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The motivational consequences of an Action Crisis. An experimental approach with
Sense of Control as a Mediator.

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Abstract (english)

Pursuing personal goals takes dedication and perseverance. When setbacks and failures accumulate and progress slows, individuals begin to question their commitment to their established goals. This critical phase is called an *action crisis*. Understanding the psychophysical correlates of an action crisis is essential because they impact long-term health and wellbeing. This study investigated the physiological consequences of an action crisis in an experimental setting with 198 participants. The study examined if an action crisis could be measured through the variable effort, which was assessed using cardiovascular responses, specifically the pre-ejection period (PEP). While no conclusive evidence supported this direct relationship, participants experiencing an action crisis showed greater effort in an unrelated task, which is not directly linked to the initial goal. Even though the task is unrelated, it still demands cognitive and physiological resources, making them a useful measure of how an action crisis affects broader effort allocation. This suggests that an action crisis may influence effort allocation beyond the primary goal. Contrary to expectations, sense of control did not mediate the relationship between action crisis and effort. Several limitations must be considered, yet these findings highlight the broader impact of an action crisis on effort investment in unrelated tasks. The underlying mediating factors need further research.

Keywords: disengagement, action crisis, effort, experiment, cardiovascular response

Abstract (Deutsch)

Selbstgesetzte Ziele zu verfolgen, braucht viel Einsatz und Durchhaltevermögen. Wenn es immer wieder Rückschläge gibt und der Fortschritt stockt, fängt man an, an seinem Ziel und der eigenen Motivation zu zweifeln. Diese Phase wird als *action crisis* bezeichnet. Verständnis für das Auftreten einer action crisis zu entwickeln ist wichtig, da sie langfristige Auswirkungen auf Gesundheit und Wohlbefinden haben kann. In dieser Studie mit 198 Teilnehmenden wurden die körperlichen Folgen einer action crisis untersucht. Konkret ging es darum, ob sich eine action crisis an der Anstrengung messen lässt – erfasst über kardiovaskuläre Reaktionen, insbesondere die Prä-Ejektionsperiode (PEP). Zwar konnte kein eindeutiger direkter Zusammenhang nachgewiesen werden, aber Personen mit einer action crisis zeigten eine erhöhte Anstrengung bei einer Aufgabe, die mit ihrem gesetzten Ziel nichts zu tun hat. Auch wenn die Aufgabe nicht mit dem ursprünglichen Ziel in Verbindung steht, erfordert sie dennoch kognitive und physiologische Ressourcen. Das macht sie zu einem nützlichen Maß dafür, wie sich eine action crisis auf die Verteilung der Anstrengung auswirkt. Entgegen der Erwartung medierte das Gefühl der Kontrolle nicht die Beziehung zwischen action crisis und Anstrengung. Es gibt einige methodische Limitationen, die berücksichtigt werden müssen. Trotzdem zeigen die Ergebnisse, dass eine action crisis die Anstrengung bei Aufgaben, die nichts mit dem Ziel zu tun haben, beeinflussen kann. Die dahinterliegenden Mechanismen sind noch unklar und benötigen weitere Forschung.

Schlüsselwörter: Ziel aufgeben, action crisis, Anstrengung, Experiment, kardiovaskuläre Reaktion

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1. Introduction

Working toward personal goals takes dedication and perseverance. However, everyone knows the feeling of doubting whether they should continue pursuing their goal. When a goal becomes too difficult or impossible to achieve, letting go might be the best option (Brandstätter et al., 2013). In Western culture, giving up is often seen as failure, still everyone sometimes faces challenges that cannot be overcome. In such cases stepping away from a goal is not a defeat but a necessary part of personal growth and self-regulation (Wrosch et al., 2003).

Psychological research has traditionally paid little attention to goal disengagement (Herrmann & Brandstätter, 2013), even though it is a key component of adaptive self-regulation. When obstacles accumulate and progress slows, individuals begin to question their commitment (Brandstätter et al., 2013). Many meaningful goals, such as earning a degree, advancing in a career, or improving physical fitness, require long-term effort. While persistence is often necessary, holding onto an unrealistic goal can drain energy and negatively impact well-being (Brandstätter & Herrmann, 2016). In such cases, disengagement may be the smartest decision and a step toward future success (Kurzban et al., 2013).

However, the cognitive and behavioral processes involved in goal disengagement are a relatively new field of research. This is where the concept of an *action crisis* comes into play.

