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Prolonged Unemployment is Associated with Control Loss and Personal as Well as Social Disengagement

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https://osf.io/8etbv/?view_only=ce189aa6806e42f382ad768adaa1249b.

This study's design and its analysis were not pre-registered.

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Abstract

Introduction: The need for control is a fundamental human motivation, that when deprived can lead to broad and substantial changes in human behavior. We aimed to assess the consequences of control deprivation in a real-life situation that poses a severe threat to personal control: a prolonged unemployment.

Methods: Using a sample $N = 1055$ of unemployed ($n = 748$) versus working ($n = 307$) individuals, we examined predictions derived from two models of reactions to control deprivation: control-regaining and disengagement/withdrawal.

Results and conclusions: We found that unemployment is correlated with a psychological state strongly interfering with psychological as well as social functioning. While control-regaining models of responding to lack of control have received virtually no support from our findings, our results provide evidence that long-term unemployed individuals are more disengaged than working individuals. They are more apathetic, less likely to engage in control-regaining efforts and in active forms of construing one's own future.

Keywords: unemployment, control deprivation, helplessness, disengagement

Prolonged Unemployment is Associated with Control Loss and Personal as Well as Social Disengagement

The need to gain and maintain personal control over one's environment is a fundamental human motivation. Therefore, human attempts to handle the experience of control loss have attracted the continuous attention of researchers in personality, social, and clinical psychology, starting from the classic seminal works of Rotter (1966), deCharms (1968), Brehm (1966), and Seligman (1975). In the more recent studies of the topic, various important consequences of control deprivation have been explored in the domain of cognition (e.g., Kofta & Sdek, 1999; von Hecker & Sdek, 1999; Whitson & Galinsky, 2008), political attitudes (e.g., Kay et al., 2008), intergroup relations (e.g., Fritsche, 2022), and beyond.

Although a vast body of evidence, gathered in numerous geographical and cultural contexts, improved our general understanding of the way people react to threat to control, most of them utilized experimental manipulations and artificial contexts to elicit the situation of control deprivation. Many of these findings were obtained by analyzing consequences of exposure to unsolvable cognitive tasks (Hiroto & Seligman, 1975; Kuhl, 1981; Sdek & Kofta, 1990), taking perspective of others who were deprived of control (Fritsche et al., 2013), being primed with uncontrollable aspects of one's life (Sullivan et al., 2010) or recalling the experiences of uncontrollable events (Kay et al., 2008). These experimental tasks were very distant from the factual experience of losing control over one's life. This raises doubts about the external validity of the experimental procedures (Lin et al., 2021) and eventually about the ecological validity of the existing findings about the consequences of control deprivation (Brunswik, 1955). In particular, it is disputed whether and/or when control deprivation leads to increased control-regaining attempts versus withdrawal/disengagement. In this paper, we will investigate this issue using a more ecologically valid approach, namely placing this main research question in the context of unemployment.

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In this paper, we adopt a social-cognitive approach to personality, emphasizing personality processes rather than traits. Accordingly, we concentrate on how individuals employ their cognitive-affective constructs (such as categories, schemata, beliefs, attitudes, and cognitive representations of the self) to imbue their experiences with integrated meaning, formulate distal and proximal goals along with strategies for their achievement, and endeavor to control their environment accordingly (see, for example, Epstein, 2014; Higgins & Scholer, 2008; Markus & Kunda, 1986; Mischel & Shoda, 1995).

Within this theoretical framework, our aim is to comprehend the dynamics of changes in cognitive-affective constructs resulting from significant personal experiences. While some of these experiences may induce transient, fleeting changes, others — such as prolonged unemployment — may engender relatively enduring (and sometimes irreversible) alterations in the psychological functioning of human personality. The primary objective of this research is to identify the critical dimensions along which such consequential changes are likely to manifest.

Unemployment as Loss-of-control Experience

Following Brunswikian call for a representative design in psychological research (Brunswik, 1955) and the call for methodological triangulation in psychological science (Lin et al., 2021), we decided to put under scrutiny the existing knowledge on the social-psychological consequences of control deprivation by testing it in a more realistic context in which people are deprived of control over their fate. The key aim was to assess the consequences of control deprivation in a real-life situation that poses a severe threat to personal control: the situation of prolonged unemployment.

Research on the psychological consequences of unemployment has its long-lasting tradition. Notably, Marie Jahoda's deprivation model (1982) highlights the profound impact of job loss on mental health. Jahoda describes how unemployment affects individuals by depriving them of both explicit (like income) and implicit (such as structured time, social connections, collective purpose, status, and activity) benefits of employment. This deprivation model sheds light on the wide-ranging ramifications of unemployment.

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Unemployment may dissolve social ties (Lawes et al., 2022; Winefield & Tiggeman, 1990), diminish perceptions of meaning in life (Thill et al., 2020), social status (Neubert et al., 2019), and also a sense of agency and competence in achieving one's goals (Van Hooft & Noordzij, 2009). Therefore, it is unsurprising that unemployment is regarded as a highly stressful life event (Hobson et al., 1998), amplifying the probability of suicide (Milner et al., 2013) and exacerbating both mental and physical health issues (McKee-Ryan et al., 2005).

In this research, we focus on one specific psychological mechanism that is crucial to examine in the context of unemployment, which is a sense of personal control. The idea that a key personality dimension which is affected by unemployment is rooted in beliefs about personal control was proposed already by Bakke (1940) in the context of his analysis of the psycho-social effects of the Great Depression (O'Brien, 1986). Other researchers explored further the role of decreased personal control in the context of unemployment by referring to Rotter's notion of internal vs external control (1966) and observed that the unemployed believed that they are more externally than internally controlled, and that they increasingly rely on these beliefs with time (O'Brien & Kabanoff, 1979; Patton & Noller, 1984). Other studies, that also included different measures of personal control, revealed that unemployed groups of people declared lower personal control and competence (O'Brien & Feather, 1990). Still, direct empirical evidence for Bakke's claim that loss of personal control, understood as a belief that nothing can be done to achieve valued personal goals, is the mechanism that results in apathetic, fatalistic and depressed psychological functioning of the unemployed was still missing (O'Brien, 1986). More recent studies showed that indeed personal control not only affects well-being (Creed et al., 2012), but that it also mediates the relationship between life strains and well-being (Creed et al., 2008) and the effects of financial strain on self-reports of poor health amongst the unemployed (Price et al., 2002).

Building on these results, we propose that prolonged unemployment is related to higher levels of perceived lack of personal control and a tendency to disengage from active coping, which can be exemplified in motivational as well as affective deficits (e.g., chronic negative affect, lack of planning, behavioral disengagement), that when prolonged, can shape

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individual differences in how people respond to stressful life events, such as prolonged unemployment.

Additionally, unemployment may jeopardize not only personal but also social adaptation. While focusing on the unemployment-related loss of control and its concomitants at the level of personality processes (including affective, motivational, and cognitive functioning), we also address social relations of the unemployed, that is, social adjustment and perceptions of social groups.

Importantly, in studying the effects of unemployment on social-psychological adaptation, we take a dynamic, temporal approach. Previous research focused mainly on differences between those who are employed and those who are not (Panari & Tonelli, 2022; but see also von Scheve et al., 2017). We argue that the effects of unemployment on personal control and other psychological variables may have an internal dynamic: The quality and intensity of emerging psychological changes may depend on the unemployment duration. Therefore, in our cross-sectional study, we compared individuals being on a relatively short-term, medium-term, and long-term unemployment. Our design also included a control group (employed individuals matched with the unemployed with respect to age, gender, education level, and place of residence).

Consequences of Uncontrollability: Contrasting Two Theoretical Approaches

Facing a danger of prolonged control loss is a critical component of personal experience of unemployment (Creed & Bartrum, 2008; Creed et al., 2012; O'Brien & Feather, 1990; Prince et al., 2002). While not denying the importance of its other components, we argue that the critical thing is that unemployment interferes with a person's ability to exercise effective control over one's life, impeding goal striving and achievement (e.g., searching for a job or alternative activities). As unemployment continues, it seems likely that – in addition to growing feelings of lack of control over the present life – people develop an expectation that they would not be able to regain control in the future, thus lowering their efforts to change their fate. Therefore, while examining the relationship between

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unemployment and sense of control, we put particular emphasis on its fatalistic aspect – gradually developing belief about one's inability to restore personal control in the future.

Despite rapidly accumulating evidence from various paradigms and contexts, no agreement was achieved so far as to the ways in which people confront control loss, and what are the basic psychological consequences of such confrontation. One of the most influential approaches in this field – the theory of learned helplessness – stressed that lack of control results in signs of psychological disengagement, worse cognitive functioning, and arousal of negative affect (e.g., Maier & Seligman, 1976; Seligman, 1975), likely to end in reactive depression (e.g., Abramson et al., 1978; Peterson & Seligman, 1984). Further works provided additional evidence for worsened cognitive functioning of people confronted with experimentally induced lack of control, showing cognitive deficits in avoidance learning, inductive reasoning, problem-solving, mental model formation, and efficiency of executive attention (Bukowski et al., 2015; Kofta & Sędek, 1989; 1998; Sędek & Kofta, 1990; McIntosh et al., 2005; Sędek et al., 1993; von Hecker & Sędek, 1999). Inability to regain control leads to development of a psychological state referred to as cognitive exhaustion (see e.g., Kofta & Sędek, 1998; Sędek & Kofta, 1990; Sędek et al., 1993), characterized by withdrawal from further investment of cognitive effort and distortion of action-control processes. The most recent studies have revealed that prolonged exposure to lack-of-control results in weaker intentional binding – an index of implicit sense of agency – suggesting that control loss might reduce the ability to detect consequences of one's actions and the motivation to initiate new actions (Soral et al., 2021).

However, a different theoretical tradition posits that people engage in various attempts to regain threatened control (Kay et al., 2009; Rutjens & Kay, 2017): when personal control is challenged, people are motivated to engage in activity directed to restore a sense of control (Pittman & Pittman, 1980). This general tendency manifests in approach motivation, intensified attributional activity and a shift from heuristic to systematic, more accurate style of information processing after the threat-to-control experience (see Bukowski & Kofta, 2017, for an overview). In this theoretical tradition, mobilization (on motivational, affective, and

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cognitive levels) is seen as a fundamental human response to a threat to control (e.g., Fritzsche et al., 2013; Greenaway et al., 2015; Jia & Wyer, 2022). Another line within this broader approach stresses the fact that lack of control may motivate people to engage into indirect (distal) coping strategies (particularly probable when direct control restoration strategies are unavailable, see Jonas et al., 2014, Reiss et al., 2021). Such efforts to cope with threatened control manifest, among others, in increased defense of the legitimacy of the sociopolitical institutions that offer control, stronger adherence to superstitions and conspiracies, and increased belief in an interventionist God (see e.g., Kay et al., 2008, 2009, 2010; Whitson & Galinsky, 2008).

These two conceptual perspectives – the helplessness and the control restoration – are not necessarily incompatible. We argue that both approaches to control loss are justifiable, but they might refer to different stages of responding to a lack-of-control situation. Relatively short exposure to uncontrollability is likely to create a threat to control, in which individuals still believe that they can regain control. Such a mindset seems likely to stimulate increased physical and mental effort investment into future action. However, under prolonged lack-of-control and repeated unsuccessful attempts to regain control, a person is increasingly motivated to withdraw from active (direct and distal) control-restoration efforts.

