In this measure participants indicated the extent of their engagement in various behaviours and ways of thinking (e.g., 'I criticise myself'). Responses were coded on a 4-point Likert scale (1 = *I usually don't do this at all*, 4 = *I usually do this a lot*). Composite scale scores were computed by summing the two items that made up each of the 14 subscales. Subscales were then averaged into four higher-order factors to create overall composite scores. The internal consistency for this measure was acceptable across both waves; social support seeking ($\alpha_{T1} = .76$, $\alpha_{T2} = .74$), problem solving ($\alpha_{T1} = .83$, $\alpha_{T2} = .87$), avoidance ($\alpha_{T1} = .71$, $\alpha_{T2} = .72$), and positive thinking ($\alpha_{T1} = .70$, $\alpha_{T2} = .69$).

Risky and problematic sexual behaviours. A modified version of the Cognitive Appraisal of Risky Events-Revised scale (CARE-R; Katz et al., 2000) was used to capture individual's engagement in risky and problematic sexual behaviours within the past six months. Within the present study, this 35-item self-report measure only examined the frequency with which participants engaged in risky sexual behaviours across partner type and

sexual coercion perpetration. Participants were asked to indicate how often they engaged in risky sexual behaviours (e.g., ‘made sexual advances toward a drunk date’) with a regular sexual partner or with a stranger and how often they engaged in sexually coercive behaviours (e.g., ‘convinced partner to have sexual intercourse through use of physical force’).

Responses were recorded on a 7-point Likert scale (1 = 0 *times*, 7 = 31 or more *times*).

Within the current study, two composite scores were computed in relation to risky and problematic sexual behaviours: one for frequency of engagement in sexual coercion perpetration ($\alpha_{T1} = .90$, $\alpha_{T2} = .92$), and one for frequency of engagement in risky sexual behaviours collapsed across partner type ($\alpha_{T1} = .82$, $\alpha_{T2} = .80$). Within the present study, these composite scores have collectively been referred to as RPSB outcomes for brevity. Within the existing literature the CARE-R scale has previously shown good levels of construct validity and test-retest reliability (Scales et al., 2017). Within the present study, both subscales demonstrated good to excellent internal consistency across both waves.

Table 7 outlines the means and standard deviations for each of the measures included within the present study across time points.

Table 7*Means and Standard Deviations for Scale Measures at Each Time Point (Study 2)*

Measures	Time One		Time Two	
	Mean	<i>SD</i>	Mean	<i>SD</i>
ACE-R	2.76	2.65	3.04	3.04
DERS	89.65	25.47	86.77	25.28
COPE_Social support seeking	4.00	1.11	3.92	1.06
COPE_Problem solving	5.36	1.44	5.37	1.49
COPE_Avoidance	4.02	.92	3.96	.93
COPE_Positive thinking	5.07	1.16	5.00	1.17
CARE-R_across partner type	2.07	.45	2.13	.50
CARE-R_sexual coercion	1.08	.41	1.09	.47

Note. $n_{time\ one} = 342$, $n_{time\ two} = 221$. ACE-R = adverse childhood experiences-revised scale; DERS = difficulties in emotion regulation scale;

COPE = a modified version of the brief-COPE scale; CARE-R = cognitive appraisal of risky events-revised scale.

3.3.3. Design

This two-wave longitudinal self-report study used a within-subjects design to examine the relationship between ACEs and RPSBs, and whether emotion dysregulation and maladaptive coping were potential mechanisms underlying this relationship. The cross-sectional relationships between these constructs were first examined using path analysis. Emotion dysregulation and coping strategies were then examined as potential mediators in the relationship between ACEs and RPSBs cross-sectionally across both waves. The analyses included one exogenous variable: adverse childhood experiences, two mediator variables: maladaptive coping and emotion dysregulation, and two RPSB outcome variables: risky sexual behaviour across partner type and sexual coercion.

Following this, a cross-lagged panel model was used to examine the associations between constructs of interest across time. The longitudinal associations within constructs across measurement occasions (autoregressive effects) and the longitudinal associations between constructs across measurement occasions (cross-lagged effects) were first examined. This allowed the stability of constructs across time to be established as well as to estimate the directional effects certain variables had on others across time⁸.

3.3.4. Procedure

⁸ Originally, a 12-month interval was planned to allow for the longitudinal associations between variables to be observed. Prior research using similar interval patterns to investigate self-regulatory functioning in relation to risk-taking behaviours in adulthood found this time-lag to be sufficient for detecting longitudinal effects (Quinn & Fromme, 2010). Schuster and Krahe (2018) similarly found that one year was sufficient to detect longitudinal effects of several predictors on sexual aggression perpetration. It is worth noting that similarly to the present study, Quinn and Fromme (2010) and Schuster and Krahe's (2018) research both used a two-wave longitudinal design. However, the interval between the two measurement occasions within the present study was extended to 20-months to minimise the confounding impact that the COVID-19 pandemic may have had on participants stress levels (see Bao et al., 2020; Wang et al., 2020). Whilst extending the length of time can result in potential effects not being captured and greater attrition rates (Schaffer, 1996; Taris & Kompier, 2014), I wanted to avoid potentially biasing the relationship between constructs with additional noise which may have hindered the validity of the study.

This study received ethical approval from the University of Kent, School of Psychology Ethics committee (approval code: 201915569816285318). Participants were recruited online via a crowdsourcing platform. All participants were exposed to standardised survey materials and instructions via Qualtrics. Prior to being presented with the information and consent forms, all participants completed initial pre-screening items which screened out participants not meeting the inclusion criteria for this study. Participants who met the inclusion criteria were then presented with the information and consent forms. Participants who did not meet the criteria were asked to return their submission on Prolific. Participants were then presented with the study materials in a randomised order. Only general demographic information was collected which would not have allowed for the potential identification of participants. Anonymised Prolific identification numbers belonging to each participant were stored for data withdrawal purposes. Following this, participants were presented with the study debrief which outlined the study aims and signposted helplines for services should participants be affected by any of the topics examined in the study. Participants were then compensated for their time. All participants completed the same survey materials across waves.

3.4. Results

3.4.1. Preliminary Analyses

Brief-COPE Confirmatory Factor Analysis. Within the present study the Baumstarck and colleagues' (2017) higher-order four factor model for the Brief-COPE measure was applied. This model loads the sum scores of the 14 two-item subscales onto four higher order factors: social support seeking, problem solving, avoidance, and positive thinking. In order to examine whether Baumstarck and colleagues' (2017) proposed model provided a good fit for the data and was invariant across both waves, a series of confirmatory

factor analyses were conducted. The present analyses were performed using the lavaan package in R software (version 4.2.1; Rosseel, 2012). Testing for measurement invariance allows researchers to examine whether selected measures provide a good fit to the data and measure constructs consistently across different groups (or in this instance across time points). This involves comparing nested models across time by incrementally increasing the level of parameter constraints within these models to see if adequate model fit is maintained. There are four steps to testing for full measurement invariance: configural, metric, scalar, and residual invariance.

Firstly, configural invariance needs to be established which involves assessing whether the overall factor structure specified fits across both time points. Factor loadings, item intercepts, and residual variances are allowed vary across each time point. If the factor structure provides a good fit across both time points, then configural invariance is established and metric invariance can be tested. Establishing configural invariance indicates that there is parity between the factor structure across both time points and that similar items load onto respective factors in both instances. Metric invariance involves constraining the factor loadings to be the same across time whilst allowing the item intercepts and residuals to vary. If factor loadings are equivalent across time points and this provides good model fit metric invariance has been established and scalar invariance can be tested. Establishing metric invariance indicates that items represent constructs comparably across time. Testing for scalar invariance involves constraining the item intercepts as well as the factor loadings to be the same across time points. If, as before, the item intercepts are equivalent across time points, and this provides good model fit then scalar invariance has been established and residual invariance can be tested. Establishing scalar invariance indicates that any changes in mean scores reflects a true mean level change rather than occurring as a result of differences in the way that the items are being interpreted across time points. Finally, residual invariance

involves constraining the item residuals as well as the factor loadings and the item intercepts to be the same across time points. If item residuals are equivalent across time points and good model fit is demonstrated, then this indicates that residual invariance is established.

Establishing residual invariance indicates that the scale measure is equally influenced by external factors across time. Establishing full measurement invariance provides confidence that the scale is consistent across time and measurement occasion^{9,10}.

Each model is compared to the previous nested model using a chi-square difference test (Muthén & Muthén, 2012). If the test is not significant (i.e., both models provide equally good fit to the data) then the more restrictive model is accepted. Given the sensitivity of the chi-square goodness of fit statistic (χ^2) to large sample sizes (Hu & Bentler, 1998, 1999) additional comparisons are often also used. The CFI difference test (Cheung & Rensvold, 2002; Meade et al., 2008) was also used to examine differences between the two nested models. In the CFI difference test a level of measurement invariance is achieved if the CFI of the model does not change by more than .01 compared to the previous model (Cheung & Rensvold, 2002). As shown in Table 8, the configural, metric, scalar, and residual invariance models provided acceptable fit to the data as per guidelines in Browne and Cudeck (1992) and McDonald and Ho (2002). At each stage, the chi-square difference test and the CFI difference test indicated that the model was residually invariant. The residually invariant model provided acceptable model fit ($\chi^2(350) = 627.05; p = <.001; RMSEA = .048; CI_{RMSEA} = .042 - .054; CFI = .90$) and did not differ significantly from the scalar model ($\Delta\chi^2, \Delta df = 14) = 22.70, p = .07; \Delta CFI = .01$) indicating that meaningful comparisons can be drawn across

⁹ Given the longitudinal nature of the data in which the same participants respond to the same questions over time, there may be some dependence between responses at each time point. To account for this, I correlated the residual error variance across both time points and constrain this to be equal.

¹⁰ Measurement invariance was only assessed for the Brief-COPE scale as other scale measures used sum scores whereby each item equally represented the overall construct.

measurement occasions. Table 9 also demonstrates the standardised factor loadings for the 4-factor residual invariant model of the brief-COPE scale.

Attrition Analysis. There was a 20-month interval between conducting both waves which resulted in a 35.4% attrition rate. A series of univariate logistic regression analyses to examine several predictors of attrition and to examine whether dropout rates may have introduced bias resulting in an unrepresentative sample at wave two were conducted. Firstly, I examined whether individuals who responded at both time points differed on key demographic characteristics such as age and gender from individuals who only responded at wave one. Secondly, I examined whether individuals who responded at both time points differed from individuals who only responded at wave one on constructs of interest such as adverse childhood experiences, emotion dysregulation, avoidance, social support seeking, problem solving, positive thinking, risky sexual behaviour across partner type, and sexual coercion. Table 10 demonstrates the univariate logistic regression results for the predictors of attrition examined. As seen in Table 10, only age, gender, and scores on the adverse childhood experiences measure were significantly associated with drop-out rates. Namely, women, older participants, and individuals with higher levels of adversity were less likely to drop-out.

Table 8

Summary of Goodness-of-fit Indices for the Configural, Metric, Scalar, and the Residual Invariance Models Across Time (Study 2)

Model	χ^2	<i>df</i>	RMSEA	90% CI _{RMSEA}	CFI	$\Delta\chi^2, \Delta\text{CFI}$
Configural invariance model	576.33***	308	0.050	[.044, .057]	.91	
Metric invariance model	591.478***	322	.049	[.043, .056]	.91	$\Delta\chi^2, (\Delta\text{df} = 14) = 13.89, p = .46; \Delta\text{CFI} = < .01$
Scalar invariance model	603.55***	336	.048	[.042, .054]	.91	$\Delta\chi^2, (\Delta\text{df} = 14) = 11.94, p = .61; \Delta\text{CFI} = < .01$
Residual invariance model	627.05***	350	.048	[.042, .054]	.90	$\Delta\chi^2, (\Delta\text{df} = 14) = 22.70, p = .07; \Delta\text{CFI} = .01$

Note. *** $p < .001$. χ^2 = chi-square goodness of fit statistic; RMSEA = the root mean square error of approximation; CI_{RMSEA} = confidence interval for RMSEA; CFI = the comparative fit index. $\Delta\chi^2$ = chi-square difference test; ΔCFI = comparative fit index difference test.

Table 9

Standardized Loadings for the 4-Factor Higher-order Residual Invariant Model for the Brief-COPE Measure Across Time Points (Study 2)

	Standardised loadings	<i>p</i>
Social Support Seeking		
COPE_Venting	.39	< .001
COPE_Emotional Support	.77	< .001
COPE_Instrumental Support	.93	< .001
COPE_Religion	.08	.063
Problem Solving		
COPE_Active	.86	< .001
COPE_Plan	.80	< .001
Avoidance		
COPE_Behavioural Disengagement	.86	< .001
COPE_Self Distraction	.01	.910
COPE_Substance use	.37	< .001
COPE_Denial	.45	< .001
COPE_Self blame	.56	< .001

Positive thinking

COPE_Humour	.30	< .001
COPE_Positive reframing	.65	< .001
COPE_Acceptance	.51	< .001

Note. $\chi^2(350) = 627.05$; $p = <.001$; RMSEA = .048 [.042, .054]; CFI= 0.90. COPE = a

modified version of the Brief-COPE scale.

^ain order to set the scale and identify the higher-order latent variables, the variance of each higher-order factor was constrained to equal one.

Table 10

Univariate Logistic Regression for the Predictors of Attrition Examined (Study 2)

Predictor	Retained	Dropped Out	OR	95% CI [LL, UL]	p
Age	34.71	31.87	.98	[.957, .997]	.03
Gender ^{11a}					
Male	89	66	.56	[.356, .877]	< .001
Female	130	54			
ACE-R	3.05	2.23	.88	[.801, .963]	< .001

¹¹ When examining gender as a predictor only males and females were considered.

Social support seeking	3.99	4.04	1.03	[.847, 1.262]	.74
Problem solving	5.40	5.28	.94	[.807, 1.099]	.45
Avoidance	3.99	4.07	1.11	[.870, 1.408]	.41
Positive think	5.08	5.06	.98	[.807, 1.185]	.82
DERS	90.74	87.65	1.00	[.986, 1.004]	.28
CARE-R_across partner type	2.07	2.06	.96	[.572, 1.562]	.86
CARE-R_Sexual Coercion	1.09	1.06	.80	[.347, 1.414]	.51

Note. *OR* = odds ratio, *CI* = confidence interval; LL = lower limit; UL = upper limit. ACE-R = adverse childhood experiences-revised scale; DERS = difficulties in emotion regulation scale; CARE-R = cognitive appraisal of risky events-revised scale.

p = alpha level.

^a number of participants who were retained and dropped out are shown for males and females. All other values show mean scores.

3.4.2. Main Analyses

The within wave correlations between constructs are shown in Tables 11 and 12 for wave one and wave two respectively. Of particular interest, findings indicated that the following constructs were all significantly and positively associated across both measurement occasions. Adverse childhood experiences were correlated with emotion dysregulation and avoidance. Emotion dysregulation and avoidance were correlated, as were risky sexual behaviours across partner type and sexual coercion. Social support seeking and avoidance were found to be associated with risky sexual behaviours across partner type, and emotion dysregulation and avoidance were associated with sexual coercion. To better understand the directionality underlying these associations, the cross-sectional relationship between all constructs were first examined. Following this, the cross-lagged relationships between constructs were examined using path analysis to better understand the relationship between constructs across time.

Table 11*Correlation Matrix for Wave One Constructs (Study 2)*

Variable	1	2	3	4	5	6	7	8
1. ACEs	-							
2. Emotion Dysregulation	.31**	-						
3. Social Support Seeking	-.12*	-.11*	-					
4. Problem Solving	-.08	-.48**	.22**	-				
5. Avoidance	.28**	.68**	-.01	-.37**	-			
6. Positive Thinking	-.08	-.26**	.16*	.49**	-.14*	-		

7. Sexual Coercion	.07	.11*	.13*	-.02	.19**	.02	-
8. RSB_across partner type	-.01	.10	.12*	-.01	.18**	.04	.62**

Note. n = 342; *p<.05, **p<.001. ACEs = adverse childhood experiences; RSB = risky sexual behaviour.

Table 12

Correlation Matrix for Wave Two Constructs (Study 2)

Variable	1	2	3	4	5	6	7	8
1. ACEs	-							
2. Emotion Dysregulation	.35**	-						

3. Social Support Seeking	-.03	-.04	-					
4. Problem Solving	-.07	-.47**	.18*	-				
5. Avoidance	.35**	.68**	.07	-.31**	-			
6. Positive Thinking	-.08	-.24**	.07	.34**	-.02	-		
7. Sexual Coercion	.15*	.14*	.12	.00	.28**	.07	-	
8. RSB_across partner type	.14*	.16*	.18*	-.07	.31**	.11	.56**	-

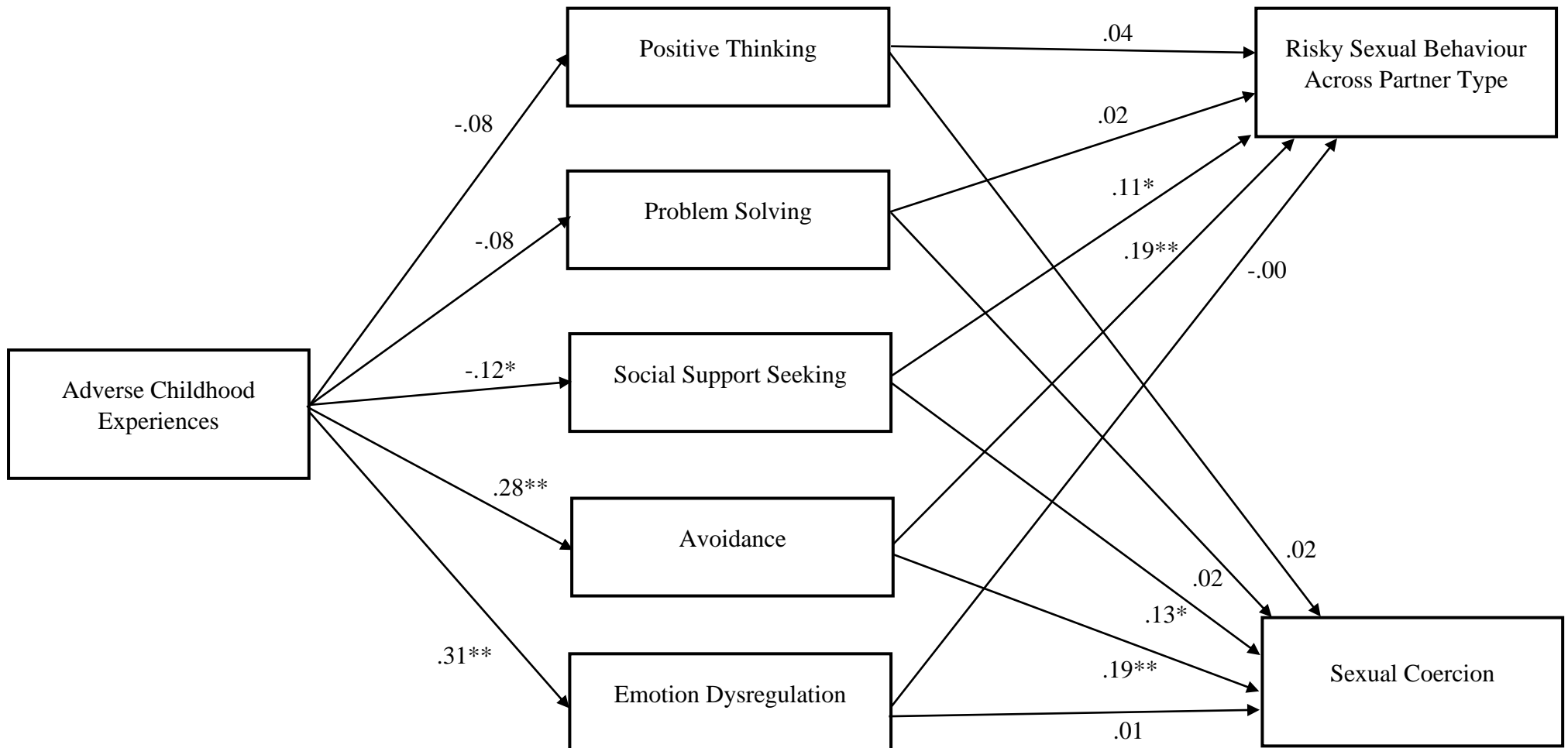
Note. $n = 221$; * $p < .05$, ** $p < .001$. ACEs = adverse childhood experiences; RSB = risky sexual behaviour.

Cross-sectional associations at wave one. Path analysis tested the proposed mediation model cross-sectionally using 2000 bootstrap samples with bias corrected confidence interval (95% CI; Shrout & Bolger, 2002) and maximum likelihood estimation. Within this model the relationship between childhood adversity and risky sexual behaviours and sexual coercion at wave one was examined. With regards to this, there was no direct relationship between the aforementioned constructs and therefore this did not provide evidence in support of the initial hypothesis (H1). The hypothesised mediating effect of emotion dysregulation, social support seeking, problem solving, and positive thinking, and avoidance based coping strategies was also examined. As shown in Figure 1, greater experiences of adversity in childhood were significantly associated with the greater emotion dysregulation and more use of avoidance coping, as expected. However, greater adversity was associated with less use of social support seeking. Moreover, greater avoidance coping was significantly associated with greater risky sexual behaviours across partner type and greater sexual coercion, which also fits in line with the second hypothesis for this study. Interestingly however, this was also found to be the case for greater use of social support seeking.

Upon further examination, evidence of two significant indirect effects from adverse childhood experiences to risky sexual behaviours across partner type via avoidance $b = .05$, 95% CI [.020, .089], and from adverse childhood experiences to sexual coercion via avoidance $b = .05$, 95% CI [.019, .088] was found. This suggests that cross-sectionally, avoidance underlies the relationship between adversity in childhood and later risky sexual behaviours. This finding provided some evidence towards the hypothesis (H2) that maladaptive coping strategies would mediate the relationship between ACEs and RPSBs.

Figure 1

Path Analysis Mediation Model Demonstrating the Relationship Between Adverse Childhood Experiences, Risky Sexual Behaviour Across Partner Type, Sexual Coercion, Emotion Dysregulation, Avoidance, Social Support Seeking, Problem Solving, and Positive Thinking at Wave 1 (Study 2)



Note. There was evidence of two significant indirect effects from adverse childhood experiences to sexual coercion via avoidance $b = .05$, 95% CI [.019, .088], and from adverse childhood experiences to risky sexual behaviours across partner type via avoidance $b = .05$, 95% CI [.020, .089]. Standardised estimates are reported.

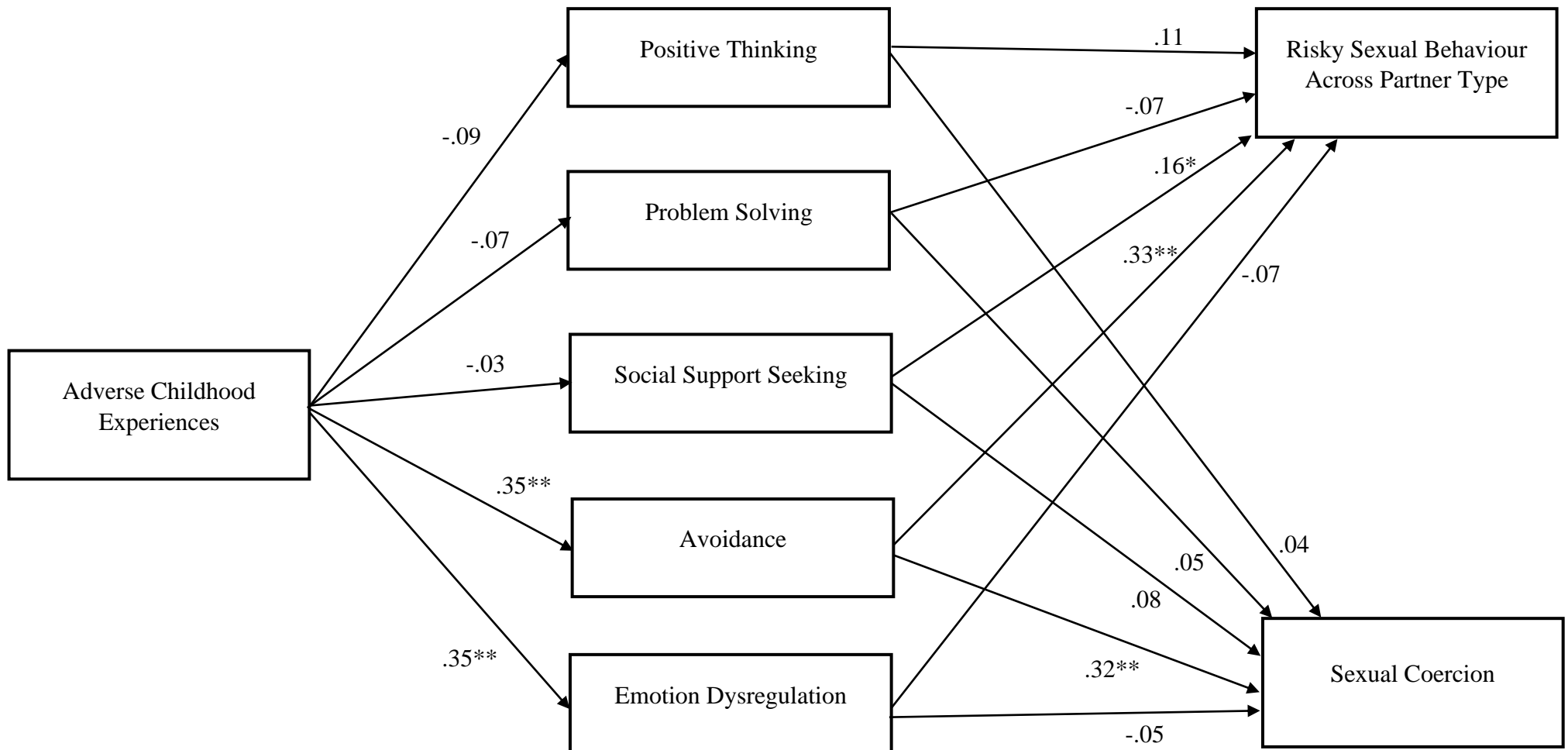
$n = 342$; ** $p < .001$, * $p < .05$.