An action crisis often occurs after significant effort has been invested, making it difficult for the person to disengage and triggering inner conflict (Herrmann & Brandstätter, 2013). An action crisis represents the moment when individuals struggle between continuing to pursue a personal goal or giving up on it, often after facing repeated setbacks or when the goal has become less appealing. Instead of actively working towards the goal, individuals then start to shift their focus to weighing the costs and benefits of continuing (Jostmann & Koole, 2008). Following Kurt Lewin's field theory, an action crisis can be seen as an aversive-aversive conflict (Lewin, 1963). Persisting in the goal could be linked to high effort, frustration and continued setback. Disengaging from the goal may lead to feelings of failure, regret, or loss of identity. Both alternatives are associated with negative consequences.

A person training for a marathon for example may face persistent joint pain and slow progress. Despite months of training, they must decide whether to push through or risk further injury. As they debate whether to keep going or withdraw, they possibly experience stress, frustration, and self-doubt. This internal struggle, where they are torn between holding on and letting go, illustrates an action crisis.

Understanding the impact of action crises is crucial, as being stuck in this state can negatively, besides the struggle of failure, affect health and overall well-being (Wrosch et al., 2007). Research has shown that action crises correlate with increased stress, depressive symptoms, and physical health issues (Wolf et al., 2019; Brandstätter & Herrmann, 2016). The intensity of an action crisis is negatively correlated with life satisfaction and perceived goal attainability while increasing psychosomatic symptoms and sleeping disorders (Brandstätter et al., 2013). For instance, students experiencing higher levels of action crisis reported earning fewer academic credits by the end of their first year (Herrmann & Brandstätter, 2013). These findings show the importance of understanding how individuals navigate action crises and what factors contribute to their resolution.

It should be self-evident that having an action crisis negatively impacts performance on tasks directly linked to the goal (Brandstätter et al., 2013). So what about tasks that are goal-unrelated to the conflicted goal? If an action crisis, indeed drains cognitive resources, performance declines might even be noticeable in unrelated tasks happening close to the action crisis. Therefore, an action crisis might not only affect the primary goal but also unrelated tasks. An action crisis may impair performance on an unrelated goal because it is perceived as more difficult due to the physiological stress response. When individuals experience an action crisis, their cognitive and emotional resources are consumed by doubt and internal conflict, leaving fewer resources available for other tasks (Baumeister & Vohs, 2016). As a result even unrelated goals may appear more challenging, leading to decreased performance (Walker et al., 2022). This study aims to investigate whether an action crisis translates into a higher perceived difficulty of unrelated tasks. Finding such evidence would underscore the widespread impact of action crises within an individual's overall goal system.

Methodologically, most research on action crises relies on longitudinal designs (Wolf et al., 2019) and self-report measures like the Action-Crisis Scale (ACRIS; Brandstätter & Schüler, 2013). While these methods provide valuable insights, they also have limitations, including biases such as social desirability and self-enhancement. To gain a more comprehensive understanding, future research should explore experimental designs and objective measures, such as physiological assessments. Research suggests that the relationship between an action crisis and performance (e.g. in a marathon) is mediated by physiological stress reactions. This increased physiological stress was predicted by higher levels of action crisis (Brandstätter & Schüler, 2013).

Another factor in this process might be perceived control. A strong sense of control enhances motivation and persistence (Reis et al., 2023). Understanding the role of perceived control in action crises is essential, as it may not only predict how individuals experience this crisis but also determine their ability to navigate and resolve them effectively. Perceived control enhances the sense of agency, motivating individuals to remain engaged in their goals even when faced with obstacles (Reis et al., 2023). When individuals feel less in control, they may not only struggle with their primary goal but also perceive other, unrelated tasks as more difficult. Their sense of control might mediate the relationship of action crisis on unrelated goals by increasing the perception of difficulty. So perceived control could serve as a buffer against the negative consequences of an action crisis, helping individuals navigate action crisis more effectively (Greenaway et al., 2014).

2. Understanding Action Crisis

Motivational Intensity Theory (Brehm & Self, 1989) provides a useful framework for explaining this relationship between action crisis and unrelated tasks. The theory states that effort increases with perceived task difficulty but only up to a certain point regarding the individual's success importance. If a task seems impossible, effort drops to zero, leading to disengagement (Richter et al., 2016). Having an action crisis increases task difficulty, because it depletes cognitive and motivational resources, making it harder to focus and perform efficiently. Depending on the individual's success importance this could lead to performance differences, but it will always lead to an effort difference.