Several theoretical and empirical approaches are consistent with this theorizing. Already Wortman and Brehm's (1975) integrated reactance-helplessness theory has suggested that, when personal control is threatened, people are motivationally aroused to restore control at the early phase of confrontation with an uncontrollable situation and tend to withdraw their efforts when such confrontation lasts. Also, previous research showed that only short-term, but not long-term, exposure to loss of control results in performance boosts (Mikulincer, 1988). Finally, research performed within the motivational intensity theory (Brehm & Self, 1989), demonstrated that people are willing to engage effort in a given goal-directed activity only to the extent to which the goal is perceived as achievable, otherwise people should disengage from goal pursuit.

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Such an integrative perspective strongly suggests that it is crucial to consider the temporal dimension of unemployment. When applying this theorizing to the study of unemployed individuals, one would predict that medium- or long-term unemployment experience will be associated with a relatively permanent reduction of a sense of personal control, accompanied by a disengagement from active control-regaining efforts at the level of personal and social (interpersonal and ingroup related) activity. This disengagement-and-withdrawal syndrome might be reflected in deficient action-control processes, inhibition of personal projects' generation, increased pessimism, presence of avoidance-based emotions, and other symptoms. As unemployment continues, increased levels of personal uncontrollability and helplessness will then lead to stronger social and political alienation (Twenge et al., 2004), which in turn might diminish the individual's motivation to take up an active and participatory role in the society. However, the disengagement/withdrawal syndrome might be accompanied by self-defensive, compensatory maneuvers at the level of self-esteem and ingroup identification as well as attributional processes (such as blaming external agents and groups for one's misfortune) aimed at restoration of secondary control.

In contrast to the long-term effects, the outcomes of short-term unemployment are less predictable. In line with the literature discussed earlier (Brehm & Self, 1989; Wortman and Brehm, 1975; see also: Mikulincer, 1994), one possibility is that short-term unemployment would motivate individuals to increase their efforts to find satisfactory employment, associated with control boost, more optimism and energy invested in action, higher individual and collective self-esteem, and less intense self-defensive activity, thus resulting in restoration of primary control. Such a prediction would be supported by quadratic or cubic trends denoting non-monotonic – possibly temporal and observed at early stages of unemployment – changes. Alternatively, it is also plausible that even relatively short (such as 1 month) experiences of unemployment might already initiate demobilization processes, resulting in psychological and social disengagement. The last prediction would be supported by linear statistical trends denoting monotonic changes of the control feelings and the associated variables.

Overview of the Study

We tested these theoretical possibilities in a survey of unemployed as well as employed individuals. We measured well-being, self-esteem, various facets of control loss (personal, fatalistic, and political). This allowed us to verify whether lack of control (vs. self-esteem/well-being) is the crucial component of the experience of unemployment. We also measured variables that could indicate primary control restoration attempts. These included variables such as active stress coping, high-approach emotions, self-development efforts (personal level strategy), or collective action tendencies (social strategy). Furthermore, we measured variables that could indicate secondary control restoration attempts, such as belief in intervening God (personal level strategy) or system justification (social level strategy). Secondary control can be achieved also through self-defensive efforts; thus, we measured variables such as individual narcissism (personal level strategy) or collective narcissism, blaming, and prejudices (social level strategy). Finally, we measured variables revealing symptoms of general disengagement, as manifested in personality processes (such as perception of self-growth or coping styles) and social alienation. At the individual level, the list included stress coping through withdrawal, decreased self-development efforts, and reduced generation of personal projects. At the social level, the list included decreased national identification, disengagement from collective action, and endorsement of anti-democratic beliefs meaning withdrawal from democratic order. The list of all variables and their roles in the tested model is included in Table 1.

Table 1

Theoretical model of reactions to prolonged unemployment together with variables measured in the study

Role in the model	Variables
Main predictor:	length of unemployment
Mediators:	lack of control (personal control loss, fatalistic control loss, political control loss)↑, self-esteem↓, well-being↓

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Outcomes:

	<i>Personal level</i>	<i>Social level</i>
Primary control	desire for control↑, stress reaction – action↑, action control↑, emotions – high approach↑, number of personal projects↑, self-development↑	national identification↑, collective action↑, control through others↑
Secondary control	belief in intervening God↑, belief in magic↑, individual narcissism↑	blaming (self↓, outgroups↑, or system↑), prejudices↑, conspiracy beliefs↑, collective narcissism↑, system justification↑
Disengagement/withdrawal	stress reaction – withdrawal↑, emotions – avoidance↑, number of personal projects↓, self-development↓	national identification↓, collective action↓, anti-democracy↑

Note. ↑ = predicted increase with the length of unemployment, ↓ = predicted decrease with the length of unemployment

Overall, this research offers a unique opportunity for testing the external validity of two dominant psychological theories on coping with control deprivation. By setting the study in the context of varying length of exposure to unemployment, we address the need to assess psychological phenomena outside of the narrow context of particular experimental procedures, helping experiments and theories to connect with real world problems (McDermott, 2011).

Method

Participants

Power analysis revealed that – with $\alpha = .05$ and the target power of .80 – we need to recruit 176 individuals in each group to detect an effect size of $d = 0.30$ (small effect). Thus, we planned to recruit 704 at minimum (4 groups $\times$ 176). However, because we expected some attrition during the study, we collected a larger sample. We recruited 1055 Polish participants ($M_{\text{age}} = 37.65$, $SD_{\text{age}} = 14.20$; 656 women, 399 men) through an online survey company. The

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survey company rewarded participants with credit points which they could exchange for products in the survey company's online shop. The survey company aimed to recruit unemployed individuals with varying lengths of being without a job (0-3 months, $n = 229$; 4-12 months, $n = 230$; over 12 months, $n = 289$). Immediately after recruiting the sample of unemployed, an additional recruitment procedure started which aimed at recruiting a matched sample of working individuals ($n = 307$). This was done through quota sampling with quotas based on multivariate distribution of gender, age, education, and place of residence observed in the unemployed sample. A comparison of demographic distribution between the groups of working and unemployed individuals can be found in a Supplementary Table 1. Because of the length of the questionnaire, the entire study was divided into two parts, with the second part starting within two weeks after the first. Not every individual decided to continue in the second part. Moreover, between the two waves 8 participants changed their employment status and were removed from further analyses. This leaves a total of $N = 854$ participants who filled both parts of the questionnaire (control, $n = 249$, 0-3 months, $n = 183$; 4-12 months, $n = 189$; over 12 months, $n = 233$). We decided to use pairwise deletion to keep as much data as possible. Sensitivity analysis revealed that with smallest final n s (i.e., 183 and 189) and assuming $\alpha = .05$ and power of .80 the minimal detectable effect size is $d = 0.29$.

Procedure and Measures

At the beginning of the study a range of demographic information was collected, as well as information on the employment status of each individual. Unemployed individuals indicated for how long they were unemployed with the highest possible accuracy (years, months, weeks). Then they were asked to fill a set of measures. They were asked to fill the questionnaire at their own pace, without any time limit. However, they were asked to answer all questions (within each part) in one go.

Well-Being and Self-Esteem

To measure well-being, participants were asked to fill in the Satisfaction with Life Scale (Diener et al., 1985). The scale consisted of 5 items ($\alpha = .91$, $M = 4.02$, $SD = 1.26$).

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Furthermore, we used several scales that tapped into self-esteem. First, participants were asked to complete the Rosenberg's Self-Esteem Scale (Rosenberg, 1979). The scale consisted of 10 items ($\alpha = .83$, $M = 2.70$, $SD = 0.47$). Second, a set of 9 traits was presented and participants were asked to rate to what extent these traits apply to them. These traits represented dimensions of competence (e.g., *competent*, $\alpha = .84$, $M = 5.00$, $SD = 1.02$), morality (e.g., *moral*, $\alpha = .86$, $M = 5.29$, $SD = 1.04$), and sociability (e.g., *friendly*, $\alpha = .89$, $M = 5.28$, $SD = 1.10$). Because all these measures could be considered as indicators of self-esteem, they were included in a factor analysis. All measures correlated with one general factor, with factor loadings higher than .48. Therefore, extracted factor scores were used in further analyses.

Perceived Lack of Control

We used three measures of perceived lack of control. First, to measure personal control loss, we used Pearlin and Schooler's (1978) Sense of Mastery Scale (7 items, $\alpha = .82$, $M = 3.65$, $SD = 1.05$). Second, we used a scale which measured perceptions of political control loss (see, Kofta et al., 2020). This was a shortened version of the scale used in previous studies (4 items, $\alpha = .76$, $M = 3.50$, $SD = 0.86$). Third, we used a newly developed scale to measure fatalistic control loss. The scale consisted of 8 items such as "I feel that I will not be able to change anything in my life anymore." or "Even if I try very hard, I already know that I will not change my way of life." ($\alpha = .96$, $M = 2.70$, $SD = 1.04$). The last scale was developed in previous unpublished studies, where it proven as reliable predictor of action control difficulties, as well as emotions issues among individuals suffering from a long-lasting control deprivation (Soral et al., 2023).

Emotions

Participants were presented with a list of 25 discrete emotions and were asked to rate how frequently they felt each emotion during the last month. The list included 5 positive/low-approach emotions (e.g., *relaxed*, $\alpha = .90$, $M = 4.27$, $SD = 1.06$), 5 positive/high-approach emotions (e.g., *enthusiastic*, $\alpha = .85$, $M = 4.38$, $SD = 0.98$), 5 negative/low-approach emotions (e.g., *depressed*, $\alpha = .91$, $M = 3.91$, $SD = 1.21$), and 5

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negative/high-approach emotions (e.g., *irritated*, $\alpha = .93$, $M = 4.36$, $SD = 1.18$). Lastly, the list included 5 avoidance emotions (e.g., *frightened*, $\alpha = .93$, $M = 3.77$, $SD = 1.27$).

Primary Control Restoration

Stress Reaction – Action. Two items adapted from the brief COPE inventory (Carver, 1997) were used to measure active stress coping. Participants were asked about the frequency of certain behaviors in stressful situations, e.g., “I’m taking action to try to make the situation better” ($\alpha = .78$, $M = 2.92$, $SD = 0.77$). They rated frequency of behaviors on a 4-point scale from 1 – *almost never* to 4 – *almost always*.

Desire for Control. Desire for control was measured with six items selected from Burger and Cooper’s (1979) Desirability for Control Scale. Participants were asked to rate to what extent they agree or disagree with items such as “I prefer a job where I have a lot of control over what I do and when I do it” ($\alpha = .76$, $M = 3.79$, $SD = 0.66$). They responded using a 5-item Likert scale from 1 - *Definitely disagree* to 5 - *Definitely agree*.

Personal Projects. Participants were asked to list – without compromising their anonymity – all intentions that they decided to implement recently or that they were implementing for some time. Participants could list up to 10 such personal projects ($M = 1.69$, $SD = 1.96$). The measure was based on the work of Little (1983).