Cross-sectional associations at wave two. Similarly, to the above-mentioned analysis at wave one, the hypothesised mediating effect of social support seeking, positive thinking, problem solving, and avoidance coping strategies as well as emotion dysregulation was examined in the path from adverse childhood experiences to risky and problematic sexual behaviours at wave two. As shown in Figure 2, adverse childhood experiences significantly and positively predicted avoidance and emotion dysregulation, albeit not social support seeking. Much like in wave one, greater use of social support seeking and avoidance coping significantly predicted greater risky sexual behaviours across partner type. Lastly, greater use of avoidance coping also significantly predicted greater sexual coercion. Unlike at wave one, social support seeking did not significantly predict sexual coercion at wave two.

Similarly to wave one, there was evidence of two significant indirect effects from adverse childhood experiences to sexual coercion via avoidance $b = .11$, 95% CI [.056, .169] and from adverse childhood experiences to risky sexual behaviour across partner type via avoidance $b = .11$, 95% CI [.058, .170].

Figure 2

Path Analysis Mediation Model Demonstrating the Relationship Between Adverse Childhood Experiences, Risky Sexual Behaviour Across Partner Type, Sexual Coercion, Emotion Dysregulation, Avoidance, Social Support Seeking, Problem Solving, and Positive Thinking at Wave 2 (Study 2)



Note. There was evidence of two significant indirect effects from adverse childhood experiences to sexual coercion via avoidance $b = .11$, 95% CI [.056, .169], and from adverse childhood experiences to risky sexual behaviour across partner type via avoidance $b = .11$, 95% CI [.058, .170].

Standardised estimates are reported.

$n = 221$; ** $p < .001$, * $p < .05$.

Two wave longitudinal cross-lagged panel model. Evidence of the cross-lagged and autoregressive effects between constructs were tested across measurement occasion using a two-wave longitudinal cross-lagged panel model. Figure 3 illustrates the significant cross-lagged and autoregressive effects within the two-wave model and Table 13 provides an overall summary of all the effects considered within the two-wave model. Findings indicate that there was a positive cross-lagged effect from adverse childhood experiences at wave one to emotion dysregulation and avoidance at wave two. Adverse childhood experiences scores also remained stable across both measurement occasions. This fits in line with the hypotheses made (H3) and provided evidence in support of the expected directionality underlying these associations i.e., that greater experiences of ACEs lead to greater emotional dysregulation and the greater use of maladaptive coping strategies such as avoidance.

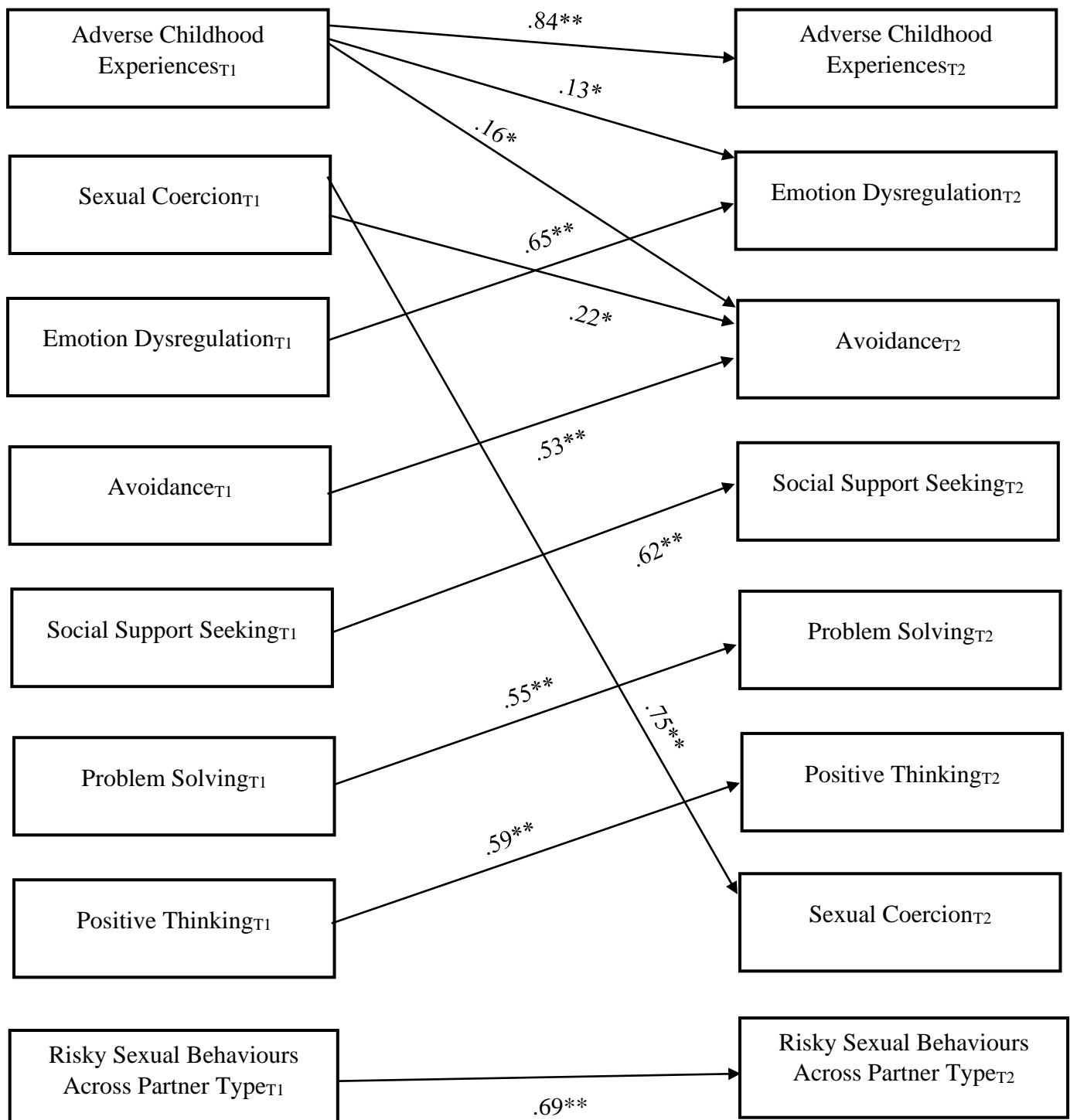
Contrary to what was expected however, there were no significant cross-lagged effects between emotion dysregulation or avoidance at wave one to either RPSB outcome variable examined at wave two. This goes against what was hypothesised (H4). Both emotion dysregulation and avoidance did however remain stable across time. Other coping constructs considered (social support seeking, positive think, and problem solving) all remained stable across measurement occasions. Unexpectedly however, greater sexual coercion at wave one significantly predicted greater use of avoidance coping at wave two. Given the unexpected direction of this association and that this goes against the original hypothesis (H4), the temporal precedence between these constructs remains unclear. Lastly, risky sexual behaviours across partner type and sexual coercion remained stable across measurement

occasion. Overall, the cross-lagged panel model demonstrated good fit to the data $\chi^2(22) = 36.58, p < .05, CFI = .99, RMSEA = .055, (S)RMR = .032$.¹²

¹² Standardized root mean squared residual (SRMR) was used as an additional indicator of model fit given that RMSEA as a goodness-of-fit test is not sensitive to the number of variables modelled and has been found to worsen as model size increases (Maydeu-Olivares, 2017).

Figure 3

Cross-lagged Panel Model Demonstrating the Significant Cross-lagged Relationships Between Adverse Childhood Experiences, Emotion Dysregulation, Avoidance, Social Support Seeking, Problem Solving, Positive Thinking, Emotion Dysregulation, Sexual Coercion, and Risky Sexual Behaviour Across Partner Type Across Waves (Study 2)



Note. T1 = Time 1; T2 = Time 2. $n = 221$.

** $p < .001$, * $p < .05$.

Table 13

Summary of the Cross-lagged and Autoregressive Paths for Variables Specified Within the Two-Wave Cross-lagged Panel Model (Study 2)

Variables	Estimate (β)	SE	p
ACE _{ST1} → ACE _{ST2}	.84	.04	<.001
Emotion dysregulation _{T1} → ACE _{ST2}	.03	.01	.565
Social support seeking _{T1} → ACE _{ST2}	.05	.10	.213
Avoidance _{T1} → ACE _{ST2}	.00	.16	.939
Problem solving _{T1} → ACE _{ST2}	.08	.10	.079
Positive thinking _{T1} → ACE _{ST2}	-.03	.11	.474
RSB_across partner type _{T1} → ACE _{ST2}	-.06	.31	.213
Sexual coercion _{T1} → ACE _{ST2}	.09	.31	.050
Emotion dysregulation _{T1} → Emotion dysregulation _{T2}	.65	.04	<.001

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ACEs _{T1} → Emotion dysregulation _{T2}	.13	.44	.011
Sexual coercion _{T1} → Emotion dysregulation _{T2}	.03	3.33	.700
RSB_across partner type _{T1} → Emotion dysregulation _{T2}	.05	3.22	.486
Social support seeking _{T1} → Social support seeking _{T2}	.62	.05	<.001
ACEs _{T1} → Social support seeking _{T2}	.01	.02	.894
Sexual coercion _{T1} → Social support seeking _{T2}	.04	.17	.550
RSB_across partner type _{T1} → Social support seeking _{T2}	-.11	.16	.149
Avoidance _{T1} → Avoidance _{T2}	.53	.05	<.001
ACEs _{T1} → Avoidance _{T2}	.16	.02	.002
Sexual coercion _{T1} → Avoidance _{T2}	.22	.13	.002

RSB_across partner type _{T1} → Avoidance _{T2}	-.06	.13	.359
ACE _{ST1} → Problem solving _{T2}	-.05	.03	.376
Problem solving _{T1} → Problem solving _{T2}	.55	.05	<.001
RSB_sexual coercion _{T1} → Problem solving _{T2}	.11	.24	.159
RSB_across partner type _{T1} → Problem solving _{T2}	-.10	.23	.182
ACE _{ST1} → Positive thinking _{T2}	-.03	.02	.567
Positive thinking _{T1} → Positive thinking _{T2}	.59	.05	<.001
Sexual coercion _{T1} → Positive thinking _{T2}	-.02	.19	.763
RSB_across partner type _{T1} → Positive thinking _{T2}	.06	.18	.389
ACE _{ST1} → RSB_across partner type _{T2}	.08	.01	.133

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Emotion dysregulation _{T1} →RSB_across partner type _{T2}	-.03	.001	.708
Avoidance _{T1} →RSB_across partner type _{T2}	.09	.04	.169
Social support seeking _{T1} →RSB_across partner type _{T2}	-.01	.02	.864
Problem solving _{T1} →RSB_across partner type _{T2}	-.02	.02	.739
Positive thinking _{T1} →RSB_across partner type _{T2}	.06	.02	.278
RSB_across partner type _{T1} →RSB_across partner type _{T2}	.69	.07	<.001
Sexual coercion _{T1} →RSB_across partner type _{T2}	-.08	.07	.256
ACEs _{T1} → Sexual coercion _{T2}	.02	.01	.613

Emotion dysregulation _{T1} → Sexual coercion _{T2}	-.02	.001	.794
Avoidance _{T1} → Sexual coercion _{T2}	.02	.03	.709
Social support seeking _{T1} → Sexual coercion _{T2}	-.08	.02	.094
Problem solving _{T1} → Sexual coercion _{T2}	.04	.02	.543
Positive thinking _{T1} → Sexual coercion _{T2}	.03	.02	.592
Sexual coercion _{T1} → Sexual coercion _{T2}	.75	.06	<.001
RSB_across partner type _{T1} → Sexual coercion _{T2}	.03	.06	.585

Note. $n_{T1} = 342$, $n_{T2} = 221$, * $p < .05$, ** $p < .001$. ACEs = adverse childhood experiences; RSB = risky sexual behaviour; T1 = Time 1; T2 = Time 2.

3.5. Discussion

The current study aimed to examine the mechanisms underlying the association between early childhood adversity and risky and problematic sexual behaviours in adulthood. Namely, research to date has yet to fully conceptualise the effect of more proximal self-regulatory mechanisms such as emotion dysregulation and maladaptive coping strategies in the path between ACEs and RPSBs. There is also a need to conceptualise the longitudinal interplay between these constructs to establish temporal precedence and allow for more robust conclusions regarding causality to be drawn. The present study first used path analysis to establish the cross-sectional relationship between these constructs and to examine whether maladaptive coping and emotion dysregulation mediated the relationship between ACEs and RPSBs. It was hypothesised that there would be a mediatory effect, namely that greater self-reported ACEs would be positively and significantly associated with greater use of maladaptive coping strategies and greater emotion dysregulation. In turn, greater emotion dysregulation and the use of maladaptive coping strategies would be significantly associated with greater engagement in RPSBs. Cross-lagged path analysis was then used to examine the associations between these constructs across time. In relation to this, it was hypothesised that there would be a significant cross-lagged effects from greater self-reported ACEs at time one and greater emotion dysregulation and maladaptive coping at time two, respectively. In turn, it was also expected that there would be a significant cross-lagged effect between greater emotion dysregulation and maladaptive coping at time one and greater RPSBs at time two.

Overall, findings from the cross-sectional models provided partial support for the initial hypotheses. Of note, findings indicated that ACEs were positively and significantly associated with avoidance coping and emotion dysregulation at both time points. Greater ACEs were also significantly associated with less social support seeking at time one, however this was not consistent at time two. In turn, across both measurement occasions, avoidance

and social support seeking were positively associated with risky sexual behaviours, and avoidance was positively associated with sexual coercion. Contrary to what was expected, there were no significant associations between emotion dysregulation with either RPSB outcome, and there was no direct effect between ACEs and either RPSB outcome. Despite the absence of a direct effect, I tested for evidence of an indirect effect at both time points. According to Hayes (2009) and Mackinnon (2008) the absence of a direct effect within a mediation model should not preclude the search for evidence of an indirect effect. In fact, Hayes (2009) distinguished between mediation and testing for evidence of an indirect effect arguing that in contrast to the four-step model of mediation presented by Baron and Kenny (1986), establishing a direct effect is not a prerequisite for testing for evidence of an indirect effect. In doing so, across both waves there was evidence of two indirect effects between ACEs and both RPSB outcome considered through avoidance.

In general, these findings fit in line with the existing research literature which suggests that greater exposure to adversity in childhood is associated with greater affective dysregulation and the use of maladaptive coping strategies (Evans & Kim, 2013; Sheffler et al., 2019; Repetti et al., 2002). This is unsurprising given that the developmental literature has found that stress stemming from early adversity may hinder one's socio-cognitive development making individuals more reactive to subsequent stressors and unable to emotionally regulate (Nusslock & Miller, 2016). Moreover, individuals may also be ill-equipped at coping with stressors as they may not have had the opportunity to develop or learn more effective coping strategies to reappraise and resolve the stressor. Consequently, individuals are more likely to engage in more problematic avoidant and emotion focused strategies to cope (Evans & Kim, 2013; Wadsworth, 2015). Research by Filipas and Ullman (2006) evidenced this as they found that a sample of 577 female college students with a

history of child sexual abuse were more likely (compared to those with no reported history of abuse) to experience greater self-blame and to cope using sex, drugs, and/or alcohol.

The current findings also extend upon existing research by demonstrating that avoidance based coping strategies are a mechanism underlying the path between latent adversity in childhood and RPSBs in adulthood. Prior research has found that the use of avoidance based coping strategies such as disengagement, denial, and self-blame are associated with greater engagement in risky sexual behaviours (Folkman et al., 1992; Hulland et al., 2015; McConnell et al., 2014). However, only a handful of studies to date have examined avoidance coping as a mediator in the relationship between stress and subsequent engagement in RPSBs. Even fewer studies have examined and established that avoidance coping is a mechanism through which latent adversity predicts the use of RPSBs. Dariotis and Chen's (2022) research is a good example of research which drew somewhat similar conclusions to the current findings. They found evidence of partial mediation in the path from stressful life events to engagement in risky sex through avoidance coping. Thus, suggesting that greater experiences of stressful life events predicted greater use of avoidance coping which in turn predicted greater engagement in riskier sexual practices. Research has also similarly shown that emotion dysregulation is a potential mechanism underlying the relationship between ACEs and later RPSBs (Espeleta et al., 2018), however this was not found to be the case in the cross-sectional model across both waves.

There were two additional findings within the cross-sectional models which were unexpected. The first being that social support seeking was positively and significantly related to risky sexual behaviour across both waves. The direction of this association appears to suggest that greater use of social support seeking strategies is associated with greater engagement in risky sexual behaviour. This is somewhat counterintuitive given that the existing research literature has shown that having a strong social support system and

receiving consistent social support from peers and family members reduces the risk of individuals engaging in criminal activity (Colvin et al., 2002; Wright et al., 2001). Several research studies have also attributed having a strong social support system as a protective factor as it reduces the propensity to engage in sexual risk-taking related behaviours (Boislard & Poulin, 2011; Usher-Seriki et al., 2008). Therefore, theoretically social support seeking was expected to have been negatively associated with RPSBs. It is worth noting however that research has found that whilst perceived social support did predict less pornography use and compulsive sexual behaviours, effect sizes were small to moderate (Wizła et al., 2022). Another potential reason for this discrepancy could be due to an underlying general tendency towards extraversion which may have confounded the relationship. Research indicates that individuals who score higher on measures of extraversion are also more likely to report seeking out others for social support when faced with stressful situations (McCrae & Costa, 1986; Swickert, 2009). Moreover, a meta-analysis of 137 studies has also shown that extraversion is positively correlated with engagement in risky sex (Allen & Walter, 2018). Therefore, it is plausible that individuals who were engaging in social support seeking strategies to cope were inherently more extraverted and thus also more likely to engage in RPSBs.

The second finding that was unexpected was the absence of a direct effect between ACEs and either RPSB outcome. Whilst this finding was unexpected there could be a couple of reasons to explain this. Firstly, it is worth noting that whilst studies in this area have largely found evidence of a direct association between ACEs and RPSB related outcomes (Leach et al., 2016; Levenson et al., 2016; Reavis et al., 2013; Widom & Massey, 2015; Wood et al., 2022), this absence could be due to the examination of a community-based sample as opposed to an offending sample. Research in this area has predominantly focused on the examination of these constructs within either an offending sample or student-based

sample as opposed to a community-based sample. As with offending samples, problematic sexual behaviours such as sexual coercion and sexual risk-taking related behaviours are particularly prevalent within student samples (Abbey & McAuslan, 2004; Hales & Gannon, 2021; Scull et al., 2020). Ecott and colleagues (2020) similarly found an absence of a direct relationship between ACEs and sexual coercion when examining a non-incarcerated sample. Therefore, this provides a possible explanation as to why there was no such observed effect within the present study. It is possible that RPSBs may not be as severe or as prevalent within a non-incarcerated community-based sample compared to an offending population, therefore, making it difficult to detect significant effects.

Lastly, a third potential reason for the absence of a direct effect could be due to the use of a general composite measure for adversity. According to findings by Littleton and colleagues (2014) only exposure to specific adversities such as child sexual abuse led to RPSBs (see also Casey et al., 2016). Whilst the use of a composite measure was justified in the context of the present study, given that child sexual abuse alone may not have been prevalent enough in a community-based sample to achieve sufficient statistical power if just one form of adversity was being examined. Future research should consider screening for specific instances of abuse which are most strongly predictive of RPSBs to examine whether (within a community sample) specific instances of adversity are more strongly associated with RPSBs.

The findings obtained within the two-wave longitudinal model were compelling and provided initial evidence of the directionality of the associations between the constructs considered within the model. Of note, there was evidence of a significant cross-lagged effect between ACEs at time one and emotion dysregulation and avoidance coping at time two, respectively. This finding provided initial support for the hypothesis (H3) made and was consistent with both what was found in the cross-sectional models and the wider literature.

Therefore, these findings extend existing cross-sectional findings and provides more robust causal evidence that experiencing ACEs predisposes individuals to later emotional conduct problems and difficulties in managing and coping with distress (Levenson, et al., 2016; Teicher & Samson, 2016). This finding is therefore unsurprising given that research has established that early childhood is a key developmental milestone for the development of executive functioning related skills (McClelland et al., 2018), and is also susceptible to experiences of stress (Dvir et al., 2014).

Contrary to what was hypothesised there were no significant cross-lagged effects between emotion dysregulation and avoidance at time one and either RPSB outcome at time two. The lack of a significant cross-lagged effect from avoidance at time one and either RPSB outcome at time two was unexpected for two reasons. Primarily because there was evidence of an indirect effect in the relationship between both ACEs and both RPSB outcomes considered through avoidance within the cross-sectional analyses. Secondly because research has shown that greater avoidance coping is associated with RPSBs (Dariotis & Chen, 2022; Serran & Marshall, 2006). Whilst there is some longitudinal evidence attesting to this link (Shorey et al., 2014), it is worth noting that most of the research in this area is primarily cross-sectional and focuses on how strategies such as sexualised coping and substance misuse are potential risk factors for later sexual offending (Cortoni & Marshall, 2001; Daversa & Knight, 2007; Ecott et al., 2020; Hanson & Harris, 1998). Therefore, researchers must be tentative when drawing inferences regarding the temporal precedence surrounding these constructs.

Whilst the findings of this study do go some way towards conceptualising the cross-sectional associations between avoidance coping strategies and RPSBs, the longitudinal relationship between avoidance and RPSBs remains unclear. A potential reason for the

disparity in the cross-sectional and longitudinal findings with regards to the relationship between the use of avoidance coping and RPSBs could be due to potential bias from selective dropouts that were accounted for within the attrition analysis. Findings indicated that individuals who responded at both time points differed on key demographic characteristics, namely age and gender, and on scores on the adverse childhood experiences measure compared to individuals who only responded at time one. Namely, women, older participants, and participants who reported greater levels of adversity in childhood were more likely to continue onto wave two compared to men, younger participants, and those reporting less adversity in childhood. It should be recognised that the conclusions of this study are limited by this fact and caution should be taken when generalising these findings. It may also be worth noting that there may also have been other markers of attrition which were unaccounted for within the present analysis, but which could also have affected findings and potentially explain the absence of certain expected effects. For instance, research by Salthouse (2013) found that returning participants in longitudinal research tended to score higher on personality measures of openness and agreeableness and had higher levels of cognitive functioning compared to non-returning participants.

A second possible reason for the lack of expected effects between avoidance coping and RPSB relates particularly to the fact that within cross-lagged panel models the stability within variables across measurement occasion is accounted for. In relation to RPSBs there were strong autoregressive effects from time one to time two which could have accounted for most of the variance in RPSBs. As a result, avoidance coping may have provided little additional predictive power for the small amount of remaining variance. A last potential reason as to why there was no longitudinal evidence of the relationship between avoidance coping and RPSBs as was evident in the cross-sectional models, could be that avoidance coping may have a short-lived effect on RPSBs. If it is indeed a short-lived effect, the length

of time between the first and second waves within the present study may have precluded the effect from being observed. Thus, potentially explaining why the relationship was only captured cross-sectionally and not within the two-wave model.

Another interesting finding that emerged within the two-wave model was that there was a significant cross-lagged effect of sexual coercion at time one and avoidance at time two. This finding is counter intuitive as it suggests that sexually coercive practices may temporally precede the use of avoidance-based coping. However, the existing theoretical and empirical literature assumes that psychosocial deficits precede RPSBs (Halligan et al., 2013; Weiss et al., 2013). As a result, few studies to date have examined the possibility that the reverse is true. For instance, that engaging in RPSBs such as casual sex with multiple sexual partners or earlier sexual initiation may cause long-term psychological distress which prompts the use of avoidance-based coping strategies. Interestingly however, this finding may provide support for Stinson and colleagues' (2008) multimodal self-regulation theory which maintains that problematic sexual behaviours are a form of maladaptive coping strategy which serve to help regulate distress. This would explain why there was no significant cross-lagged effect from coping at time one and sexual coercion at time two, but instead the cross-lagged effect between sexual coercion at the one and avoidance coping at time two was significant. This is because engaging in sexually coercive practices may prompt the use of avoidance-based coping strategies to evade further distress brought about by engaging in such interactions. In effect, RPSBs may be seen as a form of maladaptive coping rather than an outcome of engaging in such coping strategies.

This line of thinking also lends itself to Ward and Beech's (2016) integrated theory of sexual offending which suggests that sexually offending maintains itself by reinforcing the underlying factors that precipitate it. In the context of the current research, if RPSBs are

considered to be a coping mechanism as suggested by the present findings, this may produce a positive feedback loop whereby RPSBs alleviate distress thereby reinforcing the use of RPSBs as a mechanism to cope with subsequent stressful situations. It is worth noting that a handful of published studies have pointed to the need to consider this alternative; for instance, longitudinal research examining the role of alcohol use in relation to sexual risk-taking suggested the need to consider that sexual behaviour in adolescence precedes the use of alcohol to cope rather than the reverse (Cooper et al., 2000; Cornelius et al., 2007; O'Hara & Cooper, 2015).