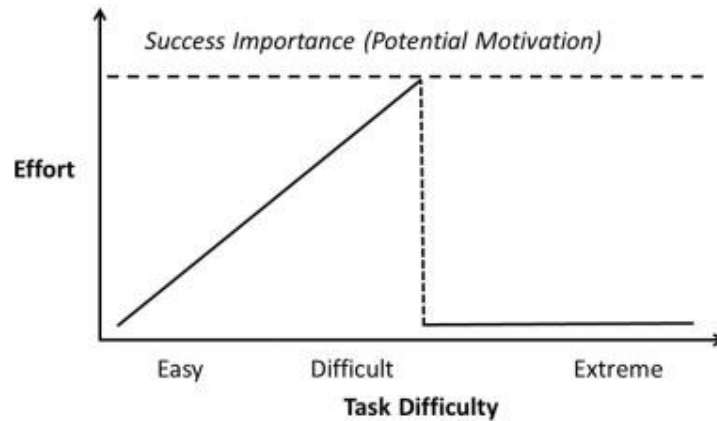


Figure 1. Motivational Intensity Theory (Silvestrini et al., 2017)

If an action crisis increases task difficulty in goal-related tasks, it may also make unrelated tasks appear more difficult, leading to an increased effort to complete them. This suggests that the perceived difficulty of an unrelated task is not just an objective assessment but is also shaped by psychological states such as action crises.

A key factor in understanding how an action crisis may affect unrelated tasks might be the sense of control. When individuals experience an action crisis, they often feel an internal struggle between continuing and abandoning a goal, which can undermine their perceived control over their situation. This reduced sense of control may also influence how they approach other, unrelated tasks – specifically, by making these tasks seem more difficult and requiring greater effort.

Research supports the link between perceived control and task difficulty. While moderate difficulty can enhance perceived control, excessive difficulty can lead to feelings of helplessness and reduced control (Bognar et al., 2024). A lack of control can make tasks seem harder and require greater effort to complete (Zeitlhofer et al., 2024). If an action crisis reduces perceived control, it may make unrelated tasks appear more difficult, leading to an increase in effort.

As it is a goal in the present study to investigate action crisis in an experimental setting, Paul Obrist's Active Coping Hypothesis (Light & Obrist, 1983) is helpful. It suggests that effort in response to a challenge is linked to beta-adrenergic sympathetic nervous system activation, which can be measured through myocardial contractility. Pre-ejection period (PEP) as a key

indicator of cardiovascular effort (Mlynski et al., 2020). While this increased effort may not always translate into differences in performance – since some individuals may persist despite the added difficulty – it should still be reflected in physiological markers of effort. Thus, PEP should be an objective tool to measure how an action crisis affects effort allocation in unrelated tasks. Understanding these mechanisms can contribute to a broader framework of effort regulation and goal persistence, ultimately shedding light on the psychophysiological dynamics of experiencing an action crisis

3. Hypotheses

H1: Effort-related cardiovascular responses during the writing task will be higher in the action crisis group than in the control group.

The present study aims to explore how an action crisis influences effort, addressing a gap in the current research of action crises. While previous research has primarily investigated action crises through longitudinal studies and self-report measures, this study seeks to establish a more reliable method of measuring the physiological effects of an action crisis by examining effort-related cardiovascular responses, specifically through pre-ejection period (PEP), within a controlled laboratory environment.

Based on Motivational Intensity Theory (MIT) and the Active Coping Hypothesis, we hypothesize that the action crisis condition requires more effort compared to those in the control group, who are progressing successfully toward their goals. Consequently, we expect heightened effort-related cardiovascular responses in PEP in the action crisis condition.

H2: Effort-related cardiovascular responses during the transfer task will be higher in the action crisis group than in the control group.

Beyond the immediate physiological responses, this study aims to explore how an action crisis influences effort allocation in unrelated tasks. We investigate how participants' experience of an action crisis affects their effort in a subsequent, unrelated task. If an action crisis alters the perception of task difficulty, leading to increased effort, we expect this effect to carry over into unrelated tasks, even when no additional effort is objectively required. Specifically, we

hypothesize that participants in the action crisis condition will show heightened effort-related cardiovascular responses (as measured by PEP) during the unrelated task.

This approach allows us to better understand how an internal conflict, such as an action crisis, can influence effort allocation in tasks that are not directly connected to the crisis.