Self-Development and Action Control. We included several scales that represented general perceptions of self as a developing being and positive views of the future. First, to measure dispositional optimism, we used six items from the Life Orientation Test (Scheier & Carver, 1985). Participants rated statements such as “In uncertain times, I usually expect the best” ($\alpha = .73$, $M = 4.20$, $SD = 0.89$), on a scale from 1 - *definitely disagree* to 5 - *definitely agree*. Second, to measure perceptions of goals in life, we used a six item Life Engagement Test by Scheier et al. (2006). Participants rated statements such as “I have lots of reasons for living” ($\alpha = .76$, $M = 3.44$, $SD = 0.65$), on a scale from 1 - *definitely disagree* to 5 - *definitely agree*. Third, we a measure of perceptions of personal growth. Participants rated statements such as “I have lots of reasons for living” ($\alpha = .80$, $M = 3.54$, $SD = 0.63$), on a scale from 1 - *Definitely disagree* to 5 – *Definitely agree*. Finally, we included a newly

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developed scale to measure a level of future depth (4 items, e.g., “Sometimes I look to my distant future.”, $\alpha = .89$, $M = 4.92$, $SD = 1.31$). All four measures were included in a factor analysis, as variables denoting perception of self-development. All measures correlated with one general factor, with factor loadings higher than .40. Therefore, extracted factor scores were used in further analyses. To measure action control, we used two newly developed scales: The first measured the level of volition to implement one’s goals (4 items, e.g., “It is difficult for me to mobilize myself to achieve my goals I”, $\alpha = .91$, $M = 3.87$, $SD = 1.41$), whereas the second measured implementation mindset (4 items, e.g., “I often plan my activities in detail, step by step.”, $\alpha = .89$, $M = 4.90$, $SD = 1.09$). Both new measures – as well as future depth measure – were examined and validated in pilot studies (Soral et al., 2023). Both measures correlated with one general factor, with factor loadings higher than .52. Therefore, extracted factor scores were used in further analyses.

Collective Action. Collective action intentions were assessed with five items. Participants reported their willingness to engage in five actions (signing a petition, joining a boycott, attending a legal demonstration, participation in an illegal strike, other acts of protest; $\alpha = .86$, $M = 2.38$, $SD = 0.79$). Responses were recorded on the 4-point scale from 1 – *definitely not* to 4 – *definitely yes*.

External Sources of Control

Control Through Others. Two scales of seeking social support in stressful situations were adapted from the brief COPE inventory (Carver, 1997). The first included two items measuring the use of social support (e.g., “I’m getting emotional support from others”, $\alpha = .78$, $M = 2.59$, $SD = 0.82$). The second included two items measuring the use of instrumental support (e.g., “I’m getting help and advice from other people”, $\alpha = .78$, $M = 2.59$, $SD = 0.81$). Participants rated frequency of behaviors on a 4-point scale from 1 – *almost never* to 4 – *almost always*. Two forms of coping were correlated with one general factor, with factor loadings higher than .84. Therefore, extracted factor scores were used in further analyses.

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Belief in Intervening God. Participants rated four items that measured their perception of God as an intervening entity, for example “I believe that God is actively intervening in human life and events in the world” ($\alpha = .65$, $M = 3.15$, $SD = 0.83$). They were asked to provide their answers on a scale from 1 – *definitely not* to 5 – *definitely yes*. The measure was developed by the authors of this article based on Kay et al. (2008).

Belief in Magic. Belief in magic was measured with six items selected and adapted from a Revised Paranormal Belief Scale (Tobacyk, 2004). Participants were asked to what extent they agree with statements such as “There are actual cases of witchcraft” ($\alpha = .93$, $M = 2.95$, $SD = 0.89$), using a 5-item Likert scale from 1 – *definitely not* to 5 – *definitely yes*.

System Justification. Eight items measuring a tendency to justify social system were adapted from Kay and Jost (2003). Participants were asked to rate their agreement with statements such as “In general you find the Polish society to be fair”. Two items that addressed justification of political system (e.g., “In general, the Polish political system operates as it should”) were added to form a 10-item general score of system justification ($\alpha = .81$, $M = 2.56$, $SD = 0.67$). They were asked to provide their answers on a scale from 1 – *definitely not* to 5 – *definitely yes*.

Conspiracy beliefs. Conspiracy mindset was measured using several scales. Participants were asked about their endorsement of conspiracy stereotypes about three outgroups: Jews, Germans, and Russians. These scales were taken from works on effects of control on endorsement of conspiracy stereotypes (Kofta et al., 2020). Endorsement of conspiracy stereotypes of Jews was measured with six items such as “Jews achieve their collective goals by secret agreements” ($\alpha = .94$, $M = 3.34$, $SD = 0.88$). Due to length restrictions, endorsements of conspiracy stereotypes of Russians ($\alpha = .84$, $M = 3.63$, $SD = 0.92$) and Germans ($\alpha = .82$, $M = 3.11$, $SD = 0.94$) were measured with two items per target group. Additionally, participants answered about their agreement with conspiracy theories about banks and corporations (2 items, $\alpha = .71$, $M = 3.38$, $SD = 0.73$; e.g., “Banks and corporations aim to exercise absolute power over people.”) and about the European Union (5 items, $\alpha = .84$, $M = 2.61$, $SD = 0.85$; e.g., “The European Union is secretly seeking to take

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over the Polish economy.”). Because all these scales were included in a factor analysis, as variables denoting general conspiracy mindset. All measures correlated with one general factor, with factor loadings higher than .45. Therefore, extracted factor scores were used in further analyses.

Blaming and Prejudice

To measure blaming, participants were presented with a list of 15 explanations of unemployment (see Bukowski et al., 2017). Seven of these explanations attributed unemployment to individual characteristics of unemployed individuals (e.g., “The unemployed lack intelligence and abilities”, $\alpha = .81$, $M = 3.08$, $SD = 0.73$). Three of these explanations attributed unemployment to the system in general (e.g., “World economic crisis”, $\alpha = .61$, $M = 3.22$, $SD = 0.74$). Five explanations attributed unemployment to powerful groups (e.g., “Activities of international corporations”, “Policies and strategy of the government”, $\alpha = .72$, $M = 3.42$, $SD = 0.74$).

Furthermore, participants were asked to complete a Bogardus (1933) Social Distance Scale, which asked about their prejudices toward two groups: Ukrainians (4 items, $\alpha = .91$, $M = 2.00$, $SD = 0.76$) and Jews (4 items, $\alpha = .91$, $M = 2.02$, $SD = 0.79$). Ukrainians are currently the largest economic immigrant group in Poland (although note that the study was conducted before the war in Ukraine, which led to an even steeper increase of refugees from Ukraine). Jews are often portrayed by Poles as having excessive influence on the global economy. Thus, both groups can be blamed by some individuals for their unemployment. We included attitudes toward both groups in a factor analysis, which revealed that both are correlated with a single general factor – factor loadings were higher than .87. Thus, we used extracted factor scores in further analyses.

Withdrawal, Anti-Democratic Beliefs, Defensiveness

Stress reaction – Withdrawal. Four scales that measured withdrawal from stressful situations were adapted from the brief COPE inventory (Carver, 1997). First, denial was measured with two items (e.g., “I’m refusing to believe that it has happened”, $\alpha = .77$, $M = 2.08$, $SD = 0.85$). Second, acceptance was measured with two items (e.g., “I’m learning to

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live with it”, $\alpha = .66$, $M = 2.57$, $SD = 0.77$). Third, behavioral disengagement was assessed with two items (e.g., “I’m giving up trying to deal with”, $\alpha = .79$, $M = 2.17$, $SD = 0.83$). Finally, self-distraction was assessed with two items (e.g., “I’m turning to work or other activities to take my mind off it”, $\alpha = .69$, $M = 2.35$, $SD = 0.82$). Participants rated frequency of behaviors on a 4-point scale from 1 – *almost never* to 4 – *almost always*. Four forms of withdrawal were correlated with one general factor, with factor loadings higher than .55. Thus, extracted factor scores were used in further analyses.

Anti-Democracy. To measure anti-democratic beliefs, we used 7 items adapted from the Support for Democracy Scale by Magalhães (2014). Participants rated statements such as “Democracies are indecisive and have too much squabbling” or “Our country should be ruled by the army” on a scale from 1 – *definitely disagree* to 5 – *definitely agree* ($\alpha = .72$, $M = 2.86$, $SD = 0.65$).

National Identification. We used a measure of national identification developed by Cameron (2004). Participants were asked to what extent they identify with their nation (i.e., Poles) using 12 items such as “I feel strong ties to other Poles” ($\alpha = .88$, $M = 3.36$, $SD = 0.67$). They indicated their responses using a 5-item Likert scale from 1 – *Definitely disagree* to 5 – *Definitely agree*.

Narcissism. We measured both individual and collective facets of narcissism. To measure individual narcissism, we used a six-item version of the NARQ questionnaire by Back and colleagues (2013). Participants rated statements such as “I deserve to be seen as a great personality” or “I want my rivals to fail” on a scale from 1 – *not at all like me* to 7 – *very much like me* ($\alpha = .81$, $M = 3.73$, $SD = 1.01$). To measure collective narcissism, we used a five-item version of the Collective Narcissism Scale (Golec de Zavala et al., 2013) used with respect to the national in-group (e.g., “The Polish nation deserves special treatment”). Participants responded using a scale ranging from 1 – *strongly disagree* to 6 – *strongly agree* ($\alpha = .86$, $M = 3.10$, $SD = 0.86$).

Statistical Analyses

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To assess differences between groups of working and unemployed individuals, we arranged the studied four groups according to the growing length of unemployment (i.e., from non-unemployed to individuals unemployed longer than 12 months) and tested linear, quadratic, and cubic contrasts. This allowed us to detect whether the length of unemployment is correlated with monotonically lower or higher levels of variables (i.e., linear effect), or whether these relationships are more complex. For example, a quadratic effect would suggest that after an initial decrease or increase, a level of some variable meets plateau or even rebounds. A cubic effect would suggest even more dynamic changes, with a level of some variable going lower or higher with the length of unemployment. In all models, we controlled for the effects of gender, age, years of education, and place of residence.

All variables (standardized) were tested with Bayesian Normal regression models. Student *t* priors ($df = 3$, $M = 0$, scale = 2.5) were used for intercept and sigma. To account for multiple testing and to adjust the false discovery rate, we used weakly informative Normal priors ($M = 0$, $SD = 1$) for all regression coefficients. Posterior distributions were recovered with MCMC (Markov chain Monte Carlo) with 4000 post-warmup simulations. Potential scale reduction factors (R-hats) were all lower than 1.02. (Tail) effective sample sizes were larger than 2423 in all instances. Graphical posterior predictive checks were conducted to test whether all models correctly recovered conditional means of outcome variables. No major deviations were observed, which suggests that the chosen models were appropriate in all instances.

Bayes factors (BFs) against a hypothesis that a coefficient is equal to 0 (“null hypothesis”) were computed for linear, quadratic, and cubic trends. All BFs were estimated via the Savage-Dickey density ratio method. BFs in the range from 1 to 3 were interpreted as weak evidence, BFs in the range from 3 to 10 were interpreted as moderate evidence, BFs in the range from 10 to 30 were interpreted as strong evidence, BFs in the range from 30 to 100 were interpreted as very strong evidence, and BFs larger than 100 were interpreted as extreme evidence. Note that to find the ratio of evidence in favor of the “null hypothesis” one must transform a BF with a formula, $1/x$. For example, $BF = 0.3$ against the “null hypothesis”

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is equal to $BF = 3.33$ in favor of the “null hypothesis”. In addition to BFs, credible intervals (with ps of 95%, 80%, and 50%) were used to estimate probable values of the parameters.

Transparency and Openness

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study, and we follow JARS (Kazak, 2018). All data, analysis code, and research materials are available at https://osf.io/8etbv/?view_only=ce189aa6806e42f382ad768adaa1249b (Soral et al., 2023).

This study’s design and its analysis were not pre-registered. Ethical approval for this study was obtained from the Faculty of Psychology University of Warsaw.