Evidentially, despite the use of a two-wave design in the present study, more research is required in this area to establish the temporal precedence between these constructs more concretely. Doing so will allow for more robust causal inferences to be drawn. These findings also point to a greater need for studies which employ more rigorous experimental manipulations which will allow researchers to tease apart these interrelations and build a more robust causal argument. The implementation of behavioural laboratory-based measures of sexual aggression could also prove useful in overcoming the somewhat limited causal inferences that can be drawn. One such example includes the sexual aggression analogue task (Nagayama Hall & Hirschman, 1994) which involves the imposition of a sexual stimulus on a female confederate who previously indicates discomfort at viewing sexualised content. This measure has previously been used as a laboratory proxy for sexual aggression (Parrott et al., 2012), and within subsequent chapters in this thesis the aim was to validate and use this measure with the intention of furthering the findings of the present study.

It is important to consider the reliance on self-report measures and how this contributes to potential bias in responding within the present study. It is generally acknowledged that within self-report research, there is a tendency for individuals to respond

in socially desirable ways, especially when reporting on one's sexual activity and potentially stigmatising behaviours (Kelly et al., 2013). This may impact findings as participants may underreport engaging in RPSBs or the use of certain regulatory strategies which are not seen as socially desirable. Despite this however, it is worth noting that Ó Ciardha and colleagues (2022) found that even when it came to reporting highly stigmatising behaviours such as admitting to watching child pornography, participants were still willing to do so.

Nevertheless, such issues of social desirability should not be overlooked, and this should be acknowledged as a limitation within the present study. Similarly, asking participants to rely on retrospective recall when assessing exposure to ACEs also warrants consideration.

Previous research evidence has attested to the fallibility of memory, especially when it comes to recall of adversity in early childhood. Participants may over or under report such experiences which can ultimately bias the reliability and validity of findings (Widom et al., 2004). Future research would therefore benefit from the integrated use of proxy and behavioural measures of assessing childhood adversities and sexually problematic behaviours more generally. McGavock and Spratt (2012) for instance have recommended the use of social service records alongside self-report measures of adversity to validate reported recall.

A shortcoming of this research is that only two measurement occasions were captured within the two-wave model. According to Cole and Maxwell (2003), whilst it is possible to test for the presence of mediation within a two-wave cross-lagged panel design, Collins and colleagues (1998) maintain that 'at least three observations in time are needed' to test for evidence of longitudinal mediation. Accordingly, if there are not three measurement occasions the conclusions that can be drawn are 'limited at best' (p. 310). Collins and colleagues (1998) maintained that waves one and two are required to capture the associations between the predictor and mediator variables, and the second and third waves assess the relationship between the mediators and the outcome variables. Therefore, following this

guidance I did not search for indirect effects within the present model. However, having three measurement occasions may have allowed further insight into the longitudinal mediation of maladaptive coping and emotion dysregulation in the path from ACEs to subsequent RPSBs.

Another potential shortcoming lies within having considered risky and problematic sexual behaviours jointly within an overarching RPSBs construct. This is because there were discrepancies across the within wave correlations. For instance, in wave one emotion dysregulation significantly correlated with sexual coercion but not with risky sexual behaviour across partner type. However, some constructs correlated with both risky sexual behaviours across partner type and sexual coercion, such as avoidance coping and social support seeking. Collectively, this appears to suggest that whilst some constructs underpin both risky and problematic sexual behaviours, thus supporting the idea that these outcome behaviours should be explored in a holistic manner, other constructs may have unique pathways into risky and problematic sexual behaviours separately. Future research could aim to explore these more nuanced pathways.

Overall, the current study aimed to examine the role of ACEs on subsequent RPSBs and determine whether emotion dysregulation and maladaptive coping were potential underlying mechanisms through which this association occurs. The current findings extend the existing cross-sectional research literature by highlighting longitudinally that greater experiences of adversity in childhood may causally predict later emotion dysregulation and the use of maladaptive coping strategies such as avoidance in adulthood. However, the relationship between these resulting psychosocial deficits and RPSBs remain unclear. Not enough evidence was found to be able to confidently conclude that emotion dysregulation and maladaptive coping strategies are primary mechanisms underlying the relationship between ACEs and subsequent RPSBs. The main takeaway is that more robust longitudinal and experimental designs are needed in future research to provide a more comprehensive

analysis into this latter relationship, and to further establish causality beyond examining the temporal precedence between these constructs. Future research should look to integrate the use of behavioural analogue measures of constructs to overcome social desirability and recall biases associated with using self-report measures to assess these constructs.

4. Chapter Four: Validating the Sexual Aggression Analogue Task as a Suitable Behavioural Proxy for Sexual Aggression

4.1. Brief chapter summary

The previous chapter aimed to examine the associations between childhood adversity and risky and problematic sexual behaviours, as well as the mechanisms underlying this association across time. One of the main shortcomings highlighted in the previous study was the need for more robust behavioural proxy measures for assessing certain constructs given the overreliance on self-report measures. Whilst self-report measures are widely used in psychological research, such measures rely on participants providing truthful and accurate responses. However, research has shown that participants reliance on retrospective recall may result in over or underreporting past behaviours due to the fallible nature of memory (Widom et al., 2004). More notably however, research has shown that there is a tendency amongst participants to be seen as more socially desirable and self-report more positively on their own actions (King & Brunner, 2000). This is especially the case when participants are asked to report on sensitive or potentially illegal activity (which is often the case in forensic psychology research) such as dating and interpersonal sexual violence perpetration (Henning et al., 2005, Straus, 2004), and substance misuse (McGilloway & Donnelly, 2004). Consequently, this may hinder the overall reliability of findings and conclusions being drawn.

Evidently, there is a need for research utilizing more behavioural based measures which are not as susceptible to recall and social desirability biases but are able to effectively capture behaviours. The use of which will allow for more robust and valid conclusions regarding behaviours to be drawn. The present study aimed to address this need by validating a sexual aggression analogue task (Nagayama Hall & Hirschman, 1994) and determining whether this is a suitable behavioural proxy for capturing sexual aggression. Whilst a handful

of researchers have recommended its use for behaviourally capturing sexually aggressive behaviours, the validation of this paradigm remains limited to a handful of studies (e.g., Franz et al., 2008; Parrott et al., 2012).

4.2. Theoretical background

Figures from the Crime Survey for England and Wales revealed that approximately 773,000 individuals were victim to some form of sexual assault in the past year (Office for National Statistics, 2021). Whilst this constituted a 0.6% decrease in sexual violence victimisation since the previous year, this was largely attributed to a drop in cases of indecent exposure and unwanted sexual touching, whereas prevalence estimates for rape remained unchanged. Worryingly, statisticians noted that this likely reflected annual variations and fluctuations in prevalence estimates of sexual aggression rather than concluding that this constituted a downward trend. As evidenced, problematic sexual behaviours such as sexual aggression perpetration clearly constitutes an ongoing societal problem and has yet to decrease to a level where it no longer represents a public health concern. For the present chapter, sexual aggression has been defined as any (attempted or completed) sexual act that is unwanted and committed against someone's will (for similar see Basile & Saltzman, 2002). As this study aims to validate and replicate previous behavioural analogue tasks of sexual aggression, for the present paper I focus specifically on the sexually problematic behaviour of sexual aggression rather than examining risky and problematic sexual behaviours. This is to ensure consistency and allow appropriate comparison with previous analogue studies (discussed later) which have focused specifically on sexual aggression.

There is a tendency to rely on the use of official crime statistics and self-report data to estimate the prevalence of sexual aggression perpetration (Schroder et al., 2003). Whilst the use of such methods provides valuable insight into sexually problematic behaviours and the

characteristics of those who perpetrate such acts (for a comprehensive review see Tharp et al., 2012), the methodological drawbacks of these methods should not be overlooked. The most notable limitation with the use of official crime statistics is that they are largely informed by police recorded crime which oftentimes fails to account for unreported instances of crime (Truman & Planty, 2012). In fact, estimates suggest a clear discrepancy between the number of sexual offences recorded by the police and the noticeably higher rates of victimisation captured by the Crime Survey for England and Wales, with fewer than one in six female victims reporting their sexual assault to the police (Office for National Statistics, 2021). Self-report surveys on the other hand offer greater anonymity to victims and perpetrators which may allow researchers to capture sexual offences which have not been reported to the police. However, the ongoing social discourse surrounding sexual violence, following the #MeToo and similar movements, may have given rise to greater hesitations amongst individuals to report sexually problematic thoughts and behaviours. Respondents may be wary of disclosing such acts due to fear of judgment or the potential repercussions despite the assurance of anonymity (Shealy, 2015). As a result, this brings into question the accuracy of such measures in identifying the true extent of sexual violence perpetration given the possibility for socially desirable responding (Kolivas & Gross, 2007).

Nagayama Hall and Hirschman (1994) were among the first to develop a laboratory analogue of sexual aggression which allowed for the direct observation of sexually aggressive behaviour, and in doing so, overcame some of the limitations associated with more self-report-based measurement methods. Nagayama Hall and colleagues' (1994) original paradigm involved subjecting a female confederate to an unwanted sexual experience via a sexual imposition task (see also Nagayama Hall, Hirschman, & Oliver, 1994; Nagayama Hall et al., 2006). Participants taking part were under the assumption that they were engaging in a media rating task and were instructed to view three short clips. These included a neutral clip

depicting a conversation between a man and a woman, a sexually violent clip depicting a man raping a woman, and a violent clip with sexual content depicting a man hitting a naked woman. Participants were then asked to choose and show one of the three clips to the female confederate who had previously indicated her discomfort with watching sexually explicit content. The decision to show the clip with sexually explicit content to a female confederate who previously indicated their discomfort watching such content is analogous with subjecting said confederate to an unwanted sexual experience. Within this original paradigm, sexual aggression was operationalised as the selection of the sexual-violent clip in which the man was raping the woman.

The sexual aggression analogue task has since been replicated and modified to examine how the presence of peers may influence participant's decision to show the sex clip (Mitchell et al., 2002; Parrott, et al., 2012), it has been used within experimental paradigms examining the role of alcohol on sexual aggression (for a comprehensive review see Abbey & Helmers, 2020; Abbey & Wegner, 2015), and it has been used within bystander intervention research in examining potential sexual aggression prevention strategies (Parrott et al., 2012). This task has also been conceptualised within an online domain and modified to include a more continuous outcome measure focusing on the number of seconds participants choose to show of the sex clip (Bosson et al., 2015). Other variations have focused on eliciting greater experimental realism by varying the level of interaction participants have with the confederate prior to choosing which clip (or how long of that clip) to show (Bosson et al., 2015; Nagayama Hall et al., 1994; Nagayama Hall et al., 2006), and the content of the materials that participants can choose to show confederates from sexist jokes to pornographic material (Diel et al., 2012; Maass et al., 2003).

Despite the growing interest the sexual aggression analogue task has received, research validating its use as a suitable proxy measure for sexual aggression proclivity has yet

to match this level of interest (Abbey & Wegner, 2015; Davis et al., 2014). Franz and colleagues (2018) and Parrott and colleagues (2012) provided two notable studies to date which provide consistent support for the validity of this paradigm as an analogue for sexual aggression. Findings from both studies provided support for the construct validity of this paradigm and were in line with prior theory which maintains that men who endorse greater hostile and adverse sexist beliefs towards women would be more likely to sexually aggress (Abbey & McAuslan, 2004). Findings indicated that attitudinal risk factors such as holding misogynistic attitudes towards women which are typically associated with sexually aggressive behaviours were also predictive of male participant's decision to subject female confederates to the unwanted explicit sexual content (see also Bosson et al., 2015; Nagayama Hall et al., 2006). Specifically, Franz and colleagues (2018) found that greater hostility and sexism towards women, higher levels of sexual objectification, and a more unrestricted sociosexual orientation significantly predicted the selection of the sexually explicit clip. On the other hand, findings by Parrott and colleagues (2012) provided further convergent validity by demonstrating that bystander efficacy negatively predicted sexual aggression. In fact, men scoring higher on measures of bystander efficacy were more likely to intervene and prevent their male peers from acting on intentions to sexually aggress.

Research has also assessed the criterion related validity of this task and found that male participants who reported engaging in some form of sexually aggressive act during the past 12 months were almost twice as likely to have shown the sexually explicit clip compared to those who reported no perpetration history (Parrott et al., 2012). Bosson and colleagues (2015) further found that perpetration history not only predicted the selection of the sexually explicit clip, but also predicted male participants deciding to subject the female confederate to such material for a longer period of time. This finding was consistent across multiple studies (Bosson et al., 2015; Nagayama Hall et al., 1994; Nagayama Hall et al., 2006) and

supported existing evidence that past sexual aggression perpetration is a prominent risk factor in predicting future sexually violent offences (Malamuth et al., 1995). Collectively, this evidence provides support for the construct validity of this task given that male participants who were theoretically expected to respond in a sexually aggressive way, were shown to do so. For instance, male participants who endorsed sexually aggressive attitudes and who reported having sexually aggressed in the past were also more likely to show the sexually explicit clip to female confederates thereby exposing them to an unwanted sexual experience (Franz et al., 2018).

It is worth noting however that research validating the sexual aggression analogue task as a suitable proxy for sexual aggression proclivity is still in its infancy and most of the evidence is limited to a handful of studies (Bosson et al., 2015; Franz et al., 2018; Nagayama Hall et al., 2006; Parrott et al., 2012). Validity concerns, specifically the limited external validity of this task remains one of the main criticisms associated with this line of research (Anderson & Bushman, 1997). Critics argue that the behaviours captured in the laboratory analogue task are not representative of real-world sexual aggression and the paradigm is artificial and lacks mundane realism (Davis et al., 2014). According to Davis and colleagues (2014) the act of showing a confederate sexually explicit content despite being aware of the confederate's dislike of viewing sexual content does not map completely onto people's expectations of sexual aggression. Davis and colleagues (2014) further argue that there is no clear intention of harm behind the act of showing the confederate the sexually explicit clip; it can be argued that participants may simply want to provoke a reaction from confederates or want to verify their discomfort by showing them the sex clip.

Such criticism is noteworthy and raises an important point regarding the validity of laboratory analogue tasks which attempts to replicate real life instances of sexual aggression. It is challenging to examine and replicate certain acts of sexual aggression ethically and

safely in a laboratory setting. Tasks must do this in a way which allows for the direct observation of such behaviours without exposing confederates to a risk of victimisation (Abbey and Wegner, 2015; Nayagama Hall et al., 1994). Some researchers have argued that these ethical barriers cannot be overcome, and that sexual aggression simply cannot be measured in laboratory settings (Testa, 2002). However, it is important to note in response to such criticism that this paradigm focuses on a broader definition of sexual aggression which at its core encompasses exposing individuals to an unwanted sexual experience. Therefore, this paradigm incorporates a wider scope of sexual aggressive acts beyond contact offences such as rape. Whilst showing a sexually explicit movie clip may not seem as severe as a contact sexual offence, it arguably constitutes the same form of sexual aggression as in cases of indecent sexual exposure and sending unsolicited pictures of one's genitals to individuals who do not wish to receive it. Both of which include exposure of sexual content to nonconsenting parties (Hayes & Dragiewicz, 2018).

Research has also provided evidence against the latter point made regarding there being no clear intention of harm behind the act of showing the confederate the sexually explicit clip. Franz and colleagues (2018) found that participants who showed the sex clip perceived the confederate to be more distressed at being shown the sex clip compared to those who showed the neutral clip. This was the case despite participants being shown confederate's neutral expression when reacting to the clip choice being shown. This finding was consistent in multiple studies including Bosson and colleagues (2015) research who found that participants who showed the sexually explicit clip were more likely to rate the confederate as being upset, uncomfortable, and having disliked the clip despite having no interaction with the confederate. Moreover, it is important to acknowledge that even if there was a lack of intent to harm, this alone does not determine whether or not an act is sexually

aggressive, but the act itself and the impact it has on the victim (see Hall & Hirschman, 1994).

In the present study, the validity of the sexual aggression analogue task is examined given that this line of research is still in its infancy and would benefit from additional validation studies to further existing findings. The overall aim of the present study being that by further validating this paradigm, future research can use this behavioural proxy to extend upon existing correlational findings derived from self-report studies. Moreover, it will allow researchers to experimentally test the causal mechanisms that precipitate a propensity towards sexual aggression using a more robust behavioural outcome measure. To validate this task within the present study attitudinal risk factors known to correlate with sexually aggressive behaviour were examined to see if these constructs would be associated with how long participants decided to show of the sex clip. A history of sexually aggressive behaviour was also examined to see if this would also be associated with how long participants decided to show of the sex clip. Finally, scores on the sexual aggression analogue task were compared to scores on a related analogue task of sexual violence, the date rape analogue task (Marx & Gross, 1995).

A further aim of the present study was to improve the experimental realism of the paradigm and increase the measurement rigour of this analogue as measurement tool for sexual aggression proclivity. The present study aimed to do so by conceptually replicating Franz and colleagues (2018) validation study, whilst taking influence from Bosson and colleague's (2015) conceptualisation of the outcome measure. Bosson and colleagues' (2015) adapted this analogue task to allow for use within an online domain. They also created a continuous outcome measure which provides a potentially more sensitive measurement index than in previous variations of the paradigm. Within the present study a few additional modifications were made to this version of the task. Firstly, in Bosson and colleagues' (2015)

study participants were asked to select either the sexual or the nonsexual clip to show to the confederate. Following this, participants were then instructed that they could show 120 seconds worth of content from either of the clips and that they could decide whether they wanted to show all of one clip or whether to divide the time across clips. Within the present study however, participants were asked to independently rate how many seconds of each clip they would choose to show the confederate. This was to avoid socially desirable responding and relative comparisons being made whereby participants may understate how many seconds of the sex clip they would show relative to the neutral clip.

Another modification was that participants were asked to view three movie clips: one clip depicting scenes with sexual content, one clip depicting an action scene, and another clip depicting a dramatic scene. This was to increase the guise that participants were taking part in a film rating task and so that the underlying hypotheses of the study were not as apparent by just presenting participants with a sexual vs. non-sexual clip. All movie clips were pilot tested and randomly presented from a wider pool of clips. This was to ensure robustness amongst the clips shown. In terms of confederate interaction, unlike Bosson and colleagues' (2015) version of the task, confederate preferences clips were included in which the participant viewed the female confederate discussing her movie preferences before selecting how much of that clip to show. This was done in an attempt to increase experimental realism and belief in the confederate who was believed to be taking part in a related online study.

The present study used correlational analysis to examine the criterion and construct validity of the sexual aggression analogue task. Firstly, the criterion-related validity of this task was examined by assessing whether scores on the sexual aggression analogue task were associated with a history of sexual aggression perpetration. This was to extend findings and determine whether prior sexual aggression perpetration history would be associated with male participants choosing to show female confederates more of the sex clip, thereby

subjecting them to a greater amount of unwanted sexual content. The convergent validity was assessed by examining whether attitudinal risk factors known to precipitate a risk for sexual aggression were associated with showing more of the sex clip in the sexual aggression analogue task. Likewise, the discriminant validity of this task was also assessed by examining whether factors that were not expected to be associated with sexual aggression had no relationship with the sexual aggression analogue task. Lastly, to further examine the criterion-related validity of the sexual aggression analogue task, I examined whether scores on the sexual aggression analogue task was comparable to scores on a related sexual violence measure, the date rape analogue task. Overall, the following hypotheses were made:

H1: I hypothesised that participants scoring higher on attitudinal constructs of interest (sexual exploitation, hostile sexism, hostility towards women, & impersonal sex orientation) would be associated with participants choosing to show the sex clip for longer as evidence of convergent validity.

H2: Conversely, I expected that scores on the perceived stress scale would not be associated with how long participants decided to show of the sex clip as evidence of discriminant validity.

H3: I hypothesised that individuals with a history of sexual aggression perpetration would be more likely to show more of the sex clip compared to those with no history of sexual aggression perpetration as evidence of criterion validity.

H4: I hypothesised that scores on both behavioural analogues would be comparable. Specifically, I expected that longer response latencies on the date rape analogue task would be positively associated with participants choosing to show more of the sex clip as evidence of criterion validity.

4.3. Study 3

Method

4.3.1. Participants

Previous studies (Franz et al., 2018; Parrott et al., 2012) indicate that the effect sizes between video choice (choosing to show the sexually explicit video) and constructs relating to sexual aggression ranged from $r = .19$ to $r = .41$ for hostile sexism, $r = .43$ for hostility towards women, and $r = .26$ for sexual coercion, respectively. Thus, as a conservative estimate I expected to detect medium effect sizes (based on guidelines from Cohen, 1988) within the present study. A priori power analysis using G*Power software (Faul et al., 2007) indicated that for correlation analyses, a sample size of 82 would be sufficient to detect medium effects with 80% statistical power ($\alpha = .05$).

Participants were recruited through convenience sampling via Prolific and were provided with standardised payments (£1.50) in exchange for approximately 15 minutes participation. The inclusion criteria for this study required participants to be over 18 years of age and to identify as a heterosexual or bisexual male. Participants also had to have a good comprehension of written English to be eligible. Overall, 86 participants with ages ranging from 19-75 years ($M = 42.23$, $SD = 14.48$) were included in the final analyses, of which 96.5% reported an exclusive sexual attraction to women and 3.6% reported being attracted to both men and women.

4.3.2. Measures¹³

Demographics. General demographic information was obtained including gender, age, and ethnicity. A single item asked participants to indicate who they were most sexually attracted to on a 7-point Likert scale (1 = *Females-only*, 7 = *Males-only*) in order to assess

¹³ As outlined in chapter two, levels of internal consistency for the measures included in this study were determined using guidelines provided by George and Mallery (2003).

sexual attraction. This item was modified from the Kinsey scale for sexual orientation (Kinsey et al., 1948).

Perceived stress. The Perceived Stress scale (PSS; Cohen et al., 1983) is a 14-item self-report measure, typically used to examine the extent to which individuals perceive daily events and experiences as being out of their control, unpredictable, and difficult to manage. Participants were asked to indicate how often (in the past month) they ‘felt that you were on top of things’ or had ‘been able to control the way you spend your time’. Participant responses were recorded on a 5-point Likert scale (0 = *Never*, 4 = *Very Often*). Scoring for this scale involved reverse coding seven items (4, 5, 6, 7, 9, 10, & 13) before summing all items to create an overall total sum score. Higher total scores indicated greater perceived stress compared to lower scores. In previous research this scale has been shown to have good internal reliability and adequate concurrent validity in relation to other measures of stress e.g., the Daily Stress Inventory (Cohen et al., 1983; Machulda et al., 1998). Within the present research, this measure also demonstrated good levels of internal consistency ($\alpha = .88$).

Hostility towards women. The Hostility Towards Women scale (HTW; Lonsway & Fitzgerald, 1995) is a 10-item self-report measure used to assess the extent to which participants held hostile or antagonistic attitudes towards women. Participants were asked to rate the extent to which they agreed with certain statements (e.g., ‘I am easily angered by women’) on a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*). Items two and three required reverse coding. Following this, scoring was additive, whereby a higher overall total score indicated that individuals showed greater hostility towards women. Previous research has shown that this measure has acceptable levels of reliability (Long et al., 2012) and has shown to be associated with conceptually related attitudinal variables such as rape myth acceptance and attitudes endorsing interpersonal violence (Lonsway & Fitzgerald, 1995). In the present study this measure had excellent levels of internal consistency ($\alpha = .91$).

Hostile sexism. A modified version of the Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996) consisting only of the hostile sexism subscale was used to capture sexist attitudes towards women. The 11-item subscale assessed negative sexist beliefs held towards women. Participants were asked to rate the extent to which they agreed with statements (e.g., ‘women exaggerate problems they have at work’) on a 6-point Likert scale (0 = *Strongly disagree*, 5 = *Strongly agree*). Scoring for this measure required reverse coding of two items, following which an overall item mean was computed. Greater overall scores suggested that participants held greater hostile sexist attitudes towards women. This scale has previously shown to have acceptable levels of internal consistency and convergent validity with measures related to prejudice against women (Glick & Fiske, 2001). In the present study, this measure yielded good levels of internal consistency ($\alpha = .82$).

Sexual exploitation. A modified version of the Sexual Narcissism Scale (SNS; Widman & McNulty, 2010) which consisted only of the 5-item sexual exploitation subscale was used. The sexual exploitation subscale specifically assesses attitudes towards using various means of manipulation to obtain sex, and how willing participants are to sexually exploit others. Findings by Widman and McNulty (2014) indicated that the sexual exploitation subscale demonstrated the highest effect sizes (between .16 to .39)—compared to the other subscales—in relation to measures of sexual aggression perpetration including the sexual experiences survey (Abbey et al., 2005) and the future likelihood of sexual aggression scale (Malamuth, 1981). Therefore, for brevity participants only completed this subscale. Participants were asked to rate the extent to which they agreed with statements (e.g., ‘When I want to have sex, I will do whatever it takes’) on a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Items were averaged to create an overall subscale score whereby higher scores indicated greater levels of sexual exploitation. According to Widman and McNulty (2010) both individual subscales and the overall SNS scale have

shown adequate levels of internal consistency and robust psychometric properties in prior research. In the current study, this measure demonstrated acceptable levels of internal consistency ($\alpha = .79$).

Impersonal sex orientation. The revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf, 2008) is a 9-item self-report measure that assesses individual's propensity towards casual sexual behaviour and promiscuity. The SOI-R comprises of three facets; a behavioural facet (items 1-3) which assesses the frequency of past sexual encounters (e.g., 'with how many different partners have you had sex within the past 12 months?'), an attitudinal facet (items 4-6) which assesses endorsement of promiscuous sexual attitudes (e.g., 'sex without love is ok'), and a desire facet (items 7-9) which assesses the frequency with which individuals fantasise about casual sexual encounters outside of a committed romantic relationship (e.g., 'how often do you fantasise about having sex with someone you are *not* in a committed romantic relationship with'). Items were coded on three separate 9-point Likert scales as follows: items 1-3 (1 = 0, 9 = 20 or more), items 4-6 (1 = *Strongly disagree*, 9 = *Strongly agree*), and items 7-8 (1 = *Never*, 9 = *At least once a day*). Only item six required reverse coding; following this, items were summed to compute a total sociosexual orientation score, whereby higher scores indicated a greater propensity towards impersonal sex and promiscuity. Previous research has shown this scale to have good convergent and predictive validity as well as high levels of test-retest reliability (Nascimento et al., 2018; Neto, 2015). Within the present study this measure demonstrated good levels of internal consistency ($\alpha = .82$).