H3: The effect of an action crisis on effort-related cardiovascular responses will be mediated by perceived control over the ability to achieve subsequent goals.

Additionally, this study seeks to identify potential mediators that explain the relationship between an action crisis and effort-related physiological responses. A particularly relevant mediator is perceived control. If individuals experiencing an action crisis feel less in control of achieving their goal, they may also perceive the transfer task as more difficult. Consequently, this reduced control may lead to increased effort in the unrelated task, resulting in heightened cardiovascular response compared to the control group.

Investigating perceived control as a mediator will help clarify whether control contributes to effort regulation in action crises. Building on Motivational Intensity Theory (MIT), we anticipate that individuals experiencing an action crisis will report a reduced sense of control compared to those in the control condition. As a result, they are likely to perceive the unrelated task as more challenging, leading to increased effort. Figure 3 illustrates the expected differences in effort levels between the two experimental conditions, with task difficulty being objectively defined.



Figure 2. Study Design.

By integrating physiological and psychological measures, this study advances the empirical understanding of action crises and their impact on cognitive and motivational processes. The findings will contribute to the broader literature on goal disengagement and offer new insights into how individuals navigate moments of internal conflict in goal pursuit.

4. Methods

4.1. Sample and Recruitment Strategy

Participants were recruited through the Labs System of the University of Vienna, a platform primarily used by undergraduate psychology students. Interested students accessed an online platform that provided comprehensive information regarding participation requirements, study procedures, data handling, and confidentiality. Participants received lab credits as compensation, which are required for completing their degree.

A power analysis was conducted using G*Power 3.1 for an independent samples *t*-test, assuming a small to moderate effect size of Cohen's $d = 0.35$, a significance level of $\alpha = 0.05$ (one-tailed), and a desired power of $1 - \beta = 0.80$. Based on these parameters, a minimum sample size of $N = 204$ was required. To account for potential exclusions, we aimed to recruit approximately $N = 215$ participants.

A total of 218 participants were recruited for this study. Following the data screening, 20 participants were excluded from the final analysis: eight participants due to incomplete or missing data, eight participants due to uninterpretable PEP data, four participants due to PEP values exceeding three standard deviations from the group mean.

The final sample consisted of $N = 198$ participants (145 females, 53 males), with a mean age of 21.57 years ($SD = 3.49$, age range: 18–36 years). Of these, 98 participants were assigned to the manipulation group, and 100 participants to the control group.

4.2. Study Procedure

The study was conducted in a laboratory of the University of Vienna. The study followed an experimental randomized controlled trial (RCT) design with a double-blind procedure.

Participants were randomly assigned to one of two conditions: 1. The action crisis group or 2. the

control group. In both of the groups the cardiovascular (CV) response was continuously monitored throughout the experiment.

Phase 1: Screening and Participant Selection

During the initial phase, prospective participants underwent an online screening process to determine eligibility. This screening could be completed remotely on a mobile device or computer. Participants answered a series of questions to assess whether they were currently struggling with a specific personal goal and whether they were making satisfactory progress on another goal. After this they were asked to assess their perceived difficulty of the selected goals, their commitment level to each goal and the overall importance of these goals.

Participants who met the inclusion criteria, which required having both a goal they were struggling with and a goal they were progressing well on, were invited to participate in the laboratory phase. On average, 8 days passed between screening and laboratory participation.

Phase 2: Laboratory Experiment

Upon arrival at the laboratory, participants were equipped with electrodes (attached to the neck and waist) and a blood pressure cuff to continuously monitor their pre-ejection period (PEP), their heart rate (HR) and their systolic blood pressure (SBP). We used HR and SBP to control this measure. To establish a baseline cardiovascular state, participants first listened to relaxing music for exactly 10 minutes while their CV responses were recorded.

After the baseline phase, participants completed the Multidimensional Mood Questionnaire (MDBF, Version A), assessing their current mood on a five-point scale (Steyer et al., 2003). The internal consistency of MDBF is reliable, with Cronbach's alpha ranging from .73 to .89 in the short version. Following this, participants engaged in a writing task, which served as the primary experimental manipulation. The action crisis group wrote about a goal in which they were experiencing internal conflict (i.e., an action crisis). The control group wrote about a positive goal in which they were progressing well on. Although both groups received the same questions as writing instructions, their content differed based on group assignment. Immediately after the

writing task, participants of both groups completed the Action Crisis Scale (ACRISS; Brandstätter & Schüler, 2013) to assess their current level of action crisis.