Data were analyzed using R, version 4.0.0 (R Core Team, 2020) and packages: *brms* (Bürkner, 2017); *blavaan* (Merkle & Rosseel, 2018), and *tidybayes* (Kay, 2023).

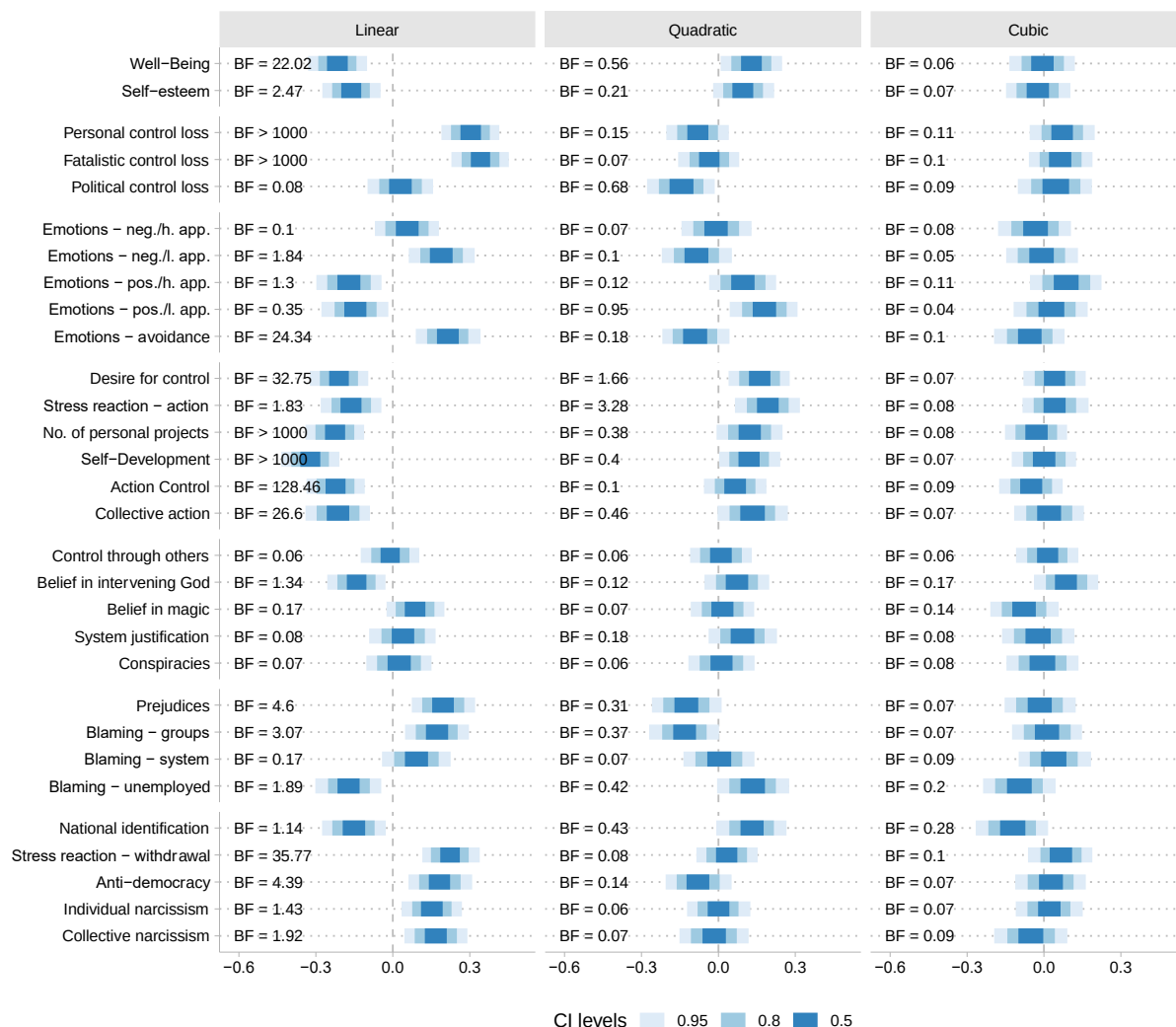
Results

A summary of all main results (i.e., tests of linear, quadratic, and cubic trends) is presented in Figure 1. In general, in 22 out of 30 models, we found support for linear trends and monotonic relationships (in 14 models we found at least substantial support and in 8 models we found weak support). In none of the conducted analyses have we found cubic trends. Only 2 out of 29 models provided some support for quadratic relationships (see descriptions below), and even these models provide at best moderate evidence for such a relationship. For variables created using factor analysis, we conducted additional robustness checks to determine whether using simple means instead of factor scores would impact the results. In all cases, the substantive conclusions remain unchanged. We now discuss the findings in more detail.

Figure 1

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Credible Intervals Denoting Linear, Quadratic, and Cubic Trends of the Length of Unemployment on All Outcome Variables



Note. BF = Bayes factor in favor of the hypothesis that the trend is not 0.

Unemployment, General Well-Being, Self-Esteem, and Perceptions of Control Loss

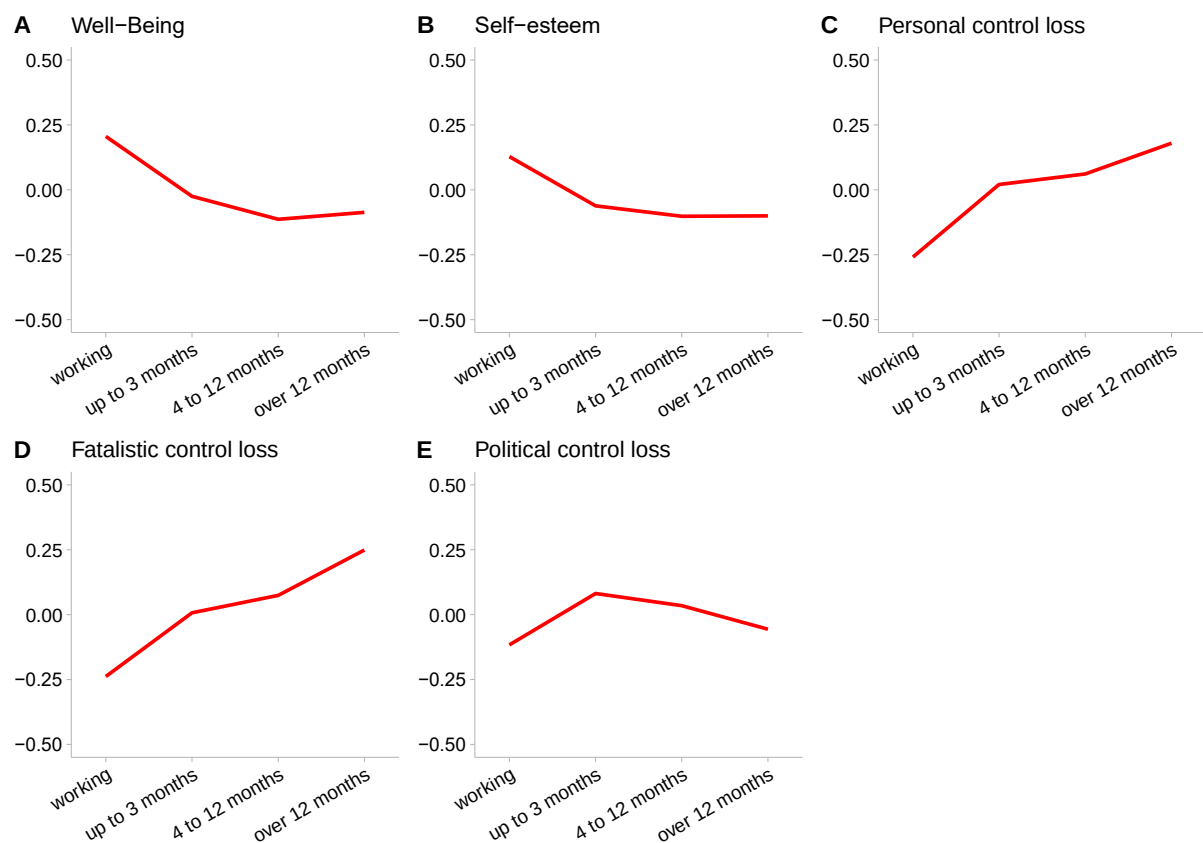
Length of unemployment was linearly and negatively correlated with well-being (Figure 2A) and self-esteem (Figure 2B). At the same time, it was linearly and positively correlated with perceptions of personal control loss (Figure 2C) and fatalistic control loss (Figure 2D). The magnitude of evidence for the relationships between the length of unemployment and both these perceptions of control was extreme. We found no evidence for a correlation between the length of unemployment and perceptions of loss of political control

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(Figure 2E). No support for quadratic trends was observed in the case of variables related to well-being, self-esteem, or control.

Figure 2

Estimated Posterior Means and Spaghetti Plots Denoting Conditional Distribution of Well-Being (A), Self-Esteem (B) and Control-Related Variables (C-E) Given the Length of Unemployment



Unemployment and Approach or Avoidance-based Emotions

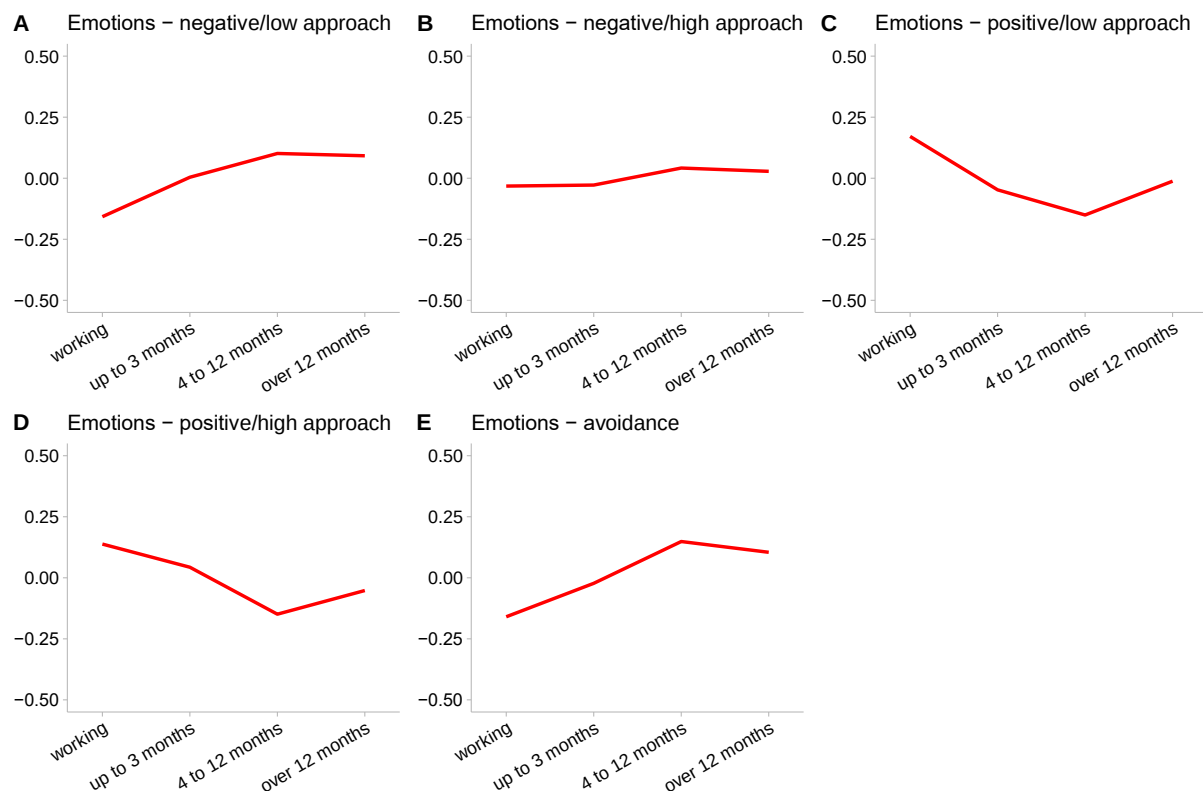
Analyses of self-reported negative emotions revealed that the length of unemployment was linearly and positively correlated with the prevalence of low-approach (Figure 3A) and avoidance (Figure 3E) types of emotions. Particularly, strong evidence was observed in the case of the latter type of emotions (e.g., being frightened). No evidence for the correlation between the length of unemployment and negative high-approach (Figure 3B) emotions was observed. Analyses of self-reported positive emotions revealed a linear and

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negative correlation between the length of unemployment and the prevalence of high-approach (Figure 3D, weak evidence) emotions. No support for linear trend was found in the case of positive, low-approach emotions (Figure 3C). No support for quadratic or cubic trends was observed in the case of any type of emotions.