Sexual aggression perpetration. A modified version of the Sexual Experiences Survey Short Form Perpetration- Male version (SES-SFP; Koss et al., 2007) consisting of seven items was used. This self-report measure assesses the frequency of male sexual aggression perpetration (including unwanted sexual contact and rape) against women.

Participants were presented with 7-items depicting non-consensual sexual contact (e.g., ‘have you ever...had oral sex with someone or had someone perform oral sex on you without their consent by...’) and were asked to indicate the number of times (ranging from 0 = *never* to 3 = *three or more times*) they used any of five different tactics relating to verbal coercion, incapacitation, threatened or actual physical force in relation to each item. As per guidelines in Davis and colleagues (2014) responses were coded according to the separated outcomes and tactics severity ranking scheme and the sum of frequency of ranks scoring method was used to compute participant’s overall scores. Higher scores indicated a greater severity of sexual aggression perpetration whereas scores of 0 indicated no history of perpetration. This scale has shown strong psychometric properties and the scoring method used has also shown convergent validity with both personality and attitudinal constructs relating to sexual assault and relationship violence (Davis et al., 2014).

Date Rape analogue task. A modified version of the Date Rape Analogue Task (Marx & Gross, 1995) was used as a response latency measure of sexual aggression. This task consists of a 270 second audio recording of a social interaction between a man and a woman following a date. The interaction begins with a friendly conversation and mutually consenting kissing which escalates to the use of verbal coercion, physical force, and ultimately rape following the woman’s refusal of the man’s requests for sex. In the original version of the task (Bernat et al., 1999; Marx and Gross, 1995), participants are instructed to listen to the interaction and press the space bar key to indicate when they think the man should refrain from making sexual advances towards the woman. In the present study however, the wording of the instructions was modified to include a similar conditional logic to that in Benbouriche’s (2018) adaptation of the task. This modification was made to avoid unintentionally indicating to participants that there would come a point in the interaction where the man should stop making sexual advances and left this to the judgment of the

individual participant. In the original version of the task, participants were also informed that the audio recording will continue playing until the end regardless of when they press the space bar to indicate their response. This is to avoid invalidating results and preventing participants not responding due to curiosity of how the interaction will end. In the present study however, participants were given the option of whether or not to continue listening to the audio once they had indicated their response. This was to prevent exposing participants to a sexual assault interaction after they indicated that the man should stop making sexual advances.

For this task, participants were instructed to listen to the audio interaction and were given the following instructions, 'press the space bar on your keyboard if and only if you feel that the interaction has reached a point where the man should stop making any further sexual advances'. An embedded timer (which was activated in synch with the start of the audio recording) recorded response latency in milliseconds. Response latency was operationalised as the time lapse from the start of the recording to when the participant indicated their response by pressing the space bar. If participants did not press the space bar at any point during the interaction their response time was coded as the total duration of the audio clip (270s). The entire task was administered via Qualtrics; participants were only allowed to complete the study on a laptop or desktop device. Findings by Bernat and colleagues (1999) indicated that this measure had strong test-retest reliability and participants' response latency was associated with past sexual coercion which provided evidence in support of the tasks construct validity.

Sexual aggression analogue task. A modified version of the Nagayama Hall and Hirschman (1994) sexual imposition analogue task was used to assess sexual aggression. In Hall and Hirschman's original paradigm, participants are led to believe that they are participating in a media rating task with another female participant who, unbeknownst to

participants, is a confederate following a script. Within the guise of the media rating task, participants were told about the female confederate's movie preferences; specifically, the confederate's dislike for viewing sexual content in movies. Participants then view and select one of three short clips to show the female participant, one of which contains depictions of sexual violence such as rape. The other two clips contain depictions of violence with some sexual content such as nudity and depictions of a neutral conversation. In the original version of the paradigm, participants are also informed that they will be able to view the confederate's reaction to the movie clips they selected for her to watch. Subjecting a female participant to an unwanted sexual experience has been shown to be a good behavioural proxy for sexual aggression (Nagayama Hall, et al., 2006; Nagayama Hall & Hirschman, 1994). Thus, Nagayama Hall and Hirschman (1994) operationalised sexual aggression as the selection of the sexually explicit clip over the non-sexually explicit clips.

Within the present study, a modified version of the outcome measure taking influence from Bosson and colleague's (2015) variation of the task was used. Bosson and colleague's (2015) used a more continuous outcome measure compared to the original version of the task. Moreover, to improve the robustness and the representativeness of both the confederate and movie clips used, both the confederates and movie clips portrayed individuals and actors from range of ethnic minority backgrounds. The aim being that this would allow for further generalisation of the validity of the present findings beyond the scope of previous validation studies, which used predominately white female confederates and clips portraying white leads.

These modifications included increasing the pool of confederate clips and movie clips shown to participants and subjecting these clips to pilot testing (see supplementary materials in Appendix A for further details of pilot testing). A total of seven confederate clips were used in which different female confederates recorded themselves discussing their movie

preferences. All confederates follow an identical script and recorded themselves in their own rooms in an attempt to increase experimental realism. All participants viewed one of the seven confederate clips which were all similar in length (approximately 1-minute and 30 seconds) and were randomly selected and shown an equal number of times throughout the study. Pilot testing¹⁴ indicated that perceptions of preference for movies with sexual content did not significantly differ based on which confederate clip participants viewed. Thus, all confederates were seen to be comparable in relation to their dislike of movies with sexual content.

A second modification made to the original paradigm was that participants were shown three different clips taken from recent movies (at the time the study was conducted) which either fell into the drama, action, or sexual content categories. This was to add to the believability of the ‘media rating task’ and to prevent participants from realising the aims of the study. Overall, 12 movie clips were compiled and organised into the following three categories: clips depicting scenes with sexual content (4 clips), clips depicting an action scene with no sexual content (4), and clips depicting a dramatic scene with no sexual content (4). All movie clips starred a female lead and were selected to ensure a diverse representation of different ethnicities. Action and drama categories were chosen as the confederates did not mention having a strong like or dislike for either of these categories in the confederate clips. The only category confederates rated as strongly disliking was movies depicting sexual content.

The movie clips were all edited to be similar in length (approximately 90s each) and were randomly selected and shown an equal number of times throughout the study¹⁵.

¹⁴ See supplementary materials in Appendix A for further details of pilot testing.

¹⁵ Clips depicting scenes with sexual content were taken from the following movies: *The Wolf of Wall Street* (Scorsese, 2013, 1:44:00), *300 Rise of an Empire* (Murro, 2014, 0:49:10), *Gone Girl* (Fincher, 2013, 2:03:19), *Truth or Dare* (Wadlow, 2018). Clips depicting an action scene were taken from the following movies: *Tomb Raider* (Uthaug, 2018, 1:07:40), *Crouching Tiger, Hidden Dragon* (Lee, 2001, 0:29:59), *Proud Mary* (Najafi,

Participants were then asked to indicate how much of each of the three clips they wanted to show the female confederate. Movie clips were shown sequentially, and participants indicated how many seconds of each clip they chose to show using a slider on a scale from 0s (none of the clip) to 90s (the full duration of the clip). Both the confederate preferences clips and the movie clips were uploaded to Qualtrics via Vimeo and Youtube and embedded within the survey. The entire task was administered via Qualtrics Software. Similarly to Bosson and colleague's (2015), greater sexual aggression in the present study was operationalised as participants choosing to show the sex clip for a greater number of seconds.

4.3.3. Design

This within-subjects study examined whether Nagayama Hall and Hirschman's (1994) laboratory analogue task of sexual aggression was a suitable behavioural proxy measure for sexual aggression. To do so, the tasks criterion-related validity was examined using bivariate correlations which examined the association between participant responses on the sexual aggression analogue (the amount of sex clip shown) and a history of sexual aggression perpetration. The associations between participant responses on the sexual aggression analogue and known attitudinal predictors of sexual aggression (e.g., hostile sexism) were also examined to assess the tasks convergent validity. The associations between participant responses on the sexual aggression analogue and constructs with no known association to sexual aggression (perceived stress) were also examined to assess the tasks discriminant validity. Lastly, to further assess the sexual aggression analogue tasks criterion-related validity, participant scores on this task was compared to a similar existing response latency measure of sexual aggression, the date rape analogue task.

2018), *Atomic Blonde* (Leitch, 2017). Clips depicting a dramatic movie scene were taken from the following movies: *Hidden Figures* (Melfi, 2017), *Fences* (Washington, 2016, 0:58:20), *Erin Brockovich* (Soderbergh, 2000, 0:49:03), *The Great Debaters* (Washington, 2007).

4.3.4. Procedure

The present study received ethical approval from the School of Psychology Ethics Committee, University of Kent (Ethics ID: 202015849630966360). Participants were recruited via Prolific and received standardised monetary inducements in exchange for their participation. All tasks, survey material, and instructions were received and completed online through Qualtrics survey software. Prior to completing the study, participants went through an initial screener validation stage to ensure that they met the inclusion criteria for the study. Participants not meeting the inclusion criteria were asked to discontinue by returning their submission on Prolific. Those who were eligible went on to receive the information and consent forms outlining the nature of the materials used and what their participation entailed. Participants then provided general demographic information. No potentially identifiable information was collected, only participant's anonymised Prolific identification numbers were stored for data withdrawal purposes.

Participants were first presented with the laboratory analogue task of sexual aggression in which they were led to believe that they would be taking part in a media rating task. Under the guise of the media rating task, participants were first asked to complete a sound test which involved watching a 30 second movie trailer clip and answering a comprehension question relating to this initial clip to ensure that they could hear the audio before proceeding. Participants then completed a brief filler task in which they were asked to rate their own movie preferences. This was unrelated to the outcome measure and was included to increase believability in the media rating task. Before proceeding onto the main task, participants had to answer a comprehension check question to ensure that they understood the task clearly. Participants were then instructed that they would be watching a video clip of another female participant taking part in a related study discuss their movie preferences. Unbeknownst to the participant, this was a scripted and pre-recorded confederate

clip. Participants could not advance onto the next part of the study until they had watched the full duration of the confederate preference clip.

Following this, participants viewed three short movie clips and indicated how much of each of the clips they would like to show to the female confederate based on their previously stated preferences. The three movie clips were randomly drawn from a larger pool of clips and presented simultaneously one after another. The order of movie clip administration was counterbalanced. Participants could not advance onto the next part of the study until they had watched the full duration of all three movie clips. Upon indicating how much of each movie clip participants wanted to show the confederate, participants were presented with a slider rating scale in seconds that displayed a still image of each movie clip. The slider rating scales were presented sequentially to ensure that decisions regarding each clip were made independently of the other clips. Participants were also led to believe that they would later be sent the confederate's reaction (via the Prolific messaging system) to viewing the movie clips for the chosen amount of time.

One week later, participants were followed up and asked to complete the second part of the study which involved completing the date rape analogue task and a battery of self-report measures. This was to ensure that participants did not become aware of the study aims and to prevent socially desirable responding. As part of the date rape analogue task, participants listened to an audio interaction between a man and a woman coming back from a date. Participants were instructed to press the space bar if they felt that the interaction reached a point where the man should stop making further sexual advances. Using Qualtrics JavaScript, an embedded timer was activated synchronously with the start of the audio recording to record participant response latency. Once participants indicated their response by pressing the space bar, a pop-up message instructed them that they could either stop listening to the audio recording and proceed to the next part of the study (by pressing the Esc key) or

they could continue listening until the end of the interaction. Participants were then presented with the self-report measures in a randomised order, excluding the sexual experiences survey which was presented last (following guidelines outlined in Krosnick, 2018) due to the more explicit and sensitive nature of the items. Upon completion of the survey participants were fully debriefed about the aims of the study and the deception involved. Participants were also told that they would not receive a video of the confederate's reaction as mentioned in the first part of the study. Instructions for data withdrawal were also outlined in the debrief and service helplines were signposted should participants be affected by any of the issues raised in the study.

4.4. Results

4.4.1. Main Analyses

To establish criterion and construct validity of the sexual aggression analogue task, bivariate correlations were used to examine the associations between the amount of the sex clip shown and a) self-reported past sexual aggression perpetration, and b) key attitudinal indicators which have been shown to predict sexual aggression. Moreover, to further establish criterion-related validity of the sexual aggression analogue task, the association between the amount of sex clip shown and latency scores on a related existing behavioural measure of sexual aggression (the date rape analogue task) was examined.

An analysis of the distribution of the responses on the sex clip indicated that there was a skewed distribution with the majority of responses falling on the low end of the scale (skewness = 1.53). Consequently, correlations are reported using Spearman's rank correlation coefficient to adjust for the skewed distribution of scores. Table 14 presents a correlation matrix of all the measures considered in this study. Only relationships between the sexual aggression analogue task and the indicators of validity will be discussed. Correlations

between the indicators of validity themselves will not be discussed as these do not pertain directly to the hypotheses of interest. As can be seen from Table 14, the associations between the amount of sex clip shown and attitudinal risk variables were largely non-significant. There was no significant association between the amount of the sex clip shown and a history of sexual aggression perpetration, $r(86) = .06, p = .607$. Contrary to what was expected in my third hypothesis (H3), there was also no significant association between the amount of sex clip shown and latency scores on the date rape analogue task, $r(86) = -.12, p = .254$. This finding also goes against what was hypothesised (H4). It is worth noting that the distribution of responses on the date rape analogue task also demonstrated a skewed distribution with the majority of participants stopping the interaction within a short amount of time (skewness = 2.01).

There were however two findings of interest. Firstly, findings revealed a significant positive correlation between the amount of the sex clip shown and the sexual exploitation subscale of the sexual narcissism scale, $r(86) = .29, p = .007$. The sexual exploitation subscale was also significantly correlated with past sexual aggression perpetration, $r(86) = .28, p = .009$. This provides some yet limited support for the initial hypothesis (H1) and the sexual aggression analogue tasks convergent validity. The second interesting finding was that as expected in the second hypothesis (H2) there was no correlation between the perceived stress scale and participant scores on the sexual aggression analogue task. This provided evidence in support of the sexual aggression analogue tasks discriminant validity.

Table 14

Bivariate Correlation Matrix between the Sexual Aggression Analogue task, Hostility towards Women, Hostile Sexism, Sexual Exploitation (SNS), an Impersonal Sex Orientation, Sexual Aggression Perpetration History, and the Date Rape Analogue task (Study 3)

	1	2	3	4	5	6	7	8
1. Date Rape Analogue Task	-							
2. Sexual Aggression Analogue Task	-.124	-						
3. Sexual Aggression Perpetration History	-.066	.056	-					

4. Perceived								
stress scale	.112	-.123	-.156	-				
5. Impersonal								
sex orientation	.265*	.018	.167	.052	-			
6. Sexual								
exploitation (SNS)	.107	.288*	.282*	.236*	.218*	-		
7. Hostile								
sexism	.020	.152	.125	.155	.023	.482**	-	
8. Hostility								
towards women	-.099	.097	.096	.344*	-.002	.468**	.753**	-

Note. $n = 86$, * $p < .05$, ** $p < .001$.

4.5. Discussion

The purpose of this research was to better understand whether the sexual aggression analogue task (Nagayama Hall & Hirschman, 1994) was a suitable behavioural proxy for sexual aggression proclivity. Determining the validity of this paradigm is crucial in overcoming the reliance on self-report measurement methods of sexual aggression and may allow for future research to make greater use of validated behavioural outcome measures within their research. A secondary aim of the current study was to extend limited research on the validity of this paradigm, with the aim of conceptually replicating existing findings which have shown this measure to be a good behavioural proxy for sexual aggression (Bosson et al., 2015; Franz et al., 2018; Nagayama Hall et al., 2006; Parrott et al., 2012). To do this, this study used correlation analyses to establish the criterion and construct validity of a sexual aggression analogue task. To examine the convergent validity of this analogue task I hypothesised that there would be a significant positive relationship between scores on the sexual aggression analogue task (participants choosing to show confederates more of the sex clip) and the attitudinal indicators of sexual aggression considered. Similarly, to examine the discriminant validity of this analogue task, I hypothesised that there would be no relationship between scores on the sexual aggression analogue task and the perceived stress scale (a construct not known to be associated with sexual aggression).

To establish criterion-related validity of this task I expected that scores on the sexual aggression analogue task would be positively associated with a history of sexual aggression perpetration. As a further method of assessing the criterion-related validity of the sexual aggression analogue task, this task was compared to an existing analogue task capturing sexual aggression, the date rape analogue task. With regards to this, I expected that longer response latencies in the date rape analogue task would be associated with participants choosing to show more of the sex clip in the sexual aggression analogue task.

Initial findings indicated that sexual aggression analogue task was not significantly associated with most of the attitudinal indicators included in the present study. The only measure which was significantly associated with the sexual aggression analogue task was the sexual exploitation subscale of the sexual narcissism scale (SNS; Widman & McNulty, 2010). This provides some—albeit limited—support for the convergent validity of the sexual aggression analogue task. This also suggests that the individuals who are more likely to sexually exploit women are also more likely to impose an unwanted sexual experience on unwilling participants. This notion fits in line with research which recognises that exposing others to unsolicited sexual content—be that sharing unwanted pictures of one's genitals or exposing an unwilling confederate to sexual content—is a form of sexual exploitation (Brady, 2017).

This is not surprising given that in their validation of the sexual narcissism scale, Widman and McNulty (2010) found that sexual exploitation was one of the most strongly correlated subscales with various aspects of sexual aggression. Additionally, there is strong empirical and theoretical support in the wider literature which suggests a relationship between sexual narcissism, which is characterised by high levels of sexual exploitation (Watson et al., 1984), and sexual aggression (Baumeister et al., 2002; Malamuth, 2003). Therefore, it follows that individuals who were more likely to exploit women sexually were also more likely to impose an unwanted sexual experience on unwilling participants. Findings also revealed that the correlation between the perceived stress scale and the sexual aggression analogue task was non-significant. This provided evidence in support of the task's discriminant validity which provides evidence in support of my second hypothesis (H2).

Findings also suggested that the sexual aggression analogue task was not significantly associated with a history of sexual aggression perpetration; nor was it associated with scores on the date rape analogue task as expected. Taken together, these findings do not provide

support for my latter hypotheses (H3 & H4) and do not provide conclusive evidence regarding the criterion and construct validity of the sexual aggression analogue task. It is worth noting that the present findings are also largely inconsistent with the findings presented within previous research. Namely, findings by Franz and colleagues (2018), Bosson and colleagues (2015), and Nagayama Hall and colleagues (2006) collectively provide evidence in support of the sexual aggression analogue tasks construct validity. Findings from these previous studies indicated that participants who selected to show the sex clip were more likely to score higher on measures of promiscuity, sexual objectification, and held more hostile sexist and exploitative attitudes towards women. These findings, whilst only present in a handful of studies, are indicative of the wider theoretical literature which identifies a link between these constructs and a propensity towards sexual aggression perpetration (Gervais et al., 2014; Malamuth et al., 1996).

There could be a few reasons to explain the disparity in the findings of the current study and what has been found in previous validation studies. Firstly, it is worth noting that this study constituted a conceptual replication rather than a direct replication of previous validation studies (namely, Franz et al., 2018) of the sexual aggression analogue task. It may be that there is some specific methodological feature of previous studies that is crucial for the task to work as intended which has been unknowingly omitted from this conceptual replication. On a related note, it is worth acknowledging that previous versions of the task have utilized video clips depicting either sexually explicit content or violent clips with sexual content whereas the present study utilised clips that contained sexual content but were not sexually explicit or pornographic. A key reason for this was to increase the believability of the task, to obscure the aims of the study and minimise any social desirability confounds. However, it could be that previous versions of the task better captured more extreme behaviours and provided a more sensitive measure. Nevertheless, correlations with the

attitudinal measures of interest examined would still have been expected despite the lessened sensitivity of the task at capturing such effects. Therefore, future research should still aim to replicate these findings and establish whether a more sensitive measure is able to detect such effects within community samples.

It should also be noted that there were floor effects present within responses for the sexual aggression analogue task as well as the date rape analogue task. Similarly, only 5.8% of participants reported engaging in some form of sexual aggression perpetration within the past 12 months. This may be attributable to the use of a community sample where sexual aggression may not be overly prevalent. Notably, this also represents a key difference from Franz and colleagues' (2018) study in that they used a student-based sample. Therefore, the use of a community sample within the present study could potentially explain the lack of variability in responses to the sexual aggression analogue task and other measures aimed to capture sexual aggression, and why expected effects were not evident as in Franz and colleagues (2018) study.

The variability in participant ages within the present sample could also account for the non-significant findings. Generational differences may have meant that whereas older participants may have shown a greater amount of the sex clip, younger participants who may have a more nuanced understanding of consent may have shown less of the clip. On this note, it is worth considering the relevancy of this task in the present day as a behavioural measure of sexual aggression given the potential for participants to come to know the hypothesis surrounding this task and be more susceptible to socially desirable responding. Future research should also consider exploring these generational differences and whether this task is a useful measure to detect sexual aggression amongst older generations.

Another potential reason that could explain the disparity between the present study findings and that of existing validation studies is that although sensitivity power analysis indicated that the current study was sufficiently powered to detect medium effect sizes—which was what we expected to attain based on effect sizes in past research—there was a lack of statistical power to detect small effect sizes. Findings from prior validation studies revealed small to medium effect sizes in relation to constructs of interest and the sexual aggression analogue task (Franz et al., 2018). Therefore, it is possible that a larger sample size may have brought about greater variability in scores and allowed for the detection of smaller effects. In addition to considering how the sample size within the present study may have potentially limited the detection of smaller effects, and how the use of a community sample may have limited the variability in participant responses, future research should also explore ways in which the sexual aggression analogue task could be adapted to elicit stronger effects. This will allow for this measure to capture the expression of sexual aggression more effectively which will permit the use of this analogue task within studies which may not have the resources to collect large sample sizes.

In conclusion, despite the limitations of the present study, these findings raise some important questions regarding the robustness of previous validation study findings. These findings also bring into question the overall validity of the sexual aggression analogue task as a proxy measure for sexual aggression given that—despite using a conceptually similar methodology to prior validation studies—findings did not replicate or support previous findings. There is however interesting tentative evidence within the present findings to suggest that the sexual aggression analogue task may better represent sexual exploitation more specifically rather than generalised sexual aggression perpetration which should be further explored.

5. Chapter Five: Examining the Causal Relationships Between Adverse Childhood Experiences, Maladaptive Coping, and Risky and Problematic Sexual Behaviours

5.1. Brief chapter summary

In previous chapters I have sought to establish the cross-sectional and longitudinal relationships between adverse childhood experiences (ACEs) and risky and problematic sexual behaviours (RPSBs) and whether self-regulatory mechanisms such as maladaptive coping are possible mediators in this relationship. I also examined the momentary associations that everyday stressors have upon subsequent coping and engagement in RPSBs. Whilst the findings outlined in chapter three of the thesis demonstrated the plausibility of causality by showing that ACEs temporally preceded the use of maladaptive coping strategies such as avoidance, this still does not satisfy the criteria for drawing causal conclusions. Therefore, knowledge regarding causality amongst these constructs remains incomplete. The present study aimed to extend on these existing findings by utilising more robust experimental methods by which to examine these constructs. In doing so, I aimed to further tease apart the causal interplay between these constructs and draw more robust conclusions regarding causality.

5.2. Theoretical background

According to Chambliss and Schutt (2018) in order to establish cause and effect there are three necessary conditions that must be established. First, there needs to be evidence of covariance between the constructs of interest. Secondly, the predictor variable must temporally precede the outcome variable, and lastly, extraneous variables must be controlled for and there needs to be non-spuriousness. This means that the relationship between the

constructs of interest must not be explained away by potential third variables. Theoretically, experimental designs provide the gold standard for examining such causal hypotheses. This is because experimental research is designed in a way that satisfies these three conditions (Chambliss and Schutt, 2018; Seltman, 2012; Antonakis et al., 2010). Experiments typically have an experimental (participants are exposed to the experimental manipulation) and control group (participants are not exposed to the experimental manipulation) which allows for comparison and to establish whether there is an effect of the independent variable on the dependent variable. Variation in the independent variable (manipulation vs. no manipulation) prior to measuring its effect on the outcome variable may also allow for temporal sequencing to be established. Lastly, having random assignment of participants across conditions allows for control of any potential spurious influences given that extraneous variables will be counterbalanced across conditions (for a review see Chambliss & Schutt, 2018). To the best of the author's knowledge no study to date has attempted to experimentally examine the hypothesis that ACEs lead to greater maladaptive coping and, as a result, that maladaptive coping leads to RPSBs. Given that previous studies within this thesis did not find consistent evidence of a relationship between emotion dysregulation and RPSBs I only examined the causal associations between ACEs, maladaptive coping, and RPSBs within the studies included in this chapter.

It is well established in the existing literature that experiences of adversity in childhood including abuse and or neglect can have harmful effects in later life, including resulting in self-regulatory deficits (Grady et al., 2016; Hillis et al., 2001). One such regulatory deficit includes the use of maladaptive coping strategies as a way of coping with the stress elicited from such experiences. A review of 35 studies concluded that individuals with a history of childhood maltreatment reported higher rates of avoidance coping and scored more highly on emotion dysregulation related domains including the inability to

regulate adverse emotional states (Gruhn & Compas, 2020). Individuals with a history of adversity were also more likely to use (and depend upon) avoidance based coping strategies such as behavioural disengagement and denial (Evans & Kim, 2013). This is problematic as research has found that such a reliance can have detrimental long-term effects (Jaser et al., 2005).