Figure 3

Estimated Posterior Means and Spaghetti Plots Denoting Conditional Distribution of Various Types of Emotions Given the Length of Unemployment



Unemployment and Primary Control Regaining Attempts

The length of unemployment was linearly and negatively correlated with desire for control (Figure 4A, very strong evidence) and with lower frequency of active stress-coping strategies (Figure 4B, weak evidence). In the case of both variables, evidence (weak and moderate, respectively) was found for quadratic relationships. These trends suggest rebound effects. That is, after an initial decrease, over subsequent months/years of being unemployed individuals seemed to rebuild partially active forms of stress-coping and their desire for

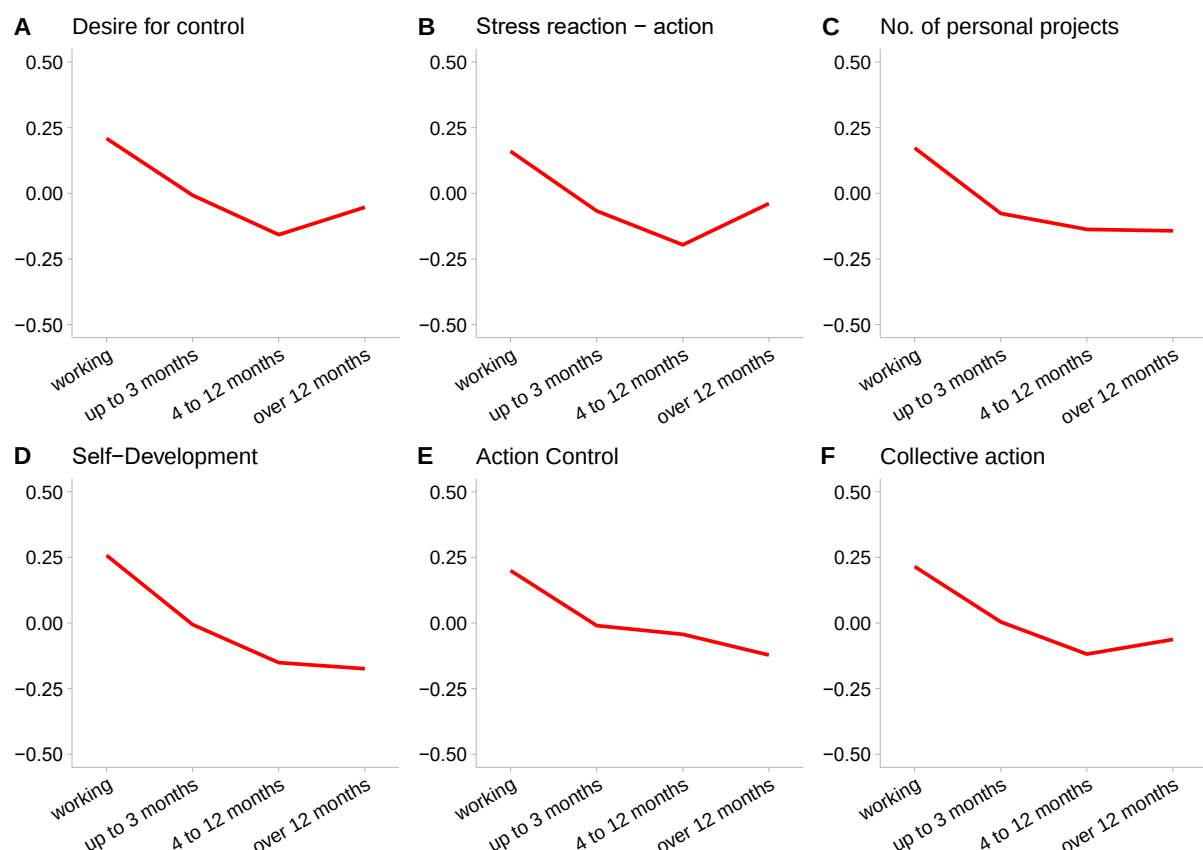
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control. Furthermore, the length of unemployment was linearly and negatively correlated with propensity for collective action (Figure 4F, strong evidence). There was no evidence of quadratic or cubic trends for any of the variables reported from here on.

The length of unemployment was linearly and negatively correlated with a global factor related to self-development (Figure 4D), action control (Figure 4E), and with the reported number of personal projects (Figure 4C). In case of all future-and-planning-related variables the magnitude of evidence for a negative, linear relationship was extreme.

Figure 4

Estimated Posterior Means and Spaghetti Plots Denoting Conditional Distribution of Variables Related to Future Planning (C, D) and Control Regaining Attempts (A, B, E-F) Given the Length of Unemployment



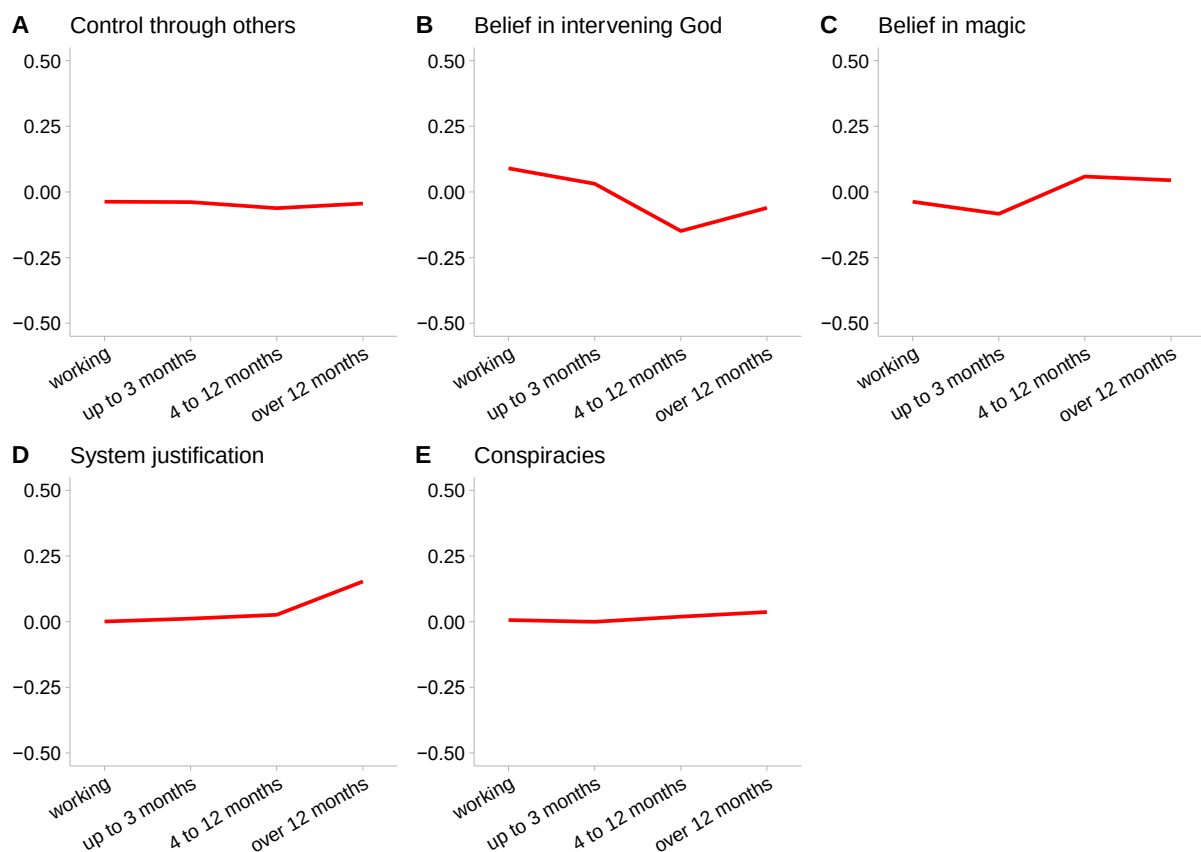
Unemployment and Secondary Control Regaining Attempts

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No evidence in line with control restoration through external sources of control theories was found. The length of unemployment was not correlated with regaining control with the help of others (Figure 5B), nor with system justification (Figure 5E), belief in magic (Figure 5D) or conspiracy theories (Figure 5F). The analysis revealed evidence (albeit weak) for a linear but negative correlation between the length of unemployment and belief in intervening God (Figure 5C).

Figure 5

Estimated Posterior Means and Spaghetti Plots Denoting Conditional Distribution of Variables Related to and Seeking External Sources of Control Given the Length of Unemployment



Unemployment and Defensive Reactions to Control Loss

The length of unemployment was linearly and negatively correlated with attributing the problem of unemployment to the unemployed (Figure 6A, weak evidence), and the same

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time it was linearly and positively correlated with attributing the problem of unemployment to various powerful groups, such as governments or big corporations (Figure 6C, moderate evidence). No evidence was found for the correlation between the length of unemployment and blaming the general socio-economic system (Figure 6B). Moderate evidence was found for a linear and positive correlation between the length of unemployment and level of prejudices towards Jews and Ukrainians (Figure 6D).

Finally, evidence (albeit weak) was found for positive and linear correlations between the length of unemployment and psychological defensiveness at the level of personal and collective self: it was related both to individual narcissism (Figure 6G) and collective narcissism (Figure 6H).

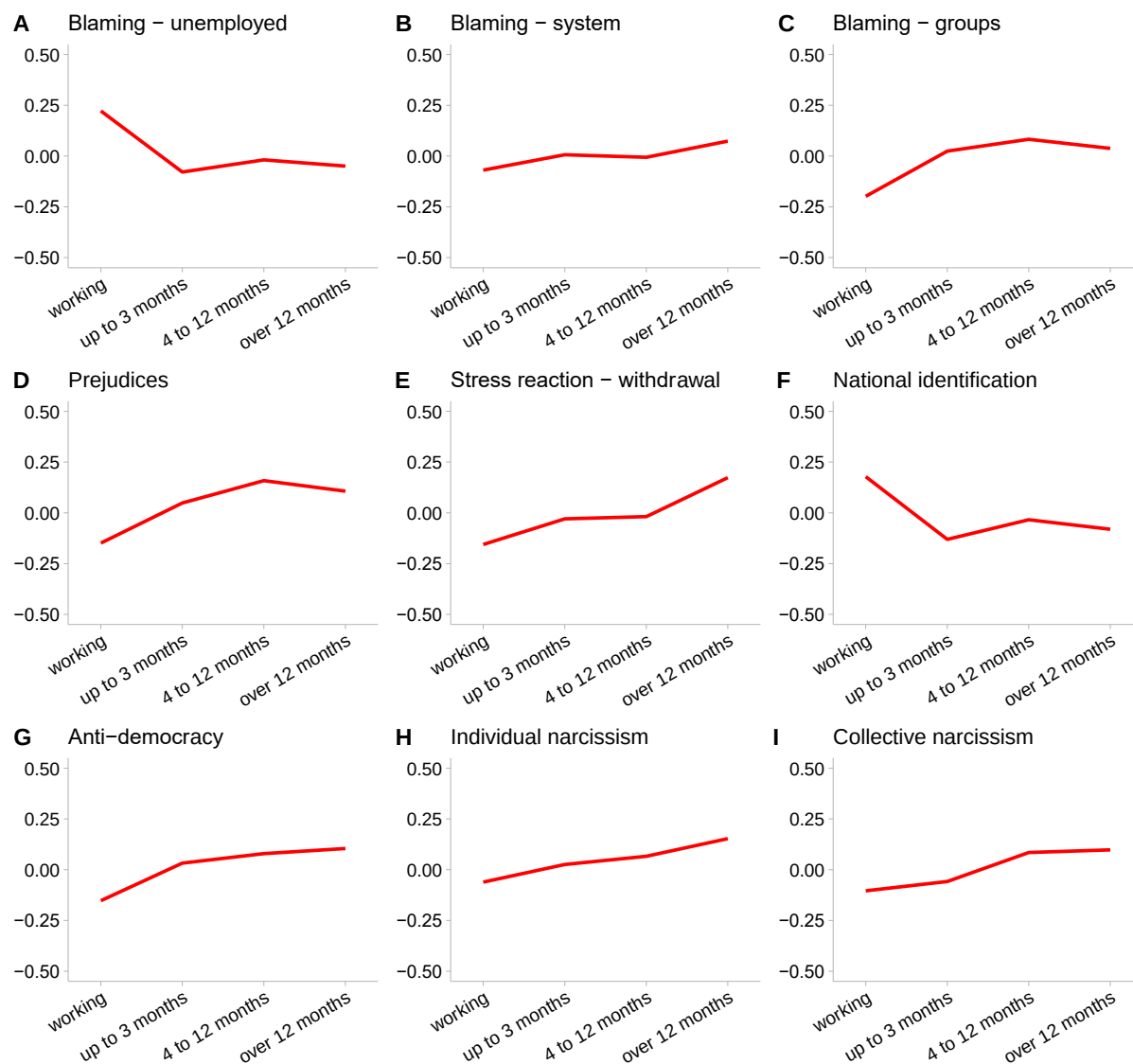
Unemployment and Disengagement/Withdrawal

The length of unemployment was linearly and positively correlated with withdrawal stress-coping reactions (Figure 6E, very strong evidence). Simultaneously, the length of unemployment was linearly and positively correlated with endorsement of anti-democratic beliefs (Figure 6G, moderate evidence), whereas at the same time it was negatively correlated with national identification (Figure 6F, weak evidence). Thus, in a sense, unemployment was related to withdrawal from the social ties and democratic system.

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Figure 6

Estimated Posterior Means and Spaghetti Plots Denoting Conditional Distribution of Variables Related to Blaming (A-D), Disengagement/Withdrawal (E-G), and Defensiveness (H-I) Given the Length of Unemployment

**General Discussion**

Among unemployed individuals, uncertainty as to one's (and one's family) future is likely to create stress, trigger negative emotions and, most importantly, threaten the sense of personal control over one's life. In addition to challenging human agency and wellbeing, unemployment is likely to jeopardize a person's social status, interpersonal relations, ingroup ties, and the relationship with the social system. The question arises which of the alternative

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conceptual approaches to personal control – one stressing an increased control-regaining efforts, the other disengagement and helplessness – provide a better frame for understanding what is going on with psychological and social functioning of people experiencing unemployment of different lengths.

Control Regaining or Disengagement?

The psychology of personal control does not offer unequivocal predictions of the effects of unemployment as control-threatening experience. Whereas the orientation rooted in the learned helplessness tradition predicts gradual action-disengagement, worsened mood, and destruction of a future-oriented activity (such as generation of personal projects), another influential orientation points to motivational and cognitive mobilization which fuels attempts of control restoration in direct or indirect ways.

However, already the classical reactance-learned helplessness approach (Wortman & Brehm, 1975) has suggested that the mobilization effects should be more likely after short exposure to the lack of control situation, whereas disengagement should become more likely under longer exposure to lack of control (see Bukowski & Kofta, 2017, for a detailed discussion of this issue). To achieve an insight into the dynamics of this phenomenon, we therefore decided to compare those who are on a relatively short-term (up to 3 months), medium-term (3 months to 1 year), and long-term (over 1 year) unemployment to a control group (people employed).

The results appeared very supportive to the learned helplessness perspective: the length of unemployment was linearly and positively related to lower self-esteem (however, accompanied by an increased individual narcissism). Further, the length of unemployment was negatively correlated with perceived personal control and desire for control: no evidence was found for a hypothesis suggesting that (at least short) experience of unemployment induces control-regaining efforts. Moreover, as shown by an analogous trend for the fatalistic control loss, the long-term unemployed were more pessimistic about the chances of control restoration in the future than employed individuals. Consistent with the learned helplessness perspective, the reported differences in self-esteem and control judgments were associated

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with several signs of psychological disengagement from direct action tendencies: the length of unemployment appeared to be significantly correlated with diminished tendency to initiate action (low volition), impaired implementation set (difficulty in the initiated action maintenance), lower frequency of active stress-coping strategies, and prevalence of negative low-approach and avoidance emotions.

Importantly, the above differences – suggesting a gradual development of a state of psychological disengagement over the course of prolonged lack of control – were associated with analogous differences in perception of self-development and personal future (see also Carmo et al., 2021). We found that the long-term unemployed people were less likely to think about the distant future and were more pessimistic as to future developments than the control group. Also, they were less eager to generate personal projects (plans for the future activities), less focused on goal attainment, and, consequently, less likely to see themselves as developing entities. The above findings suggest that lasting unemployment not only undermines self-esteem and sense of personal control but may inhibit the processes of construing one's own personal future: In this psychological state, people stop to think about changing their fate by setting important, distant goals, developing plans of their realization, and engaging in new activities to fulfill these plans. Presumably, due to withdrawal from active attempts of construing their individual future, they also stop to develop as persons.

It might be argued that the surprising lack of mobilization effects in people under short unemployment (up to 3 months) does not necessarily contradict the control-restoration theory. Perhaps, the unemployed might have undertaken efforts of control-regaining earlier, in the initial stage of their confrontation with the unemployment situation. To check for this possibility, the group with brief unemployment (up to 1 month) was selected and compared with control participants. However, no empirical support was found for the prediction that brief unemployment generates control-restoration attempts through individual or collective means (see Supplementary Material, Analysis 1).

Still, one should be aware that the difference between employed and short employment groups, suggesting more disengagement in the latter, might have at least partly

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arisen, because those with lower levels of self-esteem and perceived control had been more prone to become unemployed. Because of the correlational design, we cannot settle this problem.

Indirect Control Regaining

So far, we discussed whether during unemployment individuals engage in direct control-regaining efforts or rather tend to withdraw from such activities and found consistent evidence for the latter possibility. However, as suggested by Rothbaum, Weisz, and Snyder (1982), in addition to direct control-regaining attempts (primary control), humans frequently resort to indirect means of control restoration (secondary control), particularly when the former are unavailable or inefficient. Several studies provided evidence in line with this proposal. For instance, it was shown that lowered sense of personal control: makes people to believe more strongly in social systems or the intervening god (Kay et al., 2008, 2010), and intensifies endorsement of conspiracies and belief in magic and superstitions (e.g., Kofta et al., 2020, Study 4; Whitson & Galinski, 2008; cf. Stojanov & Halberstadt, 2020). All these changes might be interpreted as indirect ways of control restoration through “delegating” control to external powerful sources or increasing feelings of indirect, cognitive control over the social/political world. However, in the present research we have not found any support for such hypothesis: prolonged unemployment was unrelated to control restoration attempts *via* increased ingroup identification, system justification, belief in intervening god, belief in magic, and conspiracy theorizing.

Length of Unemployment and (Inter)group Relations

In this study, we asked whether unemployment affects not only an individual but also social adaptation at the level of attitudes towards the ingroup and outgroups as well as to the social system. Analogously to the individual level (self-related beliefs and attitudes), we found that length of unemployment (1) is related negatively to national group identification, but positively to national collective narcissism (a defensive belief that the ingroup is exceptional but underappreciated by others; Cichocka, 2016; Golec de Zavala et al., 2009), and (2) is positively associated with feelings of social isolation as well as a lower tendency to

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engage in collective movements. Thus, psychological disengagement, observed at the level of personality processes, is accompanied by social disengagement. These findings are consistent with previous research that showed that external locus of control is associated with alienation and distrust, reflected in decreased willingness to actively influence the socio-political reality via normative means, e.g., by taking part in political elections (Becker & Tausch, 2015; Cichocka, 2016; Potoczek et al., 2022; Twenge et al., 2004).

The length of unemployment appeared also to be correlated with growing negative attitude toward democracy, rise of prejudice, and increasing tendency to blame external agents (i.e., social groups and institutions such as the government policy, and actions of big corporations) for one's misfortune, while denying that the unemployed themselves might be partly responsible for their fate. This finding is in line with previous research that showed the control restorative function of outgroup blaming in the context of an economic recession (Bukowski et al., 2017). It is also consistent with other research performed during economic downturns in the United States, which revealed that higher unemployment rates are associated with intensified racial antipathy and prejudice (Bianchi et al., 2018). However, as mentioned earlier, we have not found any systematic effects of being unemployed on conspiracy theorizing (see also Stojanov & Halberstadt, 2020) or system justification.

Defensive Processes?

The overall picture of the psychological condition of an unemployed person emerging from our analyzes is not very optimistic. Psychological disengagement from control-restoration efforts, observed among the unemployed in our study, seems to be at least partly compensated by several forms of defensive mental activity. Even though psychological well-being is overall low among the unemployed individuals, it is accompanied by higher levels of individual narcissism. Similarly, reduced identification with the ingroup seems to be compensated by an increase of collective narcissism. These results are in line with past research by Cichocka and colleagues (2018) showing that experimentally decreasing personal control leads to lower ingroup identification but higher collective narcissism. Also, among the long-term unemployed individuals, we observed higher tendency to blame for unemployment

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external social agents (government' policy, big corporations) than among control group, paired with denial of personal responsibility. Moreover, we also found some support for constructive coping over time: While in comparison to control group active forms of stress-coping were lower among the short- and medium-term unemployed, there were no difference between the long-term unemployed and working group (but these effects – even if significant – were rather weak). All these processes suggest that, despite prolonged threat to the self and to one's personal control, the unemployed persons show signs of conjoined psychological efforts intended to defend positive individual and group self-esteem. Possibly, these defensive maneuvers help them fight with negative mood and preserve a positive sense of individual existence.

What Drives the Effect of Unemployment?