The use of maladaptive coping strategies have been associated with increased RPSBs including sexual risk taking, sexual coercion, and sexual violence perpetration (Cortoni & Marshall, 2001; Ecott et al., 2020; Looman et al., 2004; Orcutt et al., 2005; Shorey et al., 2014; Whitaker et al., 2008). Research in relation to individuals who sexually offend and those who engage in sexual risk-taking related behaviours has further established that sexualised coping and substance misuse behaviours are prevalent strategies used amongst these populations as a means of coping. For instance, according to Cortoni and Marshall (2001), individuals who sexually offend are more likely (compared to other offending populations) to use sex to cope especially if they are unable to implement more appropriate strategies to cope with either extreme emotions or a lack of intimacy (see also Cortoni et al., 1996; Marshall, 1989). Choudhry and colleagues (2014) found a similar positive correlation between alcohol misuse in relation to greater sexual risk-taking related behaviours (e.g., having multiple sexual partners and having unprotected sex). Individuals who sexually offend are also at greater risk of having suffered from adversities in early childhood. In fact, meta-analytic findings by Jespersen and colleagues (2009) suggest that in comparison to a non-sexual offending population, individuals who sexually offend are statistically more likely to report having suffered from adversities such as sexual abuse in childhood. Therefore, two things are clear from the existing literature; firstly, experiencing adversity in childhood can increase the propensity to rely on maladaptive coping strategies and the inability to self-regulate using more adaptive coping strategies. Secondly, whether an individual can self-

regulate and cope with stressors may determine whether they are at increased risk of subsequent externalising problem behaviours or whether they are protected against developing such behaviours (Compas et al., 2017).

As mentioned however, research to date has predominantly examined the cross-sectional relationship between these constructs (Hager & Runtz, 2012). Research examining these specific constructs longitudinally or using more controlled experimental designs is limited. One potential reason for the lack of experimental testing in this area is due to the ethical issues associated with trying to experimentally manipulate constructs such as ACEs. However, it is important to acknowledge that whilst more conservative methods of examining causality may not always be feasible (Schrecker, 2013), this should not preclude the use of other robust methods as a means of examining causality (Karatekin, 2022). For instance, methods such as quasi-experiments remain a possibility where implementing randomised control trials are not plausible. Alternatively, whilst it may not be ethically feasible to manipulate ACEs directly, it is possible to manipulate the salience of such experiences. This allows for insight into the effect that bringing such adversities to mind has upon the use of subsequent coping strategies.

One potential method that can be used to enhance the saliency of these experiences is the autobiographical recall paradigm (Brewer et al., 1980; Strack et al., 1985). This paradigm asks participants to bring past lived experiences to mind and to try and recall these experiences in as much detail as possible. Different studies have used and adapted this paradigm to experimentally induce different emotional states (for a review see Fernández-Pérez et al., 2022) and feelings of ostracism (Godwin et al., 2014). However, typically this involves asking participants to freely recall certain experiences alongside completing a writing task to facilitate the recall of any thoughts and feelings that they had during this experience (Dunn & Schweitzer, 2005).

Research has found that this paradigm allows participants to not only recall vivid details of past experiences, but participants are also able to re-live the same emotional state they experienced at the time of the event (Rainville et al., 2006; Siedlecka et al., 2015). In fact, this paradigm has been found to be more effective in comparison to other mood induction paradigms in relation to the induction of unidimensional and basic emotions such as sadness and happiness (Mills & D'Mello, 2014). Research has also found evidence of neurophysiological activation in the autonomic and prefrontal cortex following the autobiographical recall of anger related memories using this paradigm (Marci et al., 2007). This evidence suggests that this paradigm is a particularly effective tool for mood induction research. Being able to recall such instances in detail in addition to re-living the latent affect associated with such experiences not only enhances the saliency of the experience but, hypothetically, it may also mean that the way in which participants subsequently cope with these emotions may mirror the way they originally coped. Thereby, this presents a possible avenue by which the saliency of ACEs can be experimentally manipulated and its effect on subsequent coping can be observed. Doing so may allow for more externally valid conclusions to be drawn given that the individualistic nature of the recalled experiences will make them more salient to individual participants. Ultimately, this allows for the causal association between ACEs and the use of maladaptive coping strategies to be studied more ethically.

The present studies within this chapter aimed to use a more robust experimental design to examine the causal relationship between ACEs and RPSBs and whether maladaptive coping underlies this relationship. Specifically, this chapter encompassed a series of studies which aimed to determine whether experimentally manipulating the saliency of ACEs influences the use of state coping strategies (studies 4a and 4b), and in turn, whether manipulating the use of coping strategies following a negative mood induction had some

knock-on-effect on risky and problematic sexual behaviours (study 5). The following hypotheses were made for studies 4a, 4b, and 5.

H1 (study 4a): I hypothesised that individuals in the high ACE saliency condition would be more likely to self-report greater use of maladaptive coping strategies compared to individuals in the low ACE saliency condition.

H2 (study 4b): I hypothesised that there would be an interaction effect between self-reported ACEs and the ACE saliency manipulation such that there will be a significant main effect of ACE saliency manipulation on subsequent maladaptive coping strategies used for individuals who had high compared to low levels of self-reported ACEs.

H3 (study 5): I hypothesised that participants in the avoidance coping condition would score higher on the RPSBs outcome measures compared to those in the control condition and in the social support seeking condition. Likewise, participants in the social support seeking condition would score less on the RPSBs outcome measure compared to those in the avoidance coping and control condition.

5.3. Study 4a

Method

5.3.1. Participants

A priori power analysis using GPower 3.1 software (Faul et al., 2007) was conducted to estimate the required sample size for a one-way ANOVA. Prior research has found medium effect sizes of around $\beta = .048$ between self-reported ACEs and maladaptive coping (Sheffler et al., 2020). Thus, for the present study to detect medium effect (.25) sizes at 80% power with a .05 significance level, it was determined that 128 participants in total would be required. Although 212 participants were initially recruited from an online crowdsourcing website (Prolific), only 102 participants completed the study.

The inclusion criteria for this study included participants being above the age of 18, identifying as either a heterosexual or bisexual male/trans male, living in a country where English is its primary language¹⁶, and being able to speak and understand English fluently. In relation to the inclusion criteria, five participants were excluded due to having an exclusive sexual attraction to men. Therefore, 97 participants were included in the overall analyses and were aged from 18-75 years ($M = 36.05$, $SD = 14.49$). Although this sample size was less than originally intended, sensitivity power analysis indicated that this sample size was still sufficient to achieve medium effect sizes ($f = .29$). Of the 97 participants, all excluding one (who identified as trans male) identified as male and 84.5% of participants reported an exclusive sexual attraction to women whereas the remaining participants reported an attraction to both.

Participants were compensated £1.50 (in accordance with Prolific's baseline payment rate) in exchange for their participation in this 15-minute study.

5.3.2. Measures¹⁷¹⁸

Demographic information. General demographic information was collected as part of the screening process to ensure that participants met the inclusion criteria (including age, ethnicity, & gender). Sexual attraction was also assessed using a modified version of the Kinsey scale for sexual orientation (Kinsey et al., 1948). Participants were asked to indicate

¹⁶ Countries included the United Kingdom and Ireland, United States of America, Australia, Canada, and New Zealand.

¹⁷ The sexual aggression analogue task (Nagayama Hall & Hirschman, 1994) was also included as a measure in studies 4a and 4b given that these studies were run concurrently with the validation study presented in chapter four of this thesis. However, given the finding that the sexual aggression analogue task was not a valid proxy measure of sexual aggression, this measure was not included within the main analyses.

¹⁸ As outlined in chapter two of the thesis, levels of internal consistency across all measures (and all studies in this chapter) were assessed in accordance with guidelines by George and Mallery (2003).

their sexual attraction preferences on a 7-point Likert scale (1 = *Females-only*, 7 = *Males-only*). There was also an option so that participants could also choose not to respond.

Manipulation check. To ensure that the ACE saliency manipulation worked as intended and that participants were able to recall either a ‘distressing or upsetting’ or an ‘average or everyday’ situation in their childhood, participants were asked the following yes/no dichotomous question ‘were you able to think back to a time when you experienced an [average or everyday/distressing or upsetting] situation in your childhood?’. Participants were also asked to indicate ‘how vividly you pictured this memory in your mind’ on a 5-point Likert scale (1= *Extremely unclear*, 5= *Extremely clear*) across both conditions.

Positive and negative affect. The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) was used as an additional manipulation check to examine the valence of participant’s emotions following the task. Participants were asked to indicate to what extent they felt a range of positive and negative emotions captured by 20 single-word adjectives on a 5-point Likert scale (1=*Very slightly or not at all*, 5= *Extremely*). Half of the single-word adjectives captured positive affect related emotions such as feeling interested and attentive, whereas the remaining adjectives capture negative affect related emotions such as feeling afraid and guilty. The instructions of this measure were slightly modified to fit a situational context to ensure that participants indicated to what extent they felt these feelings in the present moment. Two separate overall sum scores were computed for positive affect and negative affect by summing scores on relevant items. For each respective overall sum score, higher scores indicated higher levels of either positive or negative affect, whereas lower scores indicated lower levels of either positive or negative affect. The PANAS has shown good to excellent levels of internal consistency in previous research (Diaz-Garcia et al., 2020). The negative affect dimension has also been found to have moderate to large positive correlations with constructs related to depression and anxiety whereas the positive affect

dimension was inversely correlated with these constructs (Diaz-Garcia et al., 2020). This provides support for the convergent validity of this measure. Within the present study, there were excellent levels of internal consistency; $\alpha_{\text{positive affect}} = .91$ and $\alpha_{\text{negative affect}} = .90$.

Maladaptive coping. The Brief-COPE scale (Carver, 1997) was used to examine participants' use of coping strategies when faced with stressful situations. This 28-item measure comprises of 14 two-item subscales which capture the use of a range of coping strategies from denial to seeking emotional support. As outlined in chapter three of this thesis, for ease of analysis Baumstarck and colleagues' (2017) model was employed which categorises these 14 subscales into four higher order factors¹⁹. The four higher order factors include: social support seeking (8 items), problem solving (4), avoidance (10), and positive thinking (6). For the present study, the concurrent situational format for both the instructions and item phrasings (refer to Carver, 1997 for further detail) were adopted. Participants were asked to indicate whether they would engage in certain strategies such as 'I would say to myself this isn't real' on a 4-point Likert scale (1 = *I wouldn't do this at all*, 4 = *I would do this a lot*). As in chapter three, composite scale scores were computed whereby the two items that made up the original subscale were summed and then these 14 two-item subscales were averaged into four higher-order factors respectively. Higher scores indicated greater use of certain coping strategies whereas lower scores indicated less use of these strategies. Baumstarck and colleagues' (2017) psychometric testing demonstrated that this higher order four-factor model yielded acceptable levels of internal consistency and was satisfactory as a psychometric measure. Within the present study, levels of internal consistency ranged from questionable to good ($\alpha_{\text{avoidance}} = .71$, $\alpha_{\text{social support seeking}} = .80$, $\alpha_{\text{positive thinking}} = .68$, $\alpha_{\text{problem solving}} = .80$).

¹⁹ The same higher order factor structure identified in Baumstarck and colleagues (2017) was applied to the Brief-COPE measure across all experimental studies in this chapter to ensure consistency.

The means and standard deviations for the coping subscales are presented in Table 15 alongside the correlations between each subscale.

Table 15

Means, Standard Deviations and Correlations for the Coping Subscales (Study 4a)

Measure	Mean	SD	1.	2.	3.	4.
1. Avoidance	3.82	0.88	-			
2. Social support seeking	4.10	1.12	.22*	-		
3. Problem solving	5.70	1.34	-.31*	.39**	-	
4. Positive thinking	5.12	1.13	.00	.08	.36**	-

Note. * = $p < .05$, ** = $p < .001$.

5.3.3. Design

This study aimed to determine whether the saliency of adverse childhood experiences had some effect on participants’ subsequent use of coping strategies. A 1 x 2 (high vs. low ACE saliency) between participants experimental design was used with coping strategies as the dependent variable. Participants were randomly allocated to either the high ACE or low ACE saliency condition.

5.3.4. Procedure

Participants were recruited through an online crowdsourcing website (Prolific). Prior to taking part in this study participants completed a demographic pre-screening measure to

ensure that they met the relevant inclusion criteria. Following this, eligible participants were presented with the information sheet and consent documents. Participants who did not meet the inclusion criteria were asked to discontinue from the study and return their submission on Prolific. All survey materials were completed and delivered online through Qualtrics. The current study received full ethical approval from the School of Psychology Ethics Committee at the University of Kent (Ethics ID: 202216414041337352).

Participants were first randomly allocated to either the high ACE saliency condition or the low ACE saliency condition. Randomisation was constrained so that there were an even number of participants per condition. This saliency manipulation aimed to bring certain memories of childhood experiences to mind and make these experiences salient to the participant recalling them. The instructions across both conditions were kept as similar as possible. Participants assigned to the high ACE saliency condition were presented with instructions asking them to recall a ‘distressing or upsetting situation in your childhood prior to your 18th birthday’. Whereas participants allocated to the low ACE saliency condition were presented with instructions asking them to recall an ‘average or everyday situation in your childhood prior to your 18th birthday’.²⁰ Following this recall task, participants were asked to complete a written task by focusing on ‘any thoughts, feelings, and emotions [they] had during this time’. Participants were also asked to write a minimum of 100 characters describing this experience and could not proceed to the next part of the study until they had reached the required character count. The design of this manipulation was based in broader terms on methods employed by Marchlewska and Cichocka (2017) who used a similar autobiographical recall paradigm when manipulating the valence of recalled memories. Following this, participants across both conditions were exposed to two manipulation check

²⁰ Appendix B contains a full outline of the instructions given to participants across all conditions for studies 4a and 4b.

questions before completing the PANAS (Watson et al., 1988). Participants were then presented with the brief-COPE scale (Carver et al., 1997). Lastly, participants were thanked for their participation and presented with the debrief information sheet.

5.4. Results

5.4.1. Preliminary analyses

Preliminary analyses were conducted to examine whether the ACE saliency manipulation worked as intended. In relation to the first manipulation check question, all participants reported that they were able to think back to a time when they experienced either a distressing (high ACE saliency condition) or everyday (low ACE saliency condition) experience in their childhood. To assess whether participants could vividly picture their memory (second manipulation check question) one-sample t-tests were conducted for each ACE saliency condition that compared the item mean to the scale midpoint (3). Participants in both the low ($t(49) = 7.68, p < .001$, scale mean = 4.14) and the high ACE ($t(46) = 9.38, p < .001$, scale mean = 4.13) condition indicated that they could vividly picture this memory in their mind.

To assess whether scores on the positive and negative PANAS differed between conditions two one-way ANOVAs were conducted. For the positive PANAS score, there was a significant difference between the ACE saliency conditions, $F(1, 95) = 5.38, p = .023$. Specifically, the mean of the positive PANAS scores were higher in the low ACE saliency condition ($M = 29.30, SE = 1.25$) compared to the high ACE saliency condition ($M = 25.13, SE = 1.29$). This indicated that people in the low ACE saliency condition experienced feelings which were more positively valenced compared to those in the high ACE saliency condition, as expected. However, there was no significant difference between the mean of the

negative PANAS scores between the low ($M = 15.60, SE = 1.06$) and the high ($M = 16.98, SE = 1.10$) ACE saliency conditions, $F(1, 95) = 0.81, p = .037$.

5.4.2. Main analyses

To assess whether coping strategies differed between the high and low ACE saliency conditions four ANOVA models were estimated to assess the impact of ACE saliency on each coping strategy. As shown in Table 16, there was a significant main effect of ACE saliency on avoidance coping such that individuals in the low ACE saliency condition reported greater use of avoidance coping compared to those in the high ACE saliency condition. This finding was not in the expected direction and goes against the hypothesis (H1) that individuals who were in the high ACE saliency condition would be more likely to report greater use of maladaptive coping strategies. All other effects were non-significant.

Table 16

Group Means, Standard Errors, and ANOVA Output of the Impact of ACE Saliency on Coping Strategies (Study 4a)

Measure	Low ACE Mean (SE)	HIGH ACE Mean (SE)	ANOVA output
Avoidance	4.00 (.12)	3.64 (.13)	$F(1, 95) = 4.26, p = .042$
Social support seeking	4.05(.16)	4.14(.16)	$F(1, 95) = 0.15, p = .700$
Problem solving	5.68(.19)	5.72 (.20)	$F(1, 95) = 0.03, p = .875$

Positive thinking	5.02(.16)	5.23(.17)	$F(1, 95) = 0.87, p = .354$
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5.5. Discussion

Findings indicated that manipulating the saliency of ACEs only influenced avoidance coping. However, contrary to what was expected, this was not in the hypothesised direction. Participants in the low ACE saliency manipulation condition reported greater avoidance coping compared to individuals in the high ACE saliency manipulation condition. A potential reason for this could be that pre-existing levels of adversity within the sample were not controlled for and could have confounded findings. Despite participants being randomly assigned across conditions, it may have been the case that participants who had experienced greater adversity in childhood were overly concentrated in the low ACE saliency condition which may have resulted in the unexpected effects. This may also account for the null influence of ACE saliency on social support seeking, problem solving, and positive thinking. Consequently, a follow-up study (study 4b) was conducted whereby the extraneous influence of pre-existing adversity was controlled for to see if there was an interaction between self-reported ACEs and ACE saliency on the effect of coping strategies.

5.6. Study 4b

Given the unexpected findings of study 4a, study 4b examined whether this unexpected effect was due to not having controlled for existing levels of adversity in childhood. Study 4b therefore replicated study 4a with two main modifications; the first being the addition of a new quasi experimental condition which divided participants into self-reported levels of adversity (high vs. low). The second modification was that only social support seeking and avoidance-based coping strategies were assessed in study 4b. The reason for this being that

social support seeking and avoidance coping were the only two mechanisms which demonstrated an association with both childhood adversity and risky and problematic sexual behaviour in the cross-sectional findings in chapter three of the thesis.

Minor changes were also made to the measures. This included assessing the valence of experiences following the ACE saliency manipulation with two more direct single item manipulation check questions as opposed to the PANAS (see measures below).

Method

5.6.1. Participants

Overall, 201 male participants completed the study. The inclusion criteria for this study remained the same as in study 4a. The only additional inclusion criterion measure that participants completed in this study was an initial pre-screening survey to determine their levels of adversity in childhood which then determined which ACE saliency condition they were later allocated to (see procedure for further detail). Seven participants were excluded from further analyses due to indicating that they were not able to complete the instructions given in the manipulation. A further seven participants were excluded due to having reported an exclusive sexual attraction to men and therefore did not meet the inclusion criteria.

This left a final sample of 187 male participants who were aged between 18-80 years ($M = 39.81$, $SD = 13.29$). Of which, 81.2% reported having an exclusive sexual attraction to women whereas 18.7% reported a sexual attraction to both sexes. Participants were recruited through Prolific. Similarly to study 4a, participants received compensation for participating in the study in accordance with Prolific's baseline payment rate. Participants were compensated for completing the initial pre-screener survey (approximately £0.20 in exchange for 2 minutes of participation) as well as for completing the full study (approximately £1.30 in exchange for 13 minutes of participation).

Similarly to study 4a, a priori power analysis was conducted to determine the required sample size for running a 2x2 ANOVA. For the present study GPower analysis (Faul et al., 2007) estimated that 128 participants in total were required to detect medium effect sizes at 80% power and with a .05 significance level. The final sample size (187) met these requirements. Additional sensitivity power analyses indicated that this final sample size was sufficient to detect medium effect sizes ($f=.21$).

5.6.2. Measures

The demographic information and way this was measured remained the same as outlined in study 4a. The ACE saliency manipulation and the two original manipulation check questions also remained unchanged from study 4a. One additional measure was added (ACE-R; Finklehor et al., 2015) as a pre-screener to assess participants level of adversity in childhood. The PANAS scale (Watson et al., 1988) was also replaced with two shorter manipulation check questions.

Adversity in childhood. The Adverse Childhood Experiences-Revised (ACE-R; Finklehor et al., 2015) scale was used to assess the occurrence of adversity and maltreatment in childhood including instances of (physical, sexual, and emotional) abuse, neglect, and general dysfunction within the home. This measure comprised of 14 items whereby participants were asked to self-report on their experiences prior to their 18th birthday. Participants were presented with items such as ‘did a household member go to prison?’ and were asked to indicate responses on a dichotomous scale (0 = *No*, 1 = *Yes*). Total sum scores were computed by adding up instances of adversity. Higher scores on this scale indicated greater experiences of adversity in childhood whereas lower scores indicated having lower experiences of adversity. This scale demonstrated acceptable levels of internal consistency within the present study ($\alpha=.77$).

Manipulation checks. Two additional manipulation check questions were used to examine the valence of participant’s experience of the ACE saliency manipulation task across both conditions. Participants were asked to indicate ‘how strongly did you feel any positive emotions in relation to the memory you just recalled?’ on a 5-point Likert scale (1= *Extremely negative emotions*, 5 = *Extremely positive emotions*). Participants were then asked the same question for their experience of negative rather than positive emotions.

Maladaptive coping. Similarly to study 4a, the Brief-COPE scale (Carver et al., 1997) was used to examine coping strategies in relation to stress. This is a 28-item self-report measure which has 14 2-item subscales that assess a variety of coping strategies used by participants. Participants have to indicate on a 4-point Likert scale the extent to which they would engage in strategies such as ‘I would get emotional support from others’. As outlined in study 4a, Baumstarck et al.’s (2017) model was used to categorise the 14 subscales into four higher-order factors (social support seeking, avoidance, positive thinking, and problem solving). Unlike in study 4a which examined all four factors, only items in relation to the avoidance and social support seeking factors were used (18 items in total) in the present study. Scoring for this scale was computed in a similar manner to that outlined in study 4a. Within the present study this measure showed acceptable levels of internal consistency ($\alpha_{\text{avoidance}} = .74$, $\alpha_{\text{social support seeking}} = .75$).

Table 17 depicts the correlations between the measures outlined as well as the scale means and standard deviations.

Table 17

Means, Standard Deviations (SD) and Correlations for Coping Measure (Study 4b)

Measure	Mean	SD	1.	2.
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1. Avoidance	4.28	1.00	-	
2. Social support seeking	3.87	1.01	-.09	-

5.6.3. Design

A 2 (self-reported high vs. low ACEs) x 2 (high vs low ACE saliency) between participants design was used to examine whether there was an interaction effect between self-reported high vs. low ACEs and the ACE saliency manipulation on subsequent coping strategies used (outcome variable). A two-way ANOVA was conducted to examine this.

5.6.4. Procedure

This study was approved by the School of Psychology Ethics Committee at the University of Kent (Ethics ID number: 202216651418037803). The procedure for the current study closely mirrored the procedure outlined in study 4a. The main difference being the addition of an initial pre-screening survey to assess individual levels of adversity in childhood. Participants completed an initial baseline measure (ACE-R scale; Finklehor et al., 2015) prior to the full study to assess their levels of ACEs. This took approximately 2 minutes to complete, and participants were informed that this was part of a wider study and that they may be contacted to complete a follow up study if they consented to do so. If participant scores on this measure were between 0-3, they were categorized as having experienced low levels of adversity in childhood. If participants scored four or above however, they were categorized as having experienced high levels of adversity in childhood. These categories were based on previous study recommendations and guidance which used similar scoring cutoffs for delineating between high and low levels of adversity (Mamun et al., 2023; Meehan et al., 2022). To ensure an even-split of participants across the high and

low ACE condition, participants were first overrecruited in the ACE pre-screen and then a balanced number of participants were re-sampled per condition. Overall, there were 94 participants in the low ACE condition and 93 participants in the high ACE condition. These participants were then asked to complete the main section of the study which followed the same procedure as study 4a, the only difference being the changes to the measures outlined above.

5.7. Results

5.7.1. Preliminary Analyses

Similarly to study 4a, all participants indicated that they were able to imagine an instance in their childhood where they experienced either a distressing (high ACE saliency condition) or everyday (low ACE saliency condition) situation in their childhood. To examine whether participants could vividly picture their memory a one sample t-test was used to compare the mean of the manipulation check item with the scale mid-point (3). Findings indicated that for participants in both the low ACE ($t(93) = 20.82, p < .001$, scale mean = 4.37) and the high ACE ($t(92) = 16.83, p < .001$, scale mean = 4.31) saliency conditions the scale mean was significantly higher than the scale mid-point, indicating that participants could vividly picture their memory.

To confirm whether the manipulation appropriately affected participants, two 2 (self-reported high vs. low ACE) x 2 (high vs low ACE saliency) ANOVAs were conducted on the positive and negative emotion manipulation check items. For the positive emotion manipulation check item, the main effects of both self-reported ACEs ($F(1, 183) = 11.55, p < .001$) and ACE saliency ($F(1, 183) = 145.82, p < .001$) were significant. Participants in the low self-reported ACE condition reported higher positive emotions ($M = 2.84, SE = .11$) than participants in the high self-reported ACE condition ($M = 2.43, SE = .11$), as expected.

However, unexpectedly participants in the low ACE saliency condition reported fewer positive emotions ($M = 1.72, SE = .11$) compared to participants in the high ACE saliency condition ($M = 3.56, SE = .11$). Contrary to what was expected the interaction effect was not significant, $F(1, 183) = 0.23, p = .631$.

Similarly, there were significant main effects of self-reported ACE ($F(1, 183) = 15.91, p < .001$) and ACE saliency ($F(1, 183) = 123.21, p < .001$) on negative emotions. Participants in the low self-reported ACE condition reported more negative emotions ($M = 2.70, SE = .11$) than participants in the high self-reported ACE condition ($M = 2.20, SE = .11$) which was somewhat unexpected. However, the reverse was again true for ACE saliency, where participants in the low ACE saliency condition reported less negative emotions ($M = 1.62, SE = .11$) than participants in the high ACE saliency condition ($M = 3.28, SE = .11$) which was expected. The interaction effect was also non-significant, $F(1, 183) = 0.51, p = .476$.