Unemployment is a complex phenomenon. In this paper, we focused on one of its aspects: the growing perception of lack of control arising from the inability to find a job and associated financial difficulties. Yet, unemployment seems to threaten also other aspects of the self. Because individuals often define themselves through their jobs and get satisfaction from their work successes, unemployment also poses a significant threat to self-esteem (e.g., Goldsmith et al., 1997). Moreover, previous literature identified several factors such as decreased marital stability, lower mental health, increased mortality, suicide risks, and crime rates that can together translate into lower life satisfaction among the unemployed (see e.g., Kassenboehmer & Haiken-DeNew, 2009). Perhaps, then, the effects of unemployment, reported in this paper, stem not so much from control loss, but from some different, more complex changes to the self. To investigate this possibility, we conducted a set of analyses (see Supplemental Materials, Analysis 2) in which we tested unique contributions of control loss, lowered self-esteem, and decreased well-being to the total effects of prolonged unemployment. These analyses revealed consistent indirect effects of the length of unemployment through control loss, but less consistent indirect effects in the case of self-esteem and well-being. This confirms that perception of uncontrollability is probably a

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crucial mechanism responsible for changes interfering with one's psychological functioning observed among the unemployed.

Intriguingly, one exception was observed: the effects of the length of unemployment on variables related to action control (implementation set and volition to implement goals) were mediated by self-esteem and well-being, but not control loss. One possible explanation for this result may be that the effects of control loss on action control are further mediated by self-esteem and/or well-being, thus forming a causal chain. Therefore, when all three mediators were included simultaneously in the regression equation, the effect of control loss could be obscured by more proximal predictors (i.e., self-esteem and well-being). To investigate such a possibility, we conducted an additional analysis (see Supplemental Material, Analysis 2), which revealed credible indirect effects of the length of unemployment through control-loss and then both self-esteem and well-being on action control. Given the correlational nature of the data, we suggest that such a result should be treated with caution and further investigated in future studies (see Table 2 for more systematic assessment of limitations). Still, these indirect effects may suggest that the effects of control loss on disturbances in action control involve complex mechanisms that include changes in self-esteem as well as in well-being.

Limitations and future directions

The quasi-experimental design utilized in our study, which involved sampling participants at different stages of unemployment, may pose some challenges the internal validity of the presented results. Future research could benefit from employing longitudinal designs, where unemployed individuals are repeatedly assessed at various stages of their unemployment experiences. The cross-sectional design used in the current research may favor the hypothesis based on learned helplessness versus other theories. By selecting out participants into medium-term and long-term unemployment groups, we omitted those who, after initially struggling to cope with unemployment, might have eventually succeeded. Our design does not allow us to assess the proportion of such individuals. Estimating the proportion of those who experience prolonged unemployment compared to those who

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initially engage in efforts to regain control and successfully find employment requires longitudinal studies.

However, it is important to note that longitudinal designs may not entirely resolve issues with internal validity. Participants in such studies may exhibit varying levels of motivation in seeking employment, and some may be more successful than others, potentially leading to biases in the sample composition over time. Notably, participants who secure employment during the study would typically exit the sample, leaving behind those with more prolonged periods of unemployment, possibly skewing the representation of motivations and skills in job search efforts. Thus, both cross-sectional and longitudinal designs are susceptible to potential confounding factors that could undermine causal claims. Consequently, any future studies in this area should meticulously control for potential confounders. A detailed examination of further limitations can be found in Table 2.

Table 2

Assessment of limitations

Dimension	Assessment
Internal validity	
Was the phenomenon validated with experimental methods?	No.
Was the phenomenon validated with longitudinal methods?	No.
What possible confounding variables were ruled out?	gender, age, years of education, place of residence
External validity	
Are the results generalizable to different years and historic periods?	This was not tested. It is uncertain whether results would replicate in a historical period

	of economical struggles and high rates of unemployment.
Are the results generalizable across populations (e.g., different ages, cultures, or nationalities)?	This was not tested. Given that the results were obtained in a Western, developed, and democratic society it is likely that they will differ in other contexts.
Was the phenomenon assessed in a field setting?	Yes, the study was based on a sample of unemployed individuals. Control deprivation was therefore not introduced via laboratory but observed in a real-world setting.
Are the methods artificial?	The measurement of the outcome variable was artificial. The main predictor variable (length of unemployed) was realistic.
Construct validity	
Were the psychometric properties of the measures verified?	Yes, the study relied mostly on previously published validate measures.
Statistical conclusion validity	
Was the statistical power at least 80%?	Yes.
Was the reliability of dependent measures established in this publication or elsewhere in the literature?	The reliability of all measures was established in prior publications or in pilot studies.

Concluding Remarks

In line with previous research on the psychological effects of unemployment, our study demonstrates that control deprivation is a crucial mechanism that is related to a prolonged exposure to unemployment (Bakke, 1940; Creed, 2008; O'Brien, 1986).

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Importantly, the present study provides new evidence that unemployment may be associated with a profound psychological change strongly interfering with psychological as well as social functioning. During prolonged unemployment, a person seems increasingly disengaged: is more apathetic, and is less likely to engage in control-regaining efforts and active forms of construing one's own future (such like goal setting, planning, and generating personal projects – intentions to achieve important personal goals).

Moreover, as shown by our findings, individual disengagement is associated with several signs of social disengagement and alienation. Obviously, both processes may discourage people from the attempts to return to work (e.g., by actively searching for work offers, engaging in training courses for unemployed, or re-shifting their work interests, etc.). As our study suggests, prolonged unemployment may also have negative effects for the functioning of people as citizens. When unemployment continues, individuals – alienated from social activity – may lower their positive attitudes toward democracy and are likely to become prejudiced, and supportive to radical, antidemocratic ideologies. Of course, the basic findings in our study should be approached with caution. Because of the cross-sectional design, any inferences regarding the process evolving in time require additional confirmation in research that uses longitudinal design.

Future research seems necessary to explain why control-regaining processes were not observed even after relatively short unemployment. One possibility is that, even during short unemployment, people – actively, but unsuccessfully looking for work possibilities – are experiencing lack of action-outcome covariation. This may lead them to realize that continuing efforts to find a job might be futile – the inference likely to initiate gradual cognitive and motivational disengagement. Irrespective of the explanation given, one may conclude that control-regaining models of responding to lack of control have received virtually no support from our findings. It looks like that the theory, based mostly on short-lived laboratory treatments, does not offer a good explanation of some real-life phenomena emerging after lengthy exposure to uncontrollable situations.

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Supplementary Materials**Supplementary Table 1**

	working	unemployed		
		up to 3 months	4 to 12 months	over 12 months
Gender –	M: 195 (64)	M: 138 (60)	M: 141 (61)	M: 182 (63)
<i>n</i> (%)	F: 112 (36)	F: 91 (40)	F: 89 (39)	F: 107 (37)
Age – <i>M</i> (<i>SD</i>)	42.12 (13.87)	35.34 (13.68)	38.39 (14.36)	38.89 (14.32)
Years of education – <i>M</i> (<i>SD</i>)	15.05 (2.68)	14.31 (2.36)	14.47 (2.45)	14.24 (2.49)
Place of residence –	C: 77 (25)	C: 64 (28)	C: 75 (33)	C: 78 (27)
<i>n</i> (%)	T1: 24 (8)	T1: 28 (12)	T1: 32 (14)	T1: 44 (15)
	T2: 53 (17)	T2: 26 (11)	T2: 16 (7)	T2: 41 (14)
	T3: 36 (12)	T3: 29 (13)	T3: 30 (13)	T3: 36 (13)
	T4: 66 (22)	T4: 50 (22)	T4: 46 (20)	T4: 54 (19)
	T5: 51 (17)	T5: 32 (14)	T5: 31 (14)	T5: 36 (13)

Note. C = countryside, T1 = town/city with a population up 19.99k, T2 = town/city with a population between 20k and 49.99k, T3 = town/city with a population between 50k and 99.99k, T4 = town/city with a population between 100k and 499.99k, T5 = town/city with a population above 500k

Supplementary Analyses**Analysis 1**

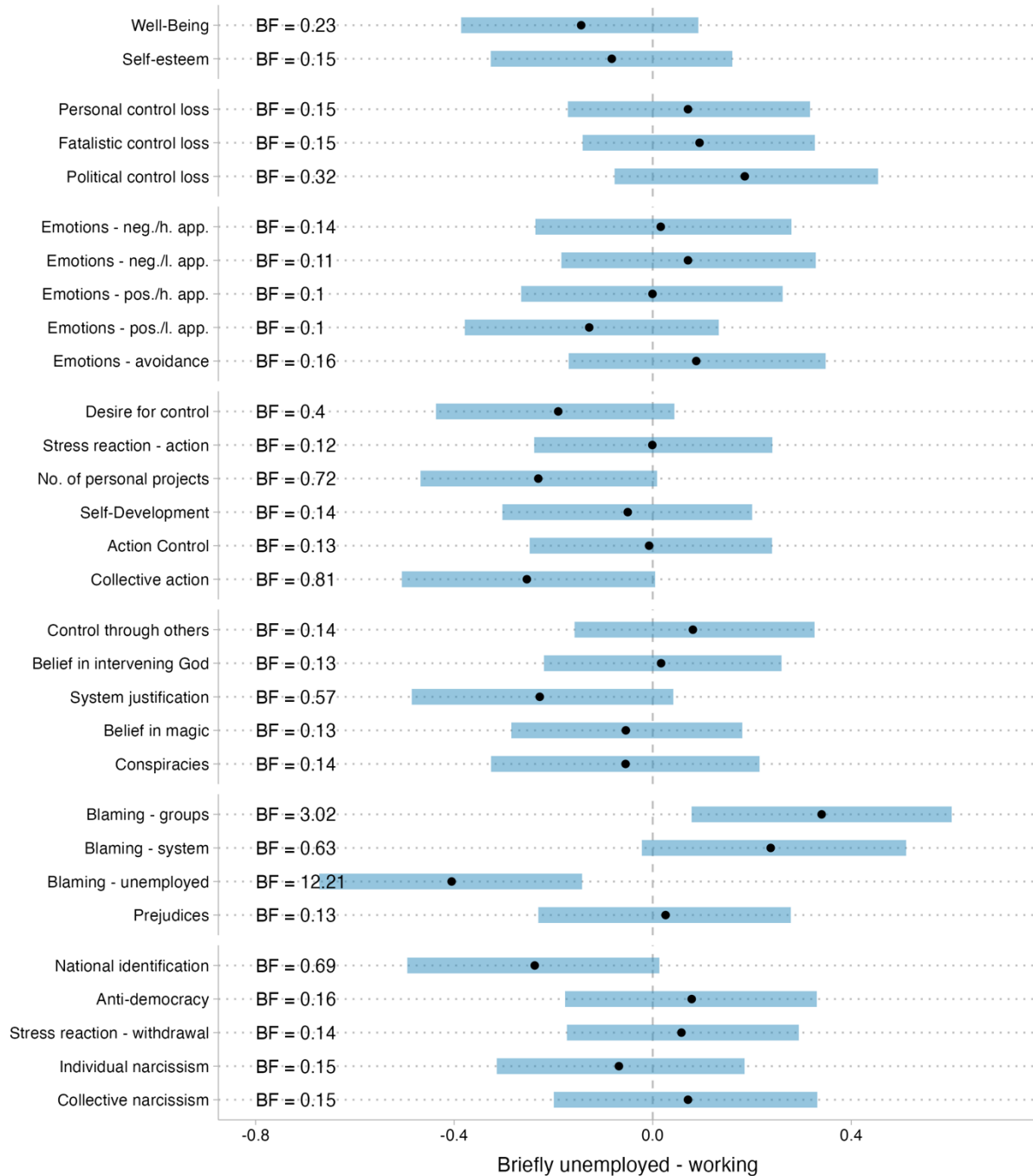
A possible explanation of why no evidence for control restoration attempts (through individual or collective means, or through external sources of control) was observed in current analyses states that the chosen time window for the group with short-term unemployment was too wide. That is, this group consisted of individuals who could be unemployed up to three months. Possibly, control restoration attempts occur with shorter lengths of unemployment. Such possibility was tested in analyses focused on a subsample of working individuals and unemployed whose length of unemployment was shorter than 1 month. We expected that, during such a short period, perceived control loss would not yet be evident. Yet, we expected that within this time window a threat of potential control loss would be salient among unemployed individuals. We decided against testing even smaller time intervals (e.g., 1 or 2 weeks) because it would result in significantly smaller sample size and reduced statistical power. The analytical approach was identical as with the main analyses.

Out of 29 models, credible effects of brief unemployment were observed only in two cases (see Figure S1). Briefly unemployed individuals saw causes of unemployment in unemployed less frequently than their working counterparts (strong evidence), and at the same time, they saw causes of unemployment in various social groups more frequently than their working counterparts (moderate evidence). All remaining analyses revealed no evidence for the prediction that a brief unemployment (understood as a threat to control) results in control restoration attempts (through individual or collective means) or in seeking for external sources of control.

CONTROL LOSS DURING UNEMPLOYMENT

Figure S1

Credible Intervals Denoting Effects of Brief (Less than Month) Unemployment (vs. Being Employed) on All Outcome Variables



Note. BF = Bayes factor in favor of the hypothesis that the trend is not 0. Error-bars represent 95% CIs.

Analysis 2

In an additional set of analyses, we examined the indirect effects of the length of unemployment (its linear component) on various outcomes through control loss, self-esteem, and well-being. We included these mediating variables simultaneously in regression equations to estimate their unique effects. For outcome variables, we choose those that were substantively correlated with the length of unemployment (i.e., we observed BF higher than 3 for the linear effect of unemployment). See Figure S2 for the summary of these analyses.

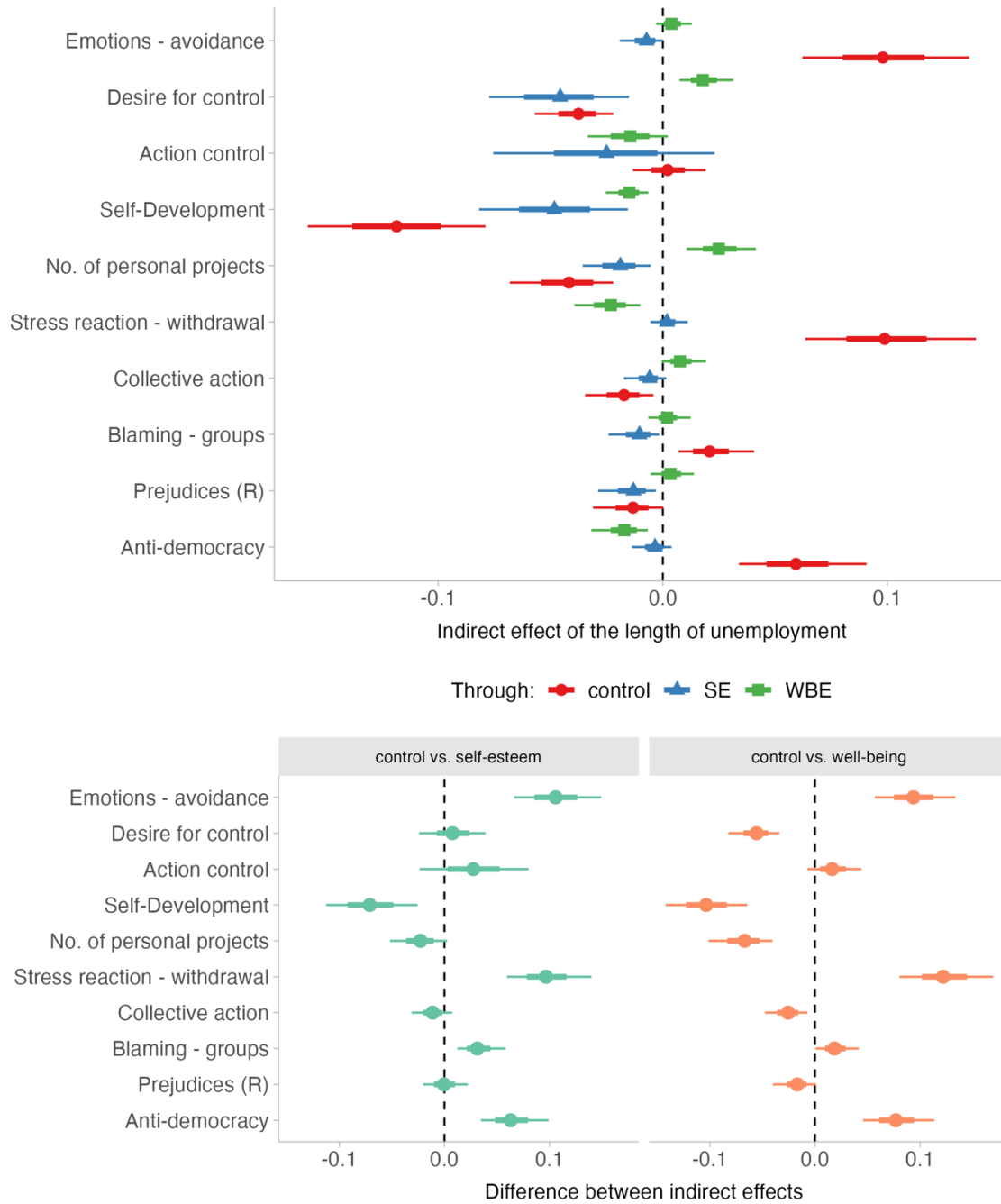
In the case of almost all analyses (except one, with action control as the outcome variable), control-loss credibly accounted for the relationship between the length of unemployment and an outcome variable. The effects of the length of unemployment were mediated also by self-esteem. In this case, credible effects were found in 7 out of 10 analyses. In four of these analyses (i.e., in the case of the desire for control, self-development, number of personal projects, and prejudices) the indirect effect through self-esteem had the same direction and a similar magnitude (with exception of the indirect effect on self-development) as the effect through control-loss. In two cases the indirect effect through self-esteem had a different direction than the effect through control (i.e., in the case of avoidance-related emotions and blaming of various groups for the problem of unemployment). In one case (action control), the indirect effect through self-esteem was credible, whereas the effect through control loss was not credible.

The indirect effects of the length of unemployment through well-being were observed in 6 out of 10 analyses. However, only in one case (i.e., in the case of self-development), the direction of such effect was the same as the effect through control-loss. In this singular case, the indirect effect through control was credibly larger than the effect through well-being. In four cases (i.e., in the case of the desire for control, number of personal projects, withdrawal reactions to stress, and anti-democratic beliefs), well-being had opposite effects to the control loss. In one case (action control), the indirect effect through well-being was credible, whereas the effect through control loss was not credible.

CONTROL LOSS DURING UNEMPLOYMENT

Figure S2

Summary of Indirect Effects of the Length of Unemployment through Control-Loss, Self-Esteem, and Well-Being



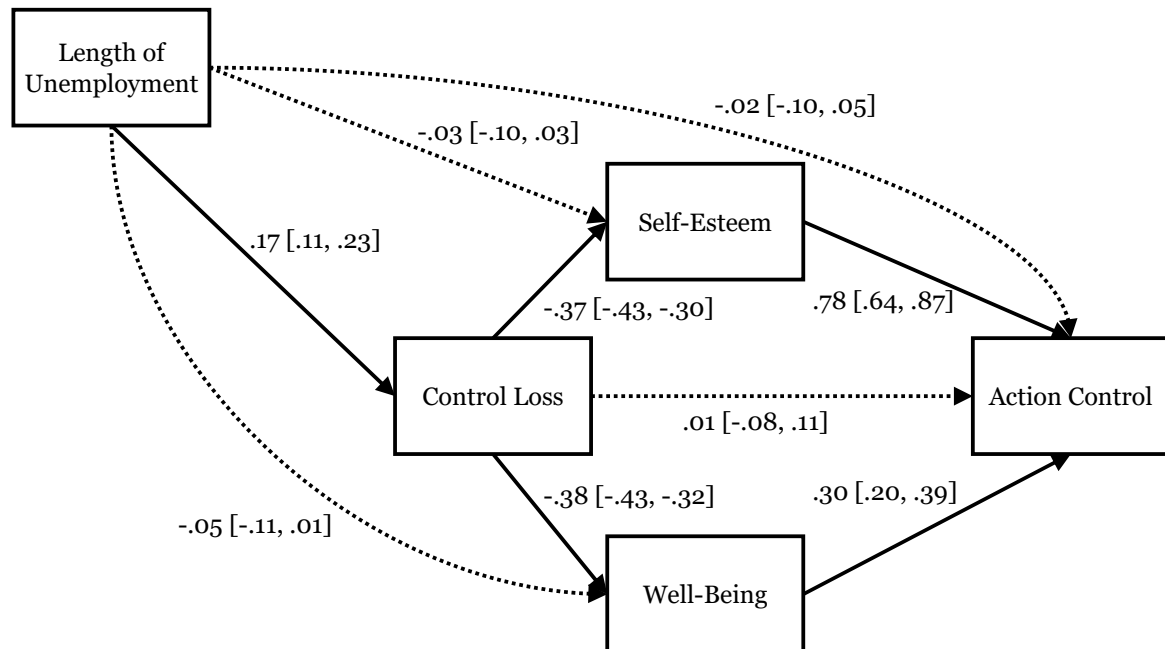
Note. SE = self-esteem, WBE = well-being. Thick error-bars represent 66% CIs, whereas thin error-bars represent 95% CIs.

CONTROL LOSS DURING UNEMPLOYMENT

Additional analysis was conducted to investigate the role of control loss in the relationship between the length of unemployment and action control. The model depicted in Figure S3 was fitted with 3000 MCMC iterations. As represented in this Figure S3, the length of unemployment was credibly related to control loss. Importantly, after accounting for the perception of control, length of unemployment was not related to self-esteem or well-being. At the same time, control loss was credibly related to self-esteem and well-being. This suggests that control loss may mediate the effects of the length of unemployment on both self-esteem and well-being. Next, both self-esteem and well-being credibly predicted action control. Accounting for the levels of these predictors control loss was not credibly related to action control. There, this may suggest that self-esteem and well-being mediate the effects of control loss on action control. Both indirect effects representing these causal chains were credible: length of unemployment $\rightarrow$ control loss $\rightarrow$ self-esteem $\rightarrow$ action control, IE = -.05, 95% CI [-.07, -.03], length of unemployment $\rightarrow$ control loss $\rightarrow$ well-being $\rightarrow$ action control, IE = -.02, 95% CI [-.03, -.01]. After accounting for all indirect path, the direct effect of the length of unemployment on action control was not credible.

Figure S3

Path Model of the Relationship Between the Length of Unemployment and Action Control Through Control Loss, Self-Esteem, and Well-Being



Note. The values represent standardized posterior coefficients. Values in the brackets represent 95% credible intervals. Solid lines represent paths with coefficients credibly different from 0, whereas dotted lines represent path with coefficient for which 95% CI includes 0.