5.7.2. Main analyses

To examine the impact of ACE saliency and self-reported ACEs on social support seeking and avoidance coping, two ANOVAs were conducted. For social support seeking, neither the main effects of self-reported ACE ($F(1, 183) = 0.17, p = .683$), ACE saliency ($F(1, 183) = 0.03, p = .873$), nor the interaction effect were significant ($F(1, 183) = 2.32, p = .129$). For avoidance coping, only the main effect of self-reported ACEs was significant, $F(1, 183) = 16.44, p < .001$. Specifically, participants in the high self-reported ACE condition reported significantly greater use of avoidant coping strategies ($M = 4.57, SE = .10$) compared to participants in the low self-reported ACE condition ($M = 3.99, SE = .10$), which was expected. However, the main effect of ACE saliency on avoidance coping was non-

significant ($F(1, 183) = 0.14, p = .712$) as was the interaction effect ($F(1, 183) = 2.06, p = .154$).

5.8. Discussion

Study 4b highlighted some interesting findings. Firstly, as with study 4a, participants were able to vividly picture memories relating to childhood as prompted by the saliency manipulation. Secondly, there were some mixed findings in relation to the valence of participants emotions across both the ACE saliency manipulation and in relation to self-reported ACEs condition. Specifically, participants in the low ACE saliency condition reported fewer positive emotions compared to those in the high ACE saliency condition, and participants in the low self-reported ACE condition reported experiencing more negative emotions compared to those in the high self-reported ACE condition. Lastly, findings indicated that only self-reported ACEs had some influence on the use of avoidance coping strategies, where individuals who reported greater adversity in childhood used more maladaptive coping strategies.

Whilst the lack of an interaction effect between ACE saliency manipulation and self-reported ACEs on the use of maladaptive coping strategies was unexpected, the present findings were important for a couple of reasons. Firstly, these findings suggested that the experimental manipulation may not have been as effective as intended at clearly eliciting the desired affect at relevant conditions. Consequently, enhancing the momentary saliency of ACEs may not effectively replicate the impact that such experiences in childhood had on subsequent coping in later life. However, these findings also highlighted that ACEs do have some impact on the subsequent use of maladaptive coping strategies such as the use of avoidance coping. In fact, these findings pointed to the plausibility that ACEs may causally influence the use of maladaptive coping strategies such as avoidance coping, which provides

further evidence for the existing empirical association between ACEs and subsequent use of maladaptive coping strategies.

5.9. Study 5

Study 5 aimed to examine the causal associations between the use of coping and RPSBs. Whereas studies 4a and 4b examined how manipulating the saliency of ACEs would influence subsequent coping, study 5 aimed to similarly test the causal associations between coping and RPSBs by manipulating the use of coping strategies and examine the subsequent effects on RPSBs. Taken in tandem, these studies provide a full causal examination of coping as an underlying mechanism in the relationship between ACEs and RPSBs. It was important to tease apart the causal associations between the use of coping strategies and RPSBs given that previous chapters yielded limited and somewhat mixed findings regarding whether coping strategies—particularly the use of maladaptive coping strategies—influence the subsequent use of RPSBs. Procedurally, study 5 was similar to the previous two studies outlined in this chapter. Participants were initially exposed to a negative mood induction (watching a sad film clip) to replicate an adverse state of sadness that would require participants to cope in some way. Following which participants were asked to cope in one of three ways (by seeking social support, by avoiding the situation, by not coping in any particular way) before being asked to complete the RPSB proclivity measures. It was important that participants' emotional experiences of sadness were as comparable and consistent as possible, therefore a film stimulus was used as a mood induction tool as opposed to the autobiographical recall paradigm used in studies 4a and 4b. This also ensured that coping used was the only construct being manipulated. Research has also indicated that films can be strong mood eliciting stimuli as they allow participants to visualise imagery thus making them an effective mood induction tool (Grühn & Sharifian, 2016; Webb et al., 2012).

Following findings from chapter four in the thesis I used proclivity measures to capture RPSBs as opposed to a more behavioural outcome measures such as the sexual aggression analogue task (Nagayama Hall & Hirschman, 1994) given that very limited evidence was found for the validity of this measure as a laboratory-based proxy for sexual aggression.

Method

5.9.1. Participants

Effect sizes required were determined using prior research (Krause-Utz et al., 2021) which found large effect sizes ($\beta=.64$) between maladaptive coping and intimate partner sexual violence. Although this constituted large effect sizes, a more conservative medium effect size was used for the a priori power analysis. Therefore, to detect a medium effect size in the ANCOVA analysis with four covariates within the present study, 158 participants in total were required to achieve 80% power at a .05 significance level.

Overall, 194 male participants aged 18-75 years ($M = 39.72$, $SD = 14.67$) were recruited for the present study which met the a priori sample size requirements. One-hundred-and-forty-seven participants reported an exclusive sexual attraction to women and the remaining 24.2% of participants reported a sexual attraction to both sexes. Similarly to studies 4a and 4b, participants were recruited through Prolific and were compensated approximately £2.10 in exchange for 21 minutes of participation. This study applied the same inclusion criteria outlined in study 4a.

5.9.2. Measures

Manipulation checks. Four manipulation check questions were used to determine whether the coping manipulation worked across each condition. All participants regardless of condition they were allocated to were exposed to all the manipulation check questions. The

first manipulation check question asked participants to indicate how clearly they were able to ‘imagine [themselves] in a similar situation to the one in the movie scene’. Participant responses were coded on a 5-point Likert scale (1 = *Extremely unclear*, 5 = *Extremely clear*).

The remainder of the manipulation check questions were all assessed on a 5-point Likert scale (1 = *I didn't do this at all*, 5 = *I did this a lot*). The second manipulation check question was in relation to the control condition and asked participants if they were able to write ‘about what happened in the scene without imagining how [they] would cope with a similar situation’. The third manipulation check question was in relation to the avoidance condition and asked participants whether they were able to picture themselves ‘trying to cope in a similar situation by refusing to believe that it had happened’. The remaining manipulation check question was related to the social support seeking condition and examined whether participants were able to picture themselves ‘trying to cope in a similar situation by reaching out to friends or family for help’.

Maladaptive coping. Similarly to study 4a, the Brief-COPE scale (Carver, 1997) was used to assess participants coping strategies in relation to stress. This 28-item measure asks participants to report on the frequency of their use of a range of strategies such as whether they seek emotional support or blame themselves when faced with a stressor. The original scale had 14 2-item subscales however for the present study the Baumstarck and colleagues (2017) factor model was employed as previously outlined. This condenses these subscales into four higher-order factors. The main difference between the measure in this study and that outlined in study 4a is that the dispositional version of the scale has been used, meaning that the item wording and the response options varied slightly. Participants were asked to indicate how often they generally engage in certain strategies such as ‘I use alcohol or other drugs to help me get through it’ when they encounter stressful situations. Response options were coded on a 4-point Likert scale (1 = *I usually don't do this at all*, 4 = *I usually do this a lot*)

whereby higher scores indicated greater use of a certain coping strategy. Scoring was computed in the same way as outlined in study 4a. For the present study, this scale demonstrated acceptable to good levels of internal consistency ($\alpha_{\text{avoidance}} = .74$, $\alpha_{\text{social support seeking}} = .76$, $\alpha_{\text{positive thinking}} = .72$, $\alpha_{\text{problem solving}} = .85$).

Attraction to sexual aggression. A modified version of the Attraction to Sexual Aggression scale (ASA; Malamuth, 1989) assessed levels of attraction to sexually aggressive behaviours and was used as a proxy measure of problematic sexual behaviours within the present study. Participants were presented with a list of 13 single-word items detailing sexual behaviours ranging from consensual sexual behaviours such as oral sex and anal intercourse to non-consensual sexual behaviours such as rape and forcing a female to do something sexual she does not want to do. Participants were asked two questions in relation to these items. The first asked participants to indicate ‘whether or not you have ever thought of it, how attractive do you find the following behaviours’ and the second question asked whether participants would engage in these behaviours ‘if you could be assured that no-one would know and you could in no way be punished for engaging in the following acts’. Within the present study, only participant scores for attractiveness and willingness to engage in the ‘rape’ and ‘forcing a female to do something sexual she does not want to do’ items were of interest.

In the original measure participant responses were coded on a dichotomous yes/no scale, however following Malamuth’s (1989) recommendation, a 5-point Likert response scale (1 = *Very unattractive*, 5 = *Very attractive*) was used. Total sum scores were computed whereby higher scores indicated greater attraction towards sexually aggressive behaviour. Within the present study, this measure demonstrated good levels of internal consistency ($\alpha = .88$).

Likelihood of risky sexual behaviour. To assess participants' likelihood towards engaging in risky sexual behaviour, participants were presented with a vignette taken from Sheinfil's (2018, vignette A) research. This vignette is written so that participants can imagine themselves as the protagonist in that scenario. The vignette depicts an unfolding sexual interaction between the participant and a friend where they both come to realise that neither of them have a condom. The participant's friend suggests that they have sex regardless. Participants are then presented with a series of four questions regarding how likely they would be to engage in certain sexual behaviours if they were in that situation e.g., 'How likely are you to have sex in this scenario?' (for similar methods see Sheinfil, 2018). These questions were taken from the Intentions to Engage in Condomless Sexual Activity scale (CSA-intentions; George et al., 2009) and were scored on a 5-point Likert scale (1 = *Not at all likely*, 5 = *Extremely likely*). Overall mean scores were computed whereby higher scores indicated a greater likelihood to engage in risky sexual behaviour. According to George and colleagues (2009) the CSA-intentions scale has been shown to have good levels of internal consistency. Within the present study this measure demonstrated good levels of internal consistency ($\alpha = .85$).

Table 18 shows the means and standard deviations for the above-mentioned measures as well as the correlations between these measures.

Table 18*Means, Standard Deviations, and Correlations Between Measures (Study 5)*

Measure	Mean	SD	1.	2.	3.	4.	5.	6.
1. Avoidance	3.88	0.91	-					
2. Social Support	3.76	1.04	.17*	-				
3. Problem Solving	5.70	1.36	-.30**	.24**	-			
4. Positive Thinking	5.20	1.17	-.01	.19*	.47**	-		
5. ASA	4.58	2.04	.13	-.04	-.10	-.18*	-	
6. CSA	3.75	1.11	.00	.03	.06	.16*	.15*	-

Note. * $p < .05$, ** $p < .001$

5.9.3. Design

A 1 x 3 (coping strategy: avoidance vs. social support seeking vs. control condition) between participants experimental design was used to determine whether manipulating coping strategies used has some effect on subsequent RPSBs (outcome variable).

5.9.4. Procedure

This study received full ethical approval from the School of Psychology Ethics Committee at the University of Kent (Ethics ID number: 202216414041337352). The general procedure of this study loosely emulated previous studies with similar aims of manipulating coping strategies following a negative mood induction (see Ehring et al., 2010; Gross & Levenson, 1997; Taut et al., 2012). Influence was also drawn from Marchlewska and colleagues (2022, study 3) research when constructing the coping manipulation for the present study.

Within the present study, participants were initially asked to complete demographic questions to ensure that they met the inclusion criteria, they were then presented with the information sheet and given the opportunity to consent. All tasks and survey material were presented online through Qualtrics. Participants who did not meet the inclusion criteria were asked to return their submission on Prolific. Participants were then presented with the dispositional version of the Brief-COPE (Carver, 1989) to assess trait coping. Following this, participants were presented with a two minute and 16 second clip from the film *Ex Machina* (Garland, 2015, 1:04:07) to ensure that all participant's emotional states were at a comparable baseline before commencing the study. The film clip depicted a conversation taking place between two men regarding the use of artificial intelligence. Research has shown that this clip was effective at inducing a neutral emotional state (see Zupan & Eskritt, 2020).

Participants were then randomly assigned to either the avoidance, social support, or control conditions. Instructions and tasks were standardized across all three conditions as much as possible. Once allocated to a condition, participants were told that they would be shown a two minute and nine second film clip which was about a man with intellectual disabilities who is fighting for custody of his daughter (taken from the film *I am Sam*; Nelson, 2002, 0:32:27). This film clip was validated and found to elicit feelings of sadness (Zupan & Eskritt, 2020). By inducing a negative mood in participants, I sought to subsequently manipulate participant's use of coping strategies to see if this had some effect on their propensity towards RPSBs. Prior to watching the film clip participants were instructed to put themselves in the main character's shoes and to try and imagine how they would be feeling and thinking. Participants were reminded that they could stop watching the film at any point and return their submission if they found the film to be too distressing and wanted to discontinue from the study.

Once participants had watched the sadness inducing film clip in full (an embedded timer ensured that participants could not skip the clip) participants were given condition specific instructions on how to cope (coping manipulation). Participants were randomly allocated into one of three conditions which determined how they were asked to cope: the control, the social support seeking, and avoidance coping condition. In the social support seeking condition participants were told to take a minute to think about the clip they had just seen and to place themselves in the shoes of the main character. They were told to try to connect with the character's experiences as much as possible and imagine that they were in a similar situation. They were then asked to imagine themselves coping with a similar situation by 'seeking support and comfort from a trusted friend or family member'. Participants were then instructed to write about how they would have coped with this situation by seeking social support from a friend or family member. Participants had to write a minimum of 100

characters before being able to continue. In the avoidance condition participants received the same preliminary instructions but instead were asked to ‘imagine that you refused to believe and accept that it [a similar situation] had happened and that you distracted yourself to avoid thinking about the situation’. Participants then also had to complete the writing task. Lastly, participants in the control condition were also given the same preliminary instructions asking them to imagine themselves in the shoes of the main character but were then just asked to write about what happened in the clip they had seen. They also had to complete the writing task before proceeding.

Participants were then presented with the manipulation check questions before completing the attraction to sexual aggression and the likelihood of risky sexual behaviour measures in a randomised order. Lastly, participants were thanked for their participation before being presented with the debrief.

5.10. Results

5.10.1. Preliminary analyses

To determine whether participants were able to vividly imagine themselves in a similar situation to the one depicted in the movie scene a one sample t-test was conducted to compare the mean of the manipulation check item with the scale mid-point (3). Overall, participants were significantly able to imagine themselves in the scenario, $t(193) = 11.13, p < .001$, mean = 3.89. A 1x3 (control vs social support seeking vs avoidance coping) ANOVA on the control manipulation check item was used to examine whether participants in the control condition did not use any form of coping. Findings indicated that the ANOVA was significant, $F(2, 191) = 6.45, p = .002$. Tukey HSD post-hoc comparisons indicated that participants in the control condition ($M = 2.17, SE = .12$) imagined themselves in a similar scenario without using any particular form of coping significantly more so than participants

in the social support seeking condition ($M = 1.54$, $SE = .13$, $t = -3.52$, $p = .002$) and marginally more than participants in the avoidance coping condition ($M = 1.75$, $SE = .13$, $t = -2.34$, $p = .053$).

Likewise, to establish that participants in the social support seeking condition appropriately used the social support seeking strategy, a 1x3 (control vs social support seeking vs avoidance coping) ANOVA was used on the social support seeking manipulation check item. The ANOVA was significant, $F(2, 191) = 36.11$, $p < .001$ and Tukey HSD post-hoc comparisons indicated that participants in the social support seeking condition utilised social support seeking strategies ($M = 3.17$, $SE = .13$) significantly more than participants in the control ($M = 1.79$, $SE = .12$, $t = 7.85$, $p < .001$) and participants in the avoidance coping conditions ($M = 1.97$, $SE = .12$, $t = -6.80$, $p < .001$).

Lastly, to ensure that participants in the avoidance coping condition appropriately used avoidance strategies to cope, a 1x3 (control vs social support seeking vs avoidance coping) ANOVA was used on the avoidance coping manipulation check item. The ANOVA was also found to be significant, $F(2, 191) = 12.98$, $p < .001$, and Tukey HSD post-hoc comparisons indicated that participants in the avoidance coping condition utilised avoidant coping strategies ($M = 2.82$, $SE = .13$) significantly more so than participants in the control ($M = 1.92$, $SE = .13$, $t = 4.75$, $p < .001$) and social support seeking conditions ($M = 2.06$, $SE = .13$, $t = 3.96$, $p < .001$).

Overall, this indicated that the coping manipulation was effective in directing participants to use certain coping strategies across the different conditions.

5.10.2. Main Analyses

To assess how coping strategy impacted risky and problematic sexual behaviours, two 1x3 (control vs social support seeking vs avoidance coping) ANCOVAs were conducted

whereby baseline dispositional coping scores were included as covariates in the analysis. The main effect of coping was non-significant for both the likelihood of risky sexual behaviour ($F(2, 187) = 2.14, p = .121$) and attraction to sexual aggression ($F(2, 187) = 1.06, p = .348$). These findings did not provide evidence in support of the hypotheses for the current study (H3). Means and ANCOVA results are displayed in Table 19.

Table 19

Group Means, Standard Errors, and ANCOVA Output of the Impact of Coping on Likelihood of Risky Sexual Behaviour and Attraction to Sexual Aggression (Study 5)

Measure	Control condition	Social support seeking condition	Avoidance	ANOVA output
Likelihood of Risky Sexual Behaviour	3.97 (.14)	3.65 (.14)	3.60 (.14)	$F(2, 187) = 2.14, p = .121$
Attraction to Sexual Aggression	4.35 (.25)	4.86 (.25)	4.53 (.25)	$F(2, 187) = 1.06, p = .348$

5.11. Discussion

This chapter aimed to examine maladaptive coping as a mechanism underlying the relationship between ACEs and RPSBs using experimental methods to determine the causal nature between these associations. More specifically, I examined whether a) manipulating the saliency of ACEs had some effect on the self-reported use of maladaptive coping strategies

(studies 4a & 4b), and b) whether experimentally manipulating the use of coping strategies influenced subsequent RPSBs (study 5). Contrary to what was hypothesized, the findings across studies 4a and 4b indicated that manipulating the saliency of ACEs did not have the hypothesised effect on subsequent maladaptive coping strategies. Specifically, findings from study 4a indicated that individuals who were in the low ACE saliency manipulation condition reported greater use of avoidance coping compared to individuals in the high ACE saliency manipulation condition. Findings from study 4b did however indicate that individuals with greater levels of self-reported adversity were more likely to use avoidance coping compared to individuals with low levels of self-reported adversity. This provided partial evidence in support of the hypothesis that greater experiences of ACEs plausibly influence greater use of maladaptive coping strategies. Study 5 did not find any evidence of a causal relationship between the use of maladaptive coping strategies and subsequent RPSBs.

The finding that manipulating the saliency of ACEs did not demonstrate the hypothesised effect on the subsequent use of coping strategies (studies 4a & 4b) was unexpected. Most effects of the saliency manipulation were null, except for the unexpected effect in study 4a in which participants in the low ACE saliency condition expressed higher levels of avoidance coping than participants in the high ACE saliency condition. As mentioned, this latter finding was likely attributable to the lack of control for actual levels ACEs (which was accounted for in study 4b). The largely null results of the saliency manipulation could be attributed to the ACE saliency manipulation not being as effective at inducing the typical emotions associated with recalling adverse childhood experiences as anticipated, which is suggested within the analysis of the emotional manipulating check items. Previous research has found that the autobiographical recall paradigm is an effective tool for mood induction (Fernández-Pérez et al., 2022; Mills & D’Mello, 2014), and this paradigm has also been shown to allow participants to re-live the emotions associated with

the experience that they recall (Rainville et al., 2006; Siedlecka et al., 2015), thereby theoretically making the recalled experience more salient to the participants. However, aside from Marchlewska and Cichocka, (2017) who similarly used this paradigm to manipulate the valence of personal memories, no research to date (to the best of the author's knowledge) has used this paradigm to directly manipulate the saliency of ACEs. Thus, a limitation of these studies could be that the manipulation itself was not effective at eliciting the emotional experience associated with the recall of ACEs. This may have hindered how salient recalled experiences were to participants and may not have elicited the desired effect on subsequent coping. Future research aiming to replicate these findings or employ a similar design should look at using alternative methods to manipulate ACE saliency which may be more effective.

Another possible reason for not achieving the hypothesised effects could be that experimentally inducing the momentary saliency of ACEs is not sufficient to replicate the full extent of the effect that ACEs have on subsequent coping. This is because the detrimental impact of ACEs stems from the longer-term consequences of such experiences on one's psychosocial development. Therefore, increasing the saliency of these experiences in the present moment may not draw on the full extent of that impact of the original adverse experience(s) and consequently may not have elicited the expected effect on subsequent coping. This finding is consistent with both Malamuth and colleagues (1991) confluence mediation model of sexual aggression as well as Stinson and colleagues (2008) multimodal self-regulation theory, and strengthens the idea that ACEs constitute a relatively static predictor of RPSBs and that the potential longer-term influence of ACEs on RPSBs is evident through more proximal mechanisms which underlie this association.

It is worth noting that findings demonstrated that ACEs do have some impact on subsequent coping strategies. This is supported by the finding that greater self-reported adversity in childhood was associated with greater use of avoidance-based coping. This

finding not only demonstrated the plausibility that ACEs causally influence the use of maladaptive coping strategies such as avoidance, but it also fit in line with the existing research literature. For instance, prior research has found that individuals growing up in stressful, chaotic, and or neglectful household environments are more likely to manage stressful situations by using strategies which focus on reducing the immediate negative affect associated with the stressor. These strategies are typically emotion-focused and avoidant in nature, for instance denial and behavioural disengagement (Evans & Kim, 2013; Leitenberg et al., 2004; Shapiro & Levendosky, 1999). These individuals are also less likely to engage in strategies whereby active problem solving or reappraisal of the problem is required (Gipple et al., 2006). Longitudinal research has further shown a positive association between adverse childhood experiences measured at time one and the use of avoidant and emotion focused coping strategies measured at time two (Sheffler et al., 2020). Thus, there is both cross-sectional and longitudinal evidence attesting to this association. Nevertheless, it is worth noting that self-reported ACEs presents a quasi-experimental condition and therefore findings do not provide conclusive evidence of a causal link. It is however worth noting that other methods of examining the causal link between these constructs are either not feasible due to the ethical barriers associated with experimentally manipulating ACEs or require significantly longer and more resource intensive programmes of research to examine the development of ACEs and coping longitudinally within childhood.

The finding that manipulating the use of certain coping strategies did not impact either of the RPSB outcome measures included in this study was also unexpected. Research has shown a clear link between the use of maladaptive coping strategies and greater instances of sexual risk-taking behaviours (Schwartz et al., 2008). In a similar scope, research has also shown the inverse. This being that individuals who engage in more active and problem resolution focused coping strategies self-report engaging in fewer risky sexual behaviours

(Teva et al., 2010; Schwartz et al., 2008). Moreover, research suggests that individuals who sexually offend are more likely to use maladaptive coping strategies as a means of managing stress compared to individuals who do not sexually offend (Cortoni & Marshall, 2001; Yates, 2004). Evidently, individuals who use greater maladaptive coping strategies are more likely to engage in both sexual behaviours which are risky to the self, and problematic sexual behaviours which also pose a risk of sexual harm to others. Therefore, theoretically it was expected that the use of avoidance-based coping would have had some knock-on effect on RPSBs. However, this was not found to be the case.

A potential reason that could explain the absence of this expected relationship could be because research surrounding these constructs has predominantly examined effects within offending samples. Offending populations are typically characterised by greater instances of delinquency and more violent behaviours (Freemon et al., 2022), such samples are more likely to engage in greater sexual risk-taking behaviours (Voisin et al., 2017), and may have more dispositional maladaptive coping styles (Cortoni et al., 1996; Marshall, 1989) compared to a general non-incarcerated population. Therefore, it is possible that previous findings may have been confounded by a general tendency towards criminality or poorer coping. Moreover, any potential effects may be more evident in such populations whereas in a non-incarcerated population effects may be weaker and more difficult to detect statistically. Therefore, given that the sample within the present study consisted of a non-incarcerated sample from the general population this potentially explains the absence of an effect. Future research may therefore want to consider using more sensitive outcome measures which may allow for better observability of these effects within community samples.

It is worth noting that the studies in this chapter were not without limitations. Firstly, as mentioned, the quasi-experimental nature of the self-reported ACE condition means that although findings did establish that a history of ACEs could plausibly influence greater

maladaptive coping in later life, causality cannot be truly determined. However, true experimental manipulations of ACEs are not feasible given the ethicalness of manipulating such experiences. Another drawback was that the use of the autobiographical recall paradigm to experimentally manipulate the saliency of ACEs was also not as effective as anticipated. Whilst participants reported being able to vividly bring certain experiences in childhood to mind, the paradigm was not able to elicit the emotional experience associated with these experiences. In turn, this may have hindered the saliency of recall and may not have impacted coping in the desired way. It is also worth noting that these findings may only be generalisable to a male population given that a predominantly male sample was used across the three studies. Whilst this was warranted on the present studies given the gendered nature of the items in the measures used to capture risky and problematic sexual behaviours, future research aiming to replicate such designs should aim to not only use more effective ACE saliency manipulation techniques but also use more gender-neutral measures to assess whether findings extend to a non-male sample.

It is also worth considering the potential design limitations within this study, such as the limits in ecological validity given the tightly controlled nature of this experimental design. It can be argued that watching a sad film clip to elicit negative emotions and subsequently asking participants to cope with these emotions in certain ways may not be entirely representative of the types of coping eliciting situations that people may encounter in everyday life. However, it is worth recognising that the aim behind asking participants to watch a negative mood inducing film clip was to elicit the emotion of sadness which is a typical emotion that people would feel and cope with by seeking social support or through avoidance of such feelings. Therefore, whilst a tightly controlled setting was used to elicit the use of certain coping strategies, this design did mirror the emotional states that people would

experience and therefore allowed for us to observe the subsequent influence of these coping strategies on RPSBs.

The use of sadness as a precipitating emotion within this study as opposed to other emotions such as anger may also have limited the detection of certain expected effects. I chose to induce sadness as this has been shown to be a less fatiguing mood to induce in participants as well as being a longer-lasting emotion (Kuijsters et al., 2016; Mokhtari & Buttle, 2015) which film mood induction tasks are particularly effective at generating (Wild et al., 2001; Westermann et al., 1996). Given the length of the study—and that participants still had to complete the manipulation checks following the manipulation task—it was important to ensure that the effects of the use of certain coping strategies could be observed upon the RPSB outcome measures without the presence of fatigue effects or the emotion being short-lived. Nevertheless, anger in particular has been shown to be a catalyst for subsequent engagement in RPSBs (Ramirez et al., 2015) and therefore may have been a more appropriate emotion to have induced within participants. Future research taking a similar approach to examine the causal relationship between coping and RPSBs or related outcomes may alternatively consider how inducing anger may lead to stronger effects being detected.

In conclusion, these findings cast doubt on the hypothesised causal relationship between these constructs. Whilst experimental research is typically considered the gold standard for examining causality, these constructs may be best understood in a developmental and longitudinal context. Examining these constructs cross-sectionally may not allow for an accurate representation of how these constructs interact and unfold across longer periods of time. Future research would benefit from using more extensive longitudinal designs that follow the developmental trajectory of these constructs.

6. General Discussion

6.1. General thesis aims

The overall aim of this thesis was to examine the proximal mechanisms underlying the relationship between adverse childhood experiences (ACEs) and risky and problematic sexual behaviours (RPSBs) in later life. Within the present thesis, I focused on examining whether emotion dysregulation and the use of maladaptive coping strategies operated as two self-regulatory deficits underlying the relationship between ACEs and RPSBs. There is evidence indicating that individuals who experience greater adversity in childhood are more likely to be poorer emotional regulators and are also more likely to engage in greater maladaptive coping strategies (Compas, 2009; Kim & Cicchetti, 2010) as well as research suggesting that these self-regulatory deficits represent risk factors increasing the propensity to engage in RPSBs (Crockett et al., 2006; Davis & Logan-Greene, 2012; Hanson & Morton-Bourgon, 2005). However, despite this growing interest, there was little in the way of research conceptualising the pathway through which ACEs led to these specific self-regulatory deficits, which in turn influence subsequent RPSBs.

In order to better understand the associations between these constructs I sought to use a triangulation of research methods and designs including cross-sectional, longitudinal, and experimental research to gain a more collective understanding of not only the causal nature of these associations, but also to examine the mediatory role that emotion dysregulation and maladaptive coping strategies played in the relationship between ACEs and RPSBs. The present chapter aims to a) provide an overview of the main findings within the thesis and b) present the theoretical and practical implications of these findings alongside their limitations and recommendations for future research.

6.1.1 Chapter two main findings (Study 1)

Study 1 was conducted during the coronavirus pandemic with the aim of gaining a more nuanced understanding of the momentary associations between everyday stress, emotion dysregulation, the use of maladaptive coping strategies, and RPSBs. Ecological momentary assessment methods were used to capture individuals' daily fluctuations on these constructs and to examine the following: a) whether individuals who experienced greater day-to-day stress (resulting from the impact of the coronavirus pandemic) were also more likely to experience greater emotion dysregulation and use more maladaptive coping strategies, and in turn, b) whether greater daily emotion dysregulation and the use of maladaptive coping strategies were associated with greater engagement in RPSBs in lockdown. In relation to this, I expected that individuals who experienced greater daily stress were more likely to experience greater emotion dysregulation and use more maladaptive coping strategies. I further hypothesized that these individuals were also more likely to engage in riskier and more problematic sexual behaviours in lockdown.

Findings indicated that individuals who were more significantly impacted by the coronavirus pandemic were more likely to use avoidance coping, and experienced greater difficulties in impulse control and in engaging in goal-oriented behaviours. Thus, findings provided support for the initial hypothesis that stressor related impact was more likely to be associated with greater emotion dysregulation and the use of maladaptive coping strategies. Contrary to what was expected however, greater COVID-19 impact was also associated with greater use of social support seeking strategies. This finding, whilst unexpected makes sense in the context of a global pandemic which imposed physical and social distancing measures to curb the spread of the virus. There was a greater emphasis on virtual connectedness through social media platforms and a greater initiative for people to reach out to others during this time for their mental health (Berkowsky et al., 2018; De' et al., 2020; Poon & Holder,

2020). Thus, it follows that individuals were also engaging in greater social support seeking behaviours as a strategy to combat stress.

Lastly, in relation to RPSBs in lockdown, only the association between social support seeking and pornography use was found to be robust and held in the multilevel model analysis. As discussed in chapter two, this was somewhat unexpected however could be accounted for due to the potential confounding effect of extraversion. Individuals who are more extraverted may not only have been more likely to engage in social support seeking strategies to cope with distress (McCrae & Costa, 1986), but they may also have engaged in riskier sexual behaviours such as increased pornography use (Borgogna & Aita, 2019). It is worth noting that whilst there is correlative evidence to suggest that pornography use was associated with greater difficulties in impulse control and negatively associated with the use of problem-solving strategies, these associations were not found to be significant when the variability between participants in their slopes was taken into account. This indicated that there was no significant association between RPSBs in lockdown and emotion dysregulation or the use of maladaptive coping strategies as hypothesised. A potential reason for the absence of this effect however could have been due to the lack of variability in the RPSB in lockdown outcome measure which may have been prompted by social desirability biases, and participants not wanting to report having engaged in potentially stigmatising behaviours. Overall, findings indicated that daily stressors can adversely affect individuals' ability to emotionally regulate and can lead to greater use of maladaptive coping strategies.

6.1.2 Chapter three main findings (Study 2)

Study 2 consisted of a two-wave longitudinal study that aimed to extend study 1 findings by using path analysis to examine the cross-sectional and longitudinal associations between childhood adversity, emotion dysregulation, maladaptive coping strategies, and

RPSBs. Upon examining the cross-sectional relationships between these constructs, I expected that greater reported adversity in childhood would be associated with greater emotion dysregulation and the use of maladaptive coping strategies respectively. In turn, I further expected that greater emotion dysregulation and the use of maladaptive coping strategies would be associated with greater RPSBs. Overall, I expected that maladaptive coping strategies and emotion dysregulation would mediate the relationship between ACEs and RPSBs. In relation to examining the relationship between these constructs across time, I expected that there would be a significant cross-lagged effect between greater ACEs at time one with more emotion dysregulation and greater use of maladaptive coping strategies at time two, whereby greater self-reported ACEs would predict subsequent greater emotion dysregulation and the use of maladaptive coping strategies. Similarly, I also expected that there would be a significant cross-lagged effect between greater emotion dysregulation and maladaptive coping at time one with subsequent greater engagement in RPSBs at time two.

As expected, cross-sectional findings indicated that greater self-reported adversity in childhood was significantly associated with greater use of avoidance based coping strategies and greater emotion dysregulation. This was found to be the case across both measurement occasions. Whilst there was no significant association between emotion dysregulation and RPSBs, findings did indicate that avoidance-based coping strategies and social support seeking were both positively associated with RPSBs, and that avoidance coping was further associated with sexual coercion across both measurement occasion. In fact, across both measurement occasion there was also evidence of an indirect effect of avoidance coping between ACEs and RPSBs. This provided support for the hypothesised association between constructs. Namely, the notion that greater experiences of adversity in childhood are associated with and may give rise to subsequent self-regulatory deficits. Findings also suggest that maladaptive coping was associated with RPSBs cross-sectionally. However,

unexpectedly, findings indicated that this was not also the case for emotion dysregulation.

This was surprising given the amount of theoretical research attesting to the relationship between an inability to regulate one's emotions and RPSBs (Looman, 1995; McKibben et al., 1994; Ullman et al., 2014). The second unexpected finding was that social support seeking was found to be positively associated with RPSBs. Whilst the directionality of this association was unexpected, a potential reason to account for this could be due to an underlying tendency towards extraversion which may have confounded the relationship. Specifically, research has shown that individuals who score higher on measures of extraversion are not only more likely to seek social support in times of stress, but they are also more likely to engage in RPSBs (Allen & Walter, 2018; McCrae & Costa, 1986). Therefore, this could potentially explain why individuals who engaged in more active coping strategies were also more likely to engage in RPSBs, contrary to what was expected.

Within the two-wave longitudinal model, findings indicated that there was a significant cross-lagged effect between ACEs at time one and greater emotion dysregulation and the use of avoidance coping at time two, as expected. However, there was no evidence of a cross-lagged effect between emotion dysregulation and avoidance coping strategies at time one and subsequent RPSBs at time two. In fact, findings indicated sexual coercion at time one predicted the use of avoidance coping at time two. This latter finding brings into question the temporal precedence between self-regulatory deficits and risky and problematic sexual behaviours and raises the question as to whether RPSBs should be considered a form of maladaptive coping as opposed to an outcome which is brought about by self-regulatory deficits.

6.1.3 Chapter four main findings (Study 3)

Given the overreliance on self-report measures when assessing constructs such as sexual aggression, there was a need for greater use of more behavioural outcome measures when assessing such constructs. As a result, the main aim of study 3 was to validate a modified version of the sexual aggression analogue task (Nagayama Hall & Hirschman, 1994) as a suitable behavioural proxy measure for sexual aggression. This task assesses sexual aggression by measuring how long participants choose to show a clip containing sexual content to a female confederate who indicated a prior discomfort at viewing content of a sexual nature, thereby exposing them to an unwanted sexual experience. This task was validated against measures assessing previous sexual aggression perpetration, attitudinal indicators of sexual aggression, and an existing behavioural analogue task of sexual aggression. It was expected that individuals scoring higher on attitudinal indicators of sexual aggression and individuals who had a history of sexual aggression perpetration (compared to no such history) would be more likely to show female confederates more of the sex clip. It was also expected that scores on the sexual aggression analogue task would be comparable to scores on the existing behavioural analogue task.

Findings indicated that the sexual aggression analogue task was not significantly associated with most of the attitudinal measures included within the study. The only attitudinal measure found to be correlated with the sexual aggression analogue task was sexual exploitation, which demonstrated medium effect sizes. There was also no significant association between the perceived stress scale and the sexual aggression analogue task which provided some evidence in support of the task's discriminant validity. The remaining findings were null as sexual aggression analogue task was not found to be significantly associated with a history of sexual aggression perpetration, and scores on the sexual aggression analogue task were not analogous with the existing behavioural analogue task as expected. Overall, findings failed to replicate prior validation studies (Franz et al., 2018) and found only limited

evidence in support of the sexual aggression analogue tasks convergent and discriminant validity. These findings whilst unexpected were important as they cast doubt on the robustness of previous research validating the sexual aggression analogue task and highlighted the need for further empirical testing and refinement of this measure to ensure that it better captures the expression of sexually aggressive behaviours.

6.1.4 Chapter five main findings (Studies 4a, 4b, & 5)

Collectively, studies 4a, 4b, and 5 aimed to examine the causal associations between ACEs, maladaptive coping, and RPSBs using more robust experimental designs. Study 4a specifically looked at whether manipulating the saliency of ACEs would causally influence the use of maladaptive coping strategies. It was hypothesised that individuals in the high ACE saliency condition would be more likely to self-report greater use of maladaptive coping strategies situationally compared to individuals in the low ACE saliency condition. Contrary to what was expected however, findings indicated that the ACE saliency manipulation did not have the hypothesised effect on the coping strategies considered. In fact, individuals in the low ACE saliency condition reported greater use of avoidant coping strategies compared to individuals in the high ACE saliency condition as expected. A potential reason for this unexpected effect could be due to pre-existing levels of adversity not having been controlled for in study 4a. Therefore, this could have resulted in a disproportionately high number of individuals with pre-existing levels of adversity in the low ACE saliency condition and vice versa for the high ACE condition.

Study 4b replicated study 4a with a few minor amendments, the main amendment being an additional quasi-experimental condition was added within which participants were allocated to either the high or low self-reported ACE condition depending on their levels of adversity in childhood. It was expected that there would be an interaction effect of self-

reported ACEs and the ACE saliency manipulation on subsequent self-reported coping strategies. Namely, I hypothesised that there would be a difference in the effect saliency had on coping for individuals in the high self-reported ACEs condition, whereas there would not be a difference in coping between saliency conditions for individuals in the low self-reported ACEs condition. Findings highlighted that experiences of adversity in childhood do influence the subsequent use of more avoidance based coping strategies. However, there was no observed effect of the ACE saliency manipulation. One of the conclusions drawn from these findings was that the ACE saliency manipulation was not as effective as anticipated at eliciting the desired affect across conditions. These findings also pointed to the possibility that whilst ACEs do have a detrimental effect on the subsequent use of coping mechanisms in later life, momentarily inducing the saliency of such experiences to replicate the effects on subsequent coping is not sufficient to draw on the impact that such experiences originally had.

Following on from the previous two studies, study 5 aimed to examine whether experimentally manipulating the use of coping strategies would influence subsequent engagement in RPSBs. Participants were exposed to a mood induction paradigm and asked to cope in one of three ways (using avoidance, social support seeking, by not coping in any particular way). Following findings from study 3, proclivity measures were then used to capture RPSBs as opposed to using a behavioural outcome task. I hypothesised that participants who were instructed to cope using avoidance would score higher on subsequent RPSBs outcome measures compared to participants who were asked to cope by seeking social support and by not coping in any particular way. I also expected that participants in the social support seeking condition would score lower on the RPSB proclivity outcome measures compared to participants in the avoidance and control conditions.

Contrary to what was expected findings did not provide evidence of a causal relationship between the use of maladaptive coping strategies and subsequent RPSBs. This finding was unexpected given the theoretical research within this area supporting this association. Nevertheless, a potential reason for this could be that the existing empirical research in this area has examined these constructs within primarily student and incarcerated samples. Both these samples have been shown to have higher rates of sexual aggression compared to community-based samples (Freemon et al., 2022; Hales & Gannon, 2022; Voisin et al., 2017). Therefore, given that the present study used a predominantly community-based sample, any effects present may have been weaker and statistically more difficult to detect. It is also worth noting that limited ecological validity was a potential design limitation within this study which may also contributed to the lack of expected effects. Arguably, watching a negative mood inducing film clip and being asked to cope in a specific manner to emotions elicited may not extend to everyday situations given the tightly controlled experimental nature of the manipulation. Nevertheless, it is worth acknowledging that whilst this may not be fully representative of people's day-to-day experiences, the emotions evoked mirrored those that participants would feel in such experiences where coping would be required. Moreover, the coping manipulation was found to be effective as participants indicated that they did cope in the indicated ways across conditions. Therefore, the intended effect of using certain coping strategies to cope with emotions elicited was induced and the effect on RPSBs could be observed.

6.2. Theoretical implications

6.2.1. ACEs, emotion dysregulation, and RPSBs pathway

When considering emotion dysregulation as a potential mechanism underlying the relationship between ACEs and RPSBs, this thesis brings novel findings to light which

appear to suggest that emotion dysregulation may not be as important a mechanism in explaining this relationship as indicated in the existing literature. Study 2 highlighted both cross-sectional and longitudinal evidence consistently indicating that ACEs were significantly and positively associated with greater emotion dysregulation. This finding was expected and remains largely consistent with the existing research literature (De La Torre, 2020; Espeleta, 2018). Additionally, study 1 highlighted that stress as a result of the COVID-19 pandemic was associated with two key facets of emotion dysregulation: impulse control difficulties and difficulties in engaging in goal-oriented behaviour. This extends previous research as it suggests that emotion dysregulation may be exacerbated by prolonged periods of stress (McLaughlin & Hatzenbuehler, 2009), which may be particularly impactful on people with experiences of childhood adversity whose regulatory abilities may already be limited.

Comparably, there was only limited evidence that emotion dysregulation was correlated with RPSBs across studies. Namely, whilst simple bivariate correlations did show significant correlations between emotion dysregulation and aspects of RPSBs including sexual coercion and pornography use, these correlations constituted small effect sizes and these associations became null when included in the larger scale models such as the path model in study 2 and the multilevel model in study 1. Therefore, not enough evidence was found to be able to confidently conclude that emotion dysregulation was a primary mechanism underlying the relationship between ACEs and subsequent RPSBs using the samples, materials, and designs applied in this thesis.

These null findings contradict previous research suggesting a link between emotion dysregulation and RPSBs. For example, prior research has shown that particular facets of emotion dysregulation as captured by the DERS scale (which was predominantly used within the thesis to measure emotion dysregulation) relates to specific dimensions of RPSBs (Weiss

et al., 2020). Similarly, research within incarcerated samples has also shown that individuals who sexually offend are more likely to experience emotions more intensely, have a perceived lack of controllability over emotions, and exhibit greater reactivity to more adverse emotional states (Gillespie et al., 2012; Howells et al., 2004; Velotti et al., 2017). Despite the existing theoretical and empirical support, the present findings cast doubt as to whether emotion dysregulation is a key mechanism through which childhood adversity translates into later RPSBs. Notably however, the present research specifically focussed on community-based samples. These null findings therefore extend previous research and theoretical frameworks, such as Ward and Seigert's (2002) pathways model and Ward and Beech's (2006) integrated theory of sexual offending as they suggest that, despite being a key mechanism in sexual offending samples, emotion dysregulation may only have a limited role in community samples. It would be worth examining whether other mechanisms identified within these theoretical models, such as deviant sexual scripts (Ward & Seigert, 2002) or cognitive distortions (Ward & Beech, 2006), play a more prominent role than emotion dysregulation in community-based samples. It would also be worth examining whether there are mechanisms that are specific to community-based samples that may underpin the relationship between ACEs and RPSBs over and above mechanisms examined within models that were developed using offending samples.

However, it is worth considering other potential reasons for the null effect between emotion dysregulation and RPSBs. Firstly, such findings could be attributed to the use of a general composite measure to capture emotion dysregulation as opposed to looking at how more specific facets of emotion dysregulation—which have been shown to be more predictive of sexual aggression—affect RPSBs. I examined emotion dysregulation more broadly rather than looking at specific facets of emotion dysregulation because the use of specific facets may have limited the detection of effects within community samples. For

instance, individuals within community-based samples may have reported less emotional clarity and awareness, but not necessarily difficulties in impulse control as is the case within offending samples (Lee et al., 2020; Shorey et al., 2011). By using a general composite measure I aimed to better capture emotion dysregulation more broadly within community samples. However, it is worth noting that in study 1, where I did examine two specific facets of emotion dysregulation (impulse control difficulties and difficulties in engaging in goal-oriented behaviour) which have been found to be highly associated with and predictive of sexual aggression (Shorey et al., 2011; Watkins et al., 2014), findings remained null. This therefore provides greater confidence that these null findings reflect true null findings.

A second potential reason for these null results may have been due to statistical artefacts. For example, correlative evidence in study 2 found associations between emotion dysregulation and sexual coercion at wave one and between emotion dysregulation and sexual coercion as well as RPSBs across partner type at wave two. However, these associations did not hold when included in the larger path analysis models. Statistically, a reason why these associations did not hold in the larger scale models could be attributed to the fact that these models accounted for the influence of other variables and the shared variance with other variables, as opposed to looking at the isolated relationship between constructs as is the case in bivariate correlations. It is also worth noting that whilst study 2 did use an existing and established measure to capture RPSBs, study 1 used an unpublished and newly developed scale to measure RPSBs in lockdown²¹. This was necessary given the absence of a suitable measure at the time the study was conducted which captured RPSBs in lockdown. As a result, however, the lack of validation surrounding this measure could explain the null findings in study 1.

²¹ Lockdown refers to a social distancing measure implemented during the coronavirus pandemic to prevent the spread of the virus.

A final possible reason for the absence of expected findings worth noting is the use of non-clinical community-based samples, within which the prevalence of emotion dysregulation and RPSBs is less, thereby meaning that any links are also likely to be weaker and more difficult to detect. Despite these reasons, the consistent lack of significant findings in the larger scale models provides greater confidence that the findings obtained are less likely to be due to a type two error but instead that they constitute true null effects. In effect, these findings lend themselves to the conclusion that despite being a key pathway in sexual offending samples, emotion dysregulation is not a key pathway in the relationship between ACEs and RPSBs within community-based samples. In line with these findings, future research should consider examining whether specific facets of emotion dysregulation or other mechanisms beyond emotion dysregulation are more strongly associated with RPSBs particularly within community samples.

6.2.2. ACEs, coping, and RPSBs pathway

In relation to maladaptive coping strategies as a potential mechanism underlying the relationship between ACEs and RPSBs, findings were more consistent with the existing literature. Collectively findings indicated that avoidance coping was positively associated with greater self-reported ACEs cross-sectionally and longitudinally, as well as some evidence from study 4b providing quasi-experimental support that high levels of self-reported ACEs were associated with avoidance coping strategies. This supports prior research findings that individuals who report experiencing greater adversity in childhood are more likely to rely on the use of avoidant coping strategies to manage stressors even in later life compared to individuals with no such history of adversity (Gipple et al., 2006; Grummitt et al., 2022; Shapiro & Levendosky, 1999). Findings also suggested that the use of avoidance coping was positively associated with greater RPSBs including sexual coercion as expected (see Shorey et al., 2014; Dariotis & Chen, 2022), and that there was evidence of an indirect effect of

avoidance coping in the relationship between ACEs and RPSBs. Collectively, these findings provide some evidence in support of the theoretical notion that maladaptive coping strategies, specifically the use of avoidant coping strategies provide a potential pathway through which ACEs translate into later RPSBs.

However, it is worth acknowledging that findings also indicated that the association between avoidance coping and RPSBs, whilst present cross-sectionally, did not hold across time. One of the reasons discussed in chapter three was due to coping having a short-lived effect on RPSBs. Specifically, the use of maladaptive coping strategies that lead to RPSBs should be in response to a specific stressor event. As a result of this stressful event, maladaptive coping strategies are used, which leads to engagement in RPSB. It is likely that this chain of events is time constrained in some way. For example, it is unlikely that maladaptive coping in response to a stressor would be directly related to RPSB a year later. However, the dispositional nature of maladaptive coping strategies means that it would be expected that this typical chain of events (stressor – maladaptive coping – RPSBs) is regularly repeated as individuals are prone to cope with stressful events using maladaptive coping strategies. This links into the idea noted in Marshall and Barbaree's (1990) integrated etiological theory of sexual offending that sexualised coping strategies can serve to reinforce and normalise subsequent problematic sexual behaviours such as sexual offending. Consequently, whilst it is likely that there is a causal and temporal precedent link between maladaptive coping and RPSBs, the time period within study 2 (chapter three) may have precluded such a link from being observed. Although data from study 1 somewhat speaks against this line of thinking as there was limited evidence of an association between the use of maladaptive coping strategies and RPSBs, it is worth reiterating that there were clear floor effects in study 1 which may have confounded results. In samples where there is greater variability such as in clinical samples it may be the case that this pattern of associations are

more typical. Future research would benefit from a) exploring the association between avoidance coping and RPSBs situationally to examine the more proximal impact of different stressors on this association, and b) examine how this association develops across a more prolonged period of time.

Study 2 findings also suggested that sexual coercion at time one predicted greater avoidance coping at time two. It was expected that greater use of avoidance coping would lead to sexual coercion as opposed to the opposite. Thus, the causal nature of the association between avoidance coping and RPSBs remains unclear and more comprehensive longitudinal work is required to further elucidate the nature of this relationship. These findings do however lend themselves well to Stinson and colleagues (2008) multimodal self-regulation theory. According to this model, problematic sexual behaviours such as sexual offending are regarded as maladaptive self-regulatory strategies used to cope. The intermediate correlations between both RPSB outcomes identified in study 2 and avoidance coping further adds to the idea that RPSBs could be considered a form of direct coping alongside being an outcome of engaging in maladaptive coping strategies. This would also be consistent with previous research which has found that sexualised coping is used to manage distress (Cortoni & Marshall, 2001). Future research should therefore aim to further unpick the causal nature of this relationship and investigate whether engagement in RPSBs may actually be a mechanism through which individuals avoid and manage stressors.

In relation to the more adaptive coping strategies considered within the thesis such as social support seeking, positive thinking, and problem-solving findings were generally mixed across studies. Firstly, only social support seeking showed significant and negative associations with ACEs, which is consistent with previous research showing that stressful life events are negatively correlated with adaptive coping strategies including positive thinking and problem solving (Dariotis & Chen, 2022). It is worth noting that whilst there was more

evidence to support the association between social support seeking and RPSBs, findings from the present thesis also indicated very limited and somewhat counterintuitive correlative evidence between the use of problem solving, positive thinking, and facets of RPSBs. Specifically, both problem solving and social support seeking respectively were found to be positively associated with facets of RPSBs. The directionality of this association was counterintuitive given that research underscoring the use of more active coping strategies such as these indicates that such strategies are protective and buffer against engagement in RPSBs (Basile et al., 2013; Bruederle et al., 2019; Hulland, et al., 2015; Stein and Nyamathi 1998).

A potential reason to explain these counterintuitive findings as noted in chapter three was due to the confounding effect of the isolating nature of the coronavirus pandemic. The increased isolation as a result of social distancing restrictions put in place led to people being encouraged to engage in more active coping strategies such as seeking social support virtually as a way to combat loneliness (De' et al., 2020; Poon & Holder, 2020). Therefore, the unique nature of the pandemic may have prompted the use of greater active coping strategies resulting in spurious findings. As mentioned earlier, the relationship between social support seeking and RPSBs could also have been confounded by a general tendency towards extraversion. Research has shown that individuals who are more extraverted may also be more likely to seek social support (McCrae & Costa, 1986) and likewise are also more likely to engage in greater RPSBs (Allen & Walter, 2018). Therefore, it is possible that individuals who had a greater tendency towards RPSBs were also more likely to seek social support during the pandemic. It is also possible that introverted individuals were better able to adapt to the pandemic and coped better with decreased social contact compared to their extraverted counterparts (Glei & Weinstein, 2023). Findings by Glei and Weinstein (2023) suggested that extroverted individuals faced higher mortality rates during the early stages of the pandemic

due to engaging in harmful behaviours such as substance misuse, which was likely due to increased pandemic related stressors such as loneliness. Future research should further examine the potential confounding variables underlying the relationship between adaptive coping strategies such as social support seeking and different facets of RPSBs. Doing so will help to map out more fully how adaptive coping strategies relate to RPSBs. This will also help to better interventions aimed at increasing the use of adaptive coping strategies to prevent subsequent RPSBs and related deleterious outcomes.

6.2.3. The utility of the sexual aggression analogue task

Theoretically it is important to consider the findings of study 3 in relation to the wider literature given the implications for the future use of the sexual aggression analogue task. Despite previous studies having demonstrated the validity of this analogue task (Franz et al., 2018) the current findings cast doubt on the construct validity of this measure and onto how accurately this task captures sexual aggressive behaviours. Contrary to previous validation studies (notably Franz et al., 2018), findings from study 3 indicated that the sexual aggression analogue task was only associated with sexual exploitation. There was also some evidence supporting the task's discriminant validity. Contrary to what was expected however, the sexual aggression analogue task was not associated with a history of sexual aggression perpetration, or other attitudinal predictors of sexual aggression considered including hostile sexism. Lastly, findings also found no associations between an existing behavioural measure of sexual aggression (the date rape analogue task) and the sexual aggression analogue task. It is plausible to conclude based on these findings that this measure may better capture sexual exploitation more specifically as opposed to more broadly capturing sexual aggression proclivity. This notion fits in line with research which recognises the sharing of unsolicited pictures of one's genitals as a form of sexual exploitation (Brady, 2017). Arguably, sharing unsolicited pictures of one's genitals is analogous with exposing an unwilling confederate to

a clip containing sexual content (as is done in the sexual aggression analogue task) given that both acts involve exposing non-consenting parties to unwanted sexual content.

However, it is also important to consider the reason for the disparity between previous validation study findings and the current findings and what this means in terms of the wider literature. This disparity could be down to several reasons. For instance, it could have been due to the unintentional omission of specific methodological features of previous studies which were not included within the present study. Similarly, it could be due to the use of a community based (as opposed to student based) sample which led to less variability in responses on the sexual aggression analogue task, and ultimately, smaller effects which were harder to detect statistically. Whilst it is important to consider these limitations, these findings importantly highlight that researchers may need to adjust the methodology of the task to allow it to capture the expression of sexual aggression with greater sensitivity within non-student samples. These findings also highlight the need for further empirical testing of the sexual aggression analogue task. Given that no expected effects were observed when conducting a conceptual replication with similar measures, theoretically driven hypotheses, and higher-powered sample sizes compared to Franz and colleagues (2018) research, this may point to a wider replication issue. Given the pervasiveness of the reproducibility crisis within psychological research (Open Science Collaboration, 2015; Wiggins & Christopherson, 2019) it is important to further replicate this research to properly assess how robust the sexual aggression analogue task is as a behavioural proxy measure for sexual aggression as well as the underlying reason for these null findings.

6.3. Practical implications

By identifying the more proximal mechanisms underlying the relationship between ACEs and RPSBs, the findings from this research have a number of practical implications.

One of which is that findings may provide practitioners with secondary intervention targets where primary prevention efforts to prevent adversity may no longer be possible or have been unsuccessful. Given the present findings and the extensive coping literature documenting the adverse effects of relying on avoidant coping strategies (Jaser et al., 2005), findings highlight the need for practitioners to consider being vigilant of and reducing the use of avoidant coping strategies such as substance misuse, self-blame, denial, and behavioural disengagement within interventions. Moreover, given the finding across study 2 and 4b, which indicated that greater adversity in childhood is associated with greater use of avoidance-based coping, practitioners delivering interventions to patients with a history of childhood adversity should be mindful of the fact that such individuals have an increased likelihood of using more maladaptive coping strategies. Practitioners might also consider being able to recognise the use of avoidance coping strategies and how this can interfere with treatment outcomes.

In doing so, this may help to improve interventions managing a range of outcomes which are also linked to the use of avoidance coping strategies such as anxiety and depression (Grant et al., 2013). One avenue for future research given the implications of these findings could be an examination of the most effective interventions to reduce the use of avoidance coping. Existing research has found that cognitive behavioural therapy which focused on avoidance reduction in relation to anxiety and mood disorders were particularly effective (McNally, 2007) as were coping skills programs aiming to build stress resilience (Frydenberg, 2004). Future research could also examine the usefulness of these interventions within a sample of individuals who have a history of adversity.

The finding that greater impact felt by a stressor elicits greater levels of emotion dysregulation and the use of maladaptive coping strategies is one that has important practical implications. Firstly, in relation to forensic settings it is particularly important to consider

how unseen day-to-day stressors may elicit more deregulatory behaviours. Practitioners in such settings may also consider incorporating stress reduction techniques such as mindfulness-based practice exercises prior to engaging individuals in other activities and interventions which require greater regulatory resources. These findings may also have broader implications and may be used to inform policy and strategy development in relation to managing future larger scale national events and/or disasters (e.g., war and/or recession) to ensure that more support is made available for dealing with emotion regulation and coping. For instance, whilst the coronavirus pandemic constituted a stressor on a macro scale compared to the more micro stressors that individuals may experience daily, this finding nonetheless has important implications for managing more everyday stressors. Practitioners should therefore consider providing additional support on how individuals can better cope with everyday stressors. For instance, in application to an occupational setting, organisations employing individuals to work fast paced and high intensity jobs such as those in the medical and healthcare sectors could provide greater support to employees facing everyday work-related stressors.

6.4. Limitations and future research

It is important to acknowledge the more overarching limitations of the present thesis alongside considering the findings presented. Firstly, there were several difficulties encountered due to the predominant use of community-based samples within studies. Most of the sexual aggression literature examining self-regulation—or facets of self-regulation such as emotion dysregulation—as an antecedent to sexually problematic behaviours typically examines these constructs within clinical or offending populations (Hanson & Morton-Bourgon, 2005; Paquette & Cortoni, 2021; Stinson et al., 2008; Stinson et al., 2022; Tull et al., 2012). Effects tend to be most evident in such populations given that these populations—often by definition—have higher rates of sexual aggression in relation to the general

population. Therefore, the use of a community-based sample may have meant that any potential effects may have been weaker and statistically more difficult to detect, and it is plausible that certain non-significant findings which were theoretically expected could be attributed to the use of a community-based sample. This may have been particularly relevant for studies 3 and 5. However, given the prevalence of ACEs within the general population (Hughes et al., 2017) and that as Benbouriche and Parent (2018) note, most individuals who sexually offend are not known to the police, it is important to acknowledge that there is a need for research replicating such effects within community-based samples. In fact, one of the aims of this thesis was to explore these mechanisms specifically within a community-based sample. Although the absence of effects and difficulties in detecting them inherently represent a limitation, they nonetheless highlight that a) mechanisms which constitute key pathways into sexual offending behaviour within offending samples may not also represent key mechanisms within community samples and b) there is need to explore other mechanisms which may be driving these RPSBs.

Moreover, it is worth noting that a priori power analyses were conducted for most studies to determine the optimal sample size required to detect effect sizes similar to those detected in previous studies (typically intermediate effects). Where sample sizes fell below such requirements, sensitivity power analyses were conducted following the study to ensure that studies were sufficiently powered. Given that the present research used community-based samples which were likely to show smaller effects, obtaining larger samples would have allowed smaller effects to be detected. However, the resources available for this thesis did not always allow for this to be achieved. On a related note, it is worth acknowledging that whilst different samples were used throughout, most of the studies in the thesis (namely studies 2, 4a, 4b, and 5) recruited from predominantly English-speaking countries. Unfortunately, this may have resulted in disproportionately Western, Educated, Industrialised, Rich, and

Democratic (WEIRD) samples (Ceci et al., 2010). Consequently, this may limit the generalisability of findings beyond these populations. Future research could therefore look to replicate the findings of the present thesis using larger samples and assess the cross-cultural generalisability of these findings.

It is also worth noting that this thesis provided an initial first step in addressing whether self-regulatory deficits were mechanisms in the pathway between ACEs and RPSBs, and whether these mechanisms operated within a community sample. In doing so, this thesis was influenced by sexual offending models (outlined in chapter one of this thesis) which have previously examined the role of self-regulatory deficits in sexual offending. Although other domain specific mechanisms—such as deviant sexual scripts and implicit theories—are also important in relation to problematic sexual behaviours, the focus on a community sample in this thesis meant that a more macro approach examining self-regulatory deficits, which may be more prevalent in community samples, was used. As a result, future research could build upon the findings highlighted within this thesis by examining certain domain specific mechanisms such as deviant sexual scripts and implicit theories which may also contribute to RPSBs within community samples. Another limitation of the present thesis was that I was not able to conclusively assess the causal associations between constructs. Whilst studies 2, 4a, 4b, and 5 aimed to assess the temporal precedence and causal associations between constructs of interest respectively, certain design features across these studies meant that the conclusions that could be drawn from these findings were limited. For instance, whilst findings from study 2 indicated the plausibility that ACEs temporally precede emotion dysregulation and the use of maladaptive coping strategies, some researchers would argue that the use of a two-wave longitudinal design does not constitute a true longitudinal examination of these constructs. According to Ployhart and Ward (2011) as well as Selig and Preacher (2009) whilst cross-lagged panel models can be specified using two measurement occasions, at least

three measurement occasions are required to allow for longitudinal mediation to be examined. Moreover, Ployhart and Ward (2011) maintain that having at least three measurement occasions will allow for true change to be observed. Future research may therefore consider testing the full extent of the longitudinal relationship between constructs using a three-wave design.

Similarly, findings from study 4b stemmed from a quasi-experimental design as opposed to a true experimental manipulation of ACEs. Whilst, as discussed in chapter five, a true experimental manipulation of ACEs would not have been ethically feasible, it remains that any inferences drawn from these findings are not definitively causal in nature. However, given that findings from studies 4a and 4b led to the conclusion that momentary manipulations of the saliency of ACEs were not sufficient to draw on the full extent of the impact that such experiences had on subsequent psychosocial mechanisms, future research should aim to examine the developmental trajectory of these constructs using more extensive longitudinal designs. It is however worth acknowledging that whilst the conclusions that can be drawn from the findings of these studies in isolation may be methodologically limited, taken together, the findings from the studies across this thesis provide a more robust understanding of the relationship between ACEs and RPSBs as well as the mechanisms underlying this association.

Lastly, it is worth noting the general limitations surrounding the measures used within the thesis. Namely, similarly to a lot of research in this field, there was an overreliance on the use of self-report measures within the present thesis. As discussed in chapter four, the issues surrounding an overreliance on self-report measures can be especially relevant to forensic psychological research. This is because such research often asks participants to report on potentially stigmatising and/or sensitive behaviours whereby participants may want to portray themselves in a more positive light (McNeeley, 2012). In a similar scope, relying on

participants self-reported retrospective recall of adverse experiences in childhood can result in an underreporting of such experiences due to the fallibility of memory (Hardt & Rutter, 2004). Victimization can also be regarded as a very sensitive topic. Research has found that participants may underreport instances of victimisation, or deny having such experiences, especially if the victimisation was of a sexual nature (Krebs et al., 2011; Records & Rice, 2006).

As a result, using self-report measures to assess RPSBs and ACEs can affect the overall reliability of findings resulting in potentially inaccurate conclusions being drawn. Study 3 aimed to try and mitigate these issues, especially in relation to measuring sexually problematic behaviours by validating a more behavioural outcome measure of sexual aggression. However, given the null findings in relation to the validity of the sexual aggression analogue task I was not able to use this measure as an alternative to self-report measures as intended. A recommendation for future research in light of the present findings would be to improve upon and conduct further empirical testing on existing sexual aggression analogue tasks in order to better these tasks as well as determine the utility of such tasks in non-offending and non-student samples. Future research should also aim to use more behavioural indicators of adversity in research. For instance, McGavock and Spratt (2012) recommend the use of social service records to ratify self-reported recall.

A second point of contention could be the way in which I have considered risky sexual behaviours and problematic sexual behaviours in a unified way. Conceptualising these constructs in this way arguably precludes differences from being examined such as the exploration of more nuanced pathways predicting each of these behaviours separately. Theoretically, it made sense to consider these behaviours jointly within the present thesis given that sexually risky behaviours often pave the way for the occurrence of more problematic sexual behaviours, and similarly, problematic sexual behaviours may present a

risk of further and escalating harm. For example, Malamuth and colleagues' (1991) research evidences this notion as they considered how risky sexual behaviours such as an orientation towards impersonal sex predicted more problematic sexual behaviours in later life such as sexual aggression perpetration and found that having high levels of sociosexuality is associated with greater sexual aggression perpetration. Davis and colleagues (2018) have previously noted the need to consider such behaviours holistically given their close conceptual link and the similarity in mechanisms that feed into predicting both outcomes. However, it is worth noting that risky sexual behaviours and problematic sexual behaviours may be qualitatively distinct in the sense that risky sexual behaviours such as having unprotected sex or having multiple sexual partners does not confer the same immediate risk of sexual harm to others as problematic sexual behaviours such as contact sexual offences do.

Lastly, the lack of variability amongst scores in particular in relation to some of the RPSB outcome measures used is worth acknowledging. There were noticeable floor effects when assessing engagement in more problematic and riskier sexual behaviours. A potential reason for this could be owing to social desirability biases as aforementioned but a more plausible reason to explain the positively skewed distribution in scores could be due to the use of a community-based sample. Community-based samples are likely to have lower RPSBs compared to offending samples and thus may be less likely to endorse the higher-end response option of more extreme items. This highlights the need for future research to use and develop more extreme and sensitive measures which are better able to capture the variability in responses, particularly amongst community-based samples.

Based on the findings of the present thesis, I suggest two main recommendations for future research. Firstly, there is a need for research examining the longer-term developmental trajectories of coping mechanisms following adversity in childhood using more complex longitudinal designs. Doing so will allow for a more comprehensive understanding of how

coping mechanisms develop and offer better insight into interventions. This may also allow for closer inspection of how attachment styles and caregiver interactions impact the development of maladaptive coping strategies and provide empirical support for Grady and colleagues (2016) etiological model of sexual offending. The second recommendation is that future research needs to explore the potential moderating factors in the pathway from ACEs to RPSBs through avoidance. For instance, research could explore how the severity of adversity and being exposed to certain adversities more so than others impact the pathway between ACEs, coping, and RPSBs. For instance, research has shown that individuals who have experienced maltreatment including emotional abuse and neglect are more likely to have poorer mental health outcomes in later life compared to individuals who have experienced household dysfunction including witnessing parental conflict (Negriff et al., 2020). Research could also examine whether the level of support received following adversity could mitigate the subsequent use of maladaptive strategies. This is based on existing research which has found that trauma-focused cognitive behavioural therapy following adversity can act as a protective factor and promote greater resiliency from such experiences (Wethington et al., 2008). Exploring how these factors potentially moderate the relationship between ACEs and subsequent RPSBs through avoidance as well as other coping pathways would further the current findings and allow for a greater consideration of the potential risk and protective factors underlying this relationship.

6.5. Conclusion

Overall, the main aim of this thesis was to further understand the underlying role of emotion dysregulation and maladaptive coping strategies in the relationship between childhood adversity and risky and problematic sexual behaviours. Collectively, findings provided somewhat limited evidence to support the notion that emotion dysregulation and maladaptive coping constitute key pathways between adverse childhood experiences and

subsequent risky and problematic sexual behaviours. Although evidence did support the idea that adverse childhood experiences contribute to greater avoidant coping, there was limited evidence to suggest that the use of avoidance coping strategies in turn led to greater risky and problematic sexual behaviours. Generally, these limited findings can likely be attributed to the use of community-based samples as opposed to an offending sample. Whilst the hypothesised emotion dysregulation and maladaptive coping pathways may be present within offending populations, they appear to have less utility within a general community population. Nonetheless, the consistent finding that adversity in childhood leads to greater use of avoidance based coping strategies is encouraging especially from a secondary intervention viewpoint. Avoidance coping, and coping strategies more generally, are learnable skills making them amenable to change, thereby the present findings suggest that focusing on reducing the use of avoidance coping can prevent subsequent deleterious outcomes especially in individuals with a history of adversity in childhood.

7. References

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8. Appendices

8.1. Appendix A: Supplementary Analyses for Study 3

Pilot Study. An initial pilot study was conducted to determine the suitability of confederate clips with regards to how clear and easy they were to understand. I also examined whether confederate preferences for movies with sexual content were seen as equally comparable across clips. Post hoc power analysis using G*Power software (Faul et al., 2007) indicated that a one-way between-subjects ANOVA with 155 participants across seven groups would be sensitive to detect effects of $\eta^2_p = .08$ ($\alpha = .05$), with 80% statistical power. This study received ethical approval from the School of Psychology Ethics committee, University of Kent (Ethics ID: 202116183148617153).

Overall, 151 participants were exposed to one of seven confederate clips and asked to rate to what extent they thought the confederate liked or disliked certain movie categories (incl. drama movies, movies with sexual content etc.) based on what the confederate had said in the recording. Participants rated their responses on a 5-point Likert scale (1 = *Dislike a great deal*, 5 = *Like a great deal*; a not mentioned option was also included). Participants were also asked how easy it was to understand what the confederate was saying. Responses were recorded on a 5-point Likert scale (1 = *Extremely difficult*, 5 = *Extremely easy*).

A one-way between-subjects ANOVA was conducted to examine whether perceived preference for movies with sexual content significantly differed between confederates. The main effect of confederate clip on preferences for movies with sexual content was non-significant, $F(6, 142) = 1.45, p = .199$. See Table A.1 for the means and standard deviations across groups. This suggests that perceptions of preference for movies with sexual content did not significantly differ based on which confederate clip participants viewed.

I tested to see whether sound quality (how clear and easy confederates were to understand) significantly differed between confederate clips. Due to Levene's test revealing that the homogeneity of variance assumption had been violated ($p < .05$), p values were derived using Welch's test. This also revealed that there was no significant main effect of confederate clip on sound quality, Welch's $F(6, 65.32) = 2.05, p = .071$. See Table A.2 for the means and standard deviations across groups. This also indicates that sound quality was comparable and did not significantly differ across confederate clips.

Taken together, these results suggest that any differences in the main study's outcome measure of sexual aggression cannot be attributed to differences in which confederate clip participants viewed.

Table A.1*Mean and Standard Deviation (SD) across Confederate Clips for Movie Preference Outcome (n= 149)*

Participant Viewed	<i>n</i>	Mean	<i>SD</i>
Confederate Clip One	20	1.25	.44
Confederate Clip Two	23	1.30	.70
Confederate Clip Three	21	1.52	.87
Confederate Clip Four	21	1.29	.56
Confederate Clip Five	21	1.33	.48
Confederate Clip Six	21	1.33	.73
Confederate Clip Seven	22	1.73	.70

Table A.2*Means and Standard Deviations (SD) across Confederate Clips for Sound Quality Outcome (n= 155)*

Participant Viewed	<i>n</i>	Mean	<i>SD</i>
Confederate Clip One	21	3.57	.98
Confederate Clip Two	23	3.96	.77
Confederate Clip Three	23	3.78	1.17
Confederate Clip Four	22	3.09	1.19
Confederate Clip Five	22	3.95	1.00
Confederate Clip Six	21	4.10	1.18
Confederate Clip Seven	23	3.48	1.24

8.2. Appendix B: ACE Saliency Manipulation Instructions Across all Conditions for Studies 4a & 4b

Low ACE Saliency condition instructions (Study 4a & 4b)

We would like you to think of a time when you experienced an **average** or **everyday** situation in your childhood prior to your 18th birthday. Specifically, we would like you to think of a time in your childhood when you felt normal and experienced a typical, day-to-day event in your household. If you cannot bring one of these specific examples to mind, please think of another situation when you felt a sense of normalcy as a child.

If you feel uncomfortable bringing these types of situations to mind, you may end the study at any time.

With this memory in mind, we would like you to think back and focus on any **thoughts, feelings, and emotions** you experienced during this time. Please take a minute to describe the experience in detail below.

You will need to write a minimum of 100 characters to proceed.

High ACE Saliency Condition Instructions (Study 4a & 4b)

We would like you to think of a time when you experienced a **distressing** or **upsetting** situation in your childhood prior to your 18th birthday. Specifically, we would like you to think of a time in your childhood when you felt

exposed to neglect, abuse, violence, or mental illness either inside or outside the home **OR** when you felt separated from parents or caregivers. If you cannot bring one of these specific examples to mind, please think of another situation when you felt distressed or upset as a child.

If you feel uncomfortable bringing these types of situations to mind, you may end the study at any time.

With this memory in mind, we would like you to think back and focus on any **thoughts, feelings, and emotions** you experienced during this time. Please take a minute to describe the experience in detail below.

You will need to write a minimum of 100 characters to proceed.

Control Condition Instructions (Study 5)

Please take a moment to think about the movie clip you have just seen.

Try to place yourself in the shoes of Sam—the character who has lost custody of his daughter. Try to connect with his experience as much as is possible for you by reflecting on his distress, confusion, and experience of loss. In your own words, we would simply like you to write about what happened in the clip you have just seen.

You will need to write a minimum of 100 characters to proceed.

Social Support Seeking Condition Instructions (Study 5)

Please take a moment to think about the movie clip you have just seen.

Try to place yourself in the shoes of Sam—the character who has lost custody of his daughter. Try to connect with his experience as much as is possible for you by reflecting on his distress, confusion, and experience of loss. Now imagine yourself in a similar situation. In order to cope with this situation, we would like you to imagine that you decided to seek support and comfort from a trusted friend or a family member. In your own words write about how you would have coped with this situation by seeking social support from a trusted friend or family member.

You will need to write a minimum of 100 characters to proceed.

Avoidance Condition Instructions (Study 5)

Please take a moment to think about the movie clip you have just seen.

Try to place yourself in the shoes of Sam—the character who has lost custody of his daughter. Try to connect with his experience as much as is possible for you by reflecting on his distress, confusion, and experience of loss. Now imagine yourself in a similar situation. In order to cope with this situation, we would like you to imagine that you refused to believe and accept that it had happened and that you distracted yourself to avoid thinking about the situation. In your own words write about how you would have coped with this situation by distracting yourself and avoiding thinking about it.

You will need to write a minimum of 100 characters to proceed.

8.3. Appendix C: Ethnicity descriptives breakdown for all studies**Table C.1**

Ethnicity Descriptives for Study 1 Which Includes all Participants Assessed at Baseline (n= 151)

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	90	59.60%
Latino/Hispanic	7	4.64%
Middle Eastern	6	3.97%
African	4	2.65%
Caribbean	1	0.66%
South Asian	12	7.95%
East Asian	7	4.64%
Mixed	8	5.30%
Other	13	8.61%
Prefer not to say	3	1.99%

Table C.2

Ethnicity Descriptives for Study 1 Which Includes all Participants Assessed in the Daily Diary Surveys (n= 33)

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	20	60.61%
Latino/Hispanic	2	6.06%
Middle Eastern	1	3.03%

African	0	0.00%
Caribbean	0	0.00%
South Asian	0	0.00%
East Asian	1	3.03%
Mixed	2	6.06%
Other	3	9.09%
Prefer not to say	4	12.12%

Table C.3

Ethnicity Descriptives for Wave One Study 2 (n= 342)

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	287	83.92%
Latino/Hispanic	5	1.46%
Middle Eastern	1	0.29%
African	10	2.92%
Caribbean	4	1.17%
South Asian	12	3.51%
East Asian	10	2.92%
Mixed	4	1.17%
Other	8	2.34%
Prefer not to say	1	0.29%

Table C.4

Ethnicity Descriptives for Wave Two Study 2 (n= 221)

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	190	85.97%
Latino/Hispanic	5	2.26%
Middle Eastern	0	0.00%
African	5	2.26%
Caribbean	3	1.36%
South Asian	7	3.17%
East Asian	6	2.71%
Mixed	4	1.81%
Other	1	0.45%
Prefer not to say	0	0.00%

Table C.5

Ethnicity Descriptives for Study 3 (n= 86)

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	62	72.09%
Latino/Hispanic	1	1.16%
Middle Eastern	3	3.49%
African	3	3.49%
Caribbean	0	0.00%
South Asian	4	4.65%
East Asian	7	8.14%
Mixed	4	4.65%
Other	2	2.33%

Prefer not to say	0	0.00%
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Table C.6*Ethnicity Descriptives for Study 4a (n= 97)*

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	89	87.25%
Latino/Hispanic	0	0.00%
Middle Eastern	1	0.98%
African	3	2.94%
Caribbean	1	0.98%
South Asian	3	2.94%
East Asian	2	1.96%
Mixed	1	0.98%
Other	1	0.98%
Prefer not to say	1	0.98%

Table C.7*Ethnicity Descriptives for Study 4b (n= 187)*

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	148	79.14%
Latino/Hispanic	4	2.14%
Middle Eastern	0	0.00%
African	7	3.74%

Caribbean	2	1.07%
South Asian	11	5.88%
East Asian	7	3.74%
Mixed	4	2.14%
Other	4	2.14%
Prefer not to say	0	0.00%

Table C.8*Ethnicity Descriptives for Study 5 (n=194)*

Ethnicity	<i>n</i>	Percentage of Sample
Caucasian	153	78.87%
Latino/Hispanic	0	0.00%
Middle Eastern	2	1.03%
African	6	3.09%
Caribbean	1	0.52%
South Asian	19	9.79%
East Asian	6	3.09%
Mixed	3	1.55%
Other	4	2.06%
Prefer not to say	0	0.00%