Following the writing task, participants completed a second mood assessment using MDBF, Version B (Steyer et al., 2003) and rated their perceived loss of control over goal attainment using the power component questions on the 9-point Self-Assessment Manikin scale (Bradley & Lang, 1994).

Phase 3: Transfer Task (Selective Attention Task)

In the final phase, participants completed a non-related cognitive task to assess potential carry-over effects of action crisis on unrelated activities. This was operationalized through the d2-letter cancellation task (Brickenkamp et al., 2010), which is a selective attention exercise. In this task, participants were instructed to identify and mark the letter “d” with exactly two marks from a matrix of similar distractors (letters “p” and “d” with varying numbers of marks).

Prior to the main task, participants underwent a practice phase to familiarize themselves with the task. They were informed that students typically complete 55 rows in approximately 4 minutes. The task had a time limit of 5 minutes. After this, participants were asked to self-report their predicted performance, estimating how many rows they thought they could complete in 5 minutes. They could select a value between 1 and 100 rows from a drop-down menu.

Once the transfer task began, we anticipated a divergence in effort-related cardiovascular responses between the action crisis and control groups.

Phase 4: Debriefing

At the end of the experiment, participants were fully debriefed and informed about the study’s hypotheses and purpose. They also received lab credits as compensation.

4.3. Measures

Independent Variable

Action crisis. In this study action crisis was the primary independent variable. This variable was manipulated by having participants write about a goal in which they might experience an action crisis or a goal they were progressing well on. The questionnaire consists of seven items, where participants had to write about 3-5 sentences each (e.g. „Warum Sie sich ursprünglich für dieses Ziel entschieden haben und was es Ihnen damals bedeutet hat.“). To assess the effectiveness of this manipulation, we utilized the Action Crisis Scale (ACRISS; (Brandstätter & Schüler, 2013). The scale consists of six items (e.g. „Die Verfolgung meines Ziels verläuft für mich reibungslos.“) on a 5-point scale (1 = gar nicht zutreffend, 5 = sehr zutreffend). The internal consistency of the ACRISS is reliable, with Cronbach’s alpha ranging from .75 to .80.

Dependent and mediating Variables

Effort. Effort was assessed through cardiovascular responses, focusing on the pre-ejection period (PEP). We used heart rate (HR) and systolic blood pressure (SBP) to control this measure.

Pre-Ejection Period (PEP). Many studies have supported Wright’s integrative analysis, which examines how ability influences effort and the corresponding cardiovascular (CV) responses when individuals face performance challenges (Wright & Kirby, 2001). This framework is based on Obrist’s active coping hypothesis, which suggests that greater effort leads to increased activation of the beta-adrenergic sympathetic nervous system. This, in turn, strengthens heart contractions and influences myocardial contractility (Light & Obrist, 1983). PEP is the measure of myocardial contractility. A shorter PEP indicates an increased cognitive effort (Brandstätter & Hennecke, 2018).

In this study, PEP served as the primary cardiovascular dependent variable. Two separate PEP scores were calculated: one in the writing task phase and another one in the transfer task phase.

Non-related transfer task. Another dependent variable was the PEP score or effort in a non-related transfer task (Brickenkamp et al., 2010). This study aimed to determine whether an action crisis influences effort in tasks unrelated to the goal in question. The non-related task in this

study was the d2 letter cancellation task, a selective attention exercise described in detail in the study procedure.

Sense of control. Connected to the non-related transfer task, sense of control was considered a mediating factor between action crisis and effort in an unrelated task. The variable sense of control in this study was measured using the power component of the 9-point version of the Self-Assessment Manikin (SAM, Reliability: $.75 \leq \alpha \leq .80$) (Bradley & Lang, 1994). Participants responded to three bipolar items: “schlecht” to “gut”, from “ruhig” to “aufgeregt” and from “machtlos” to “machtvoll”. These ratings should capture their perceived control.

4.4. Statistical analysis

We conducted one-tailed Welch t-tests to test hypotheses H1–H3, as we specifically predicted that the action crisis condition would show higher effort. The Welch t-test was chosen because the assumption of equal variance was violated, making it a more robust option. Normality assumptions were met.

For Hypothesis 3, we also investigated whether sense of control mediated the effect of action crisis on effort during the letter cancellation task. To assess this potential mediation, we used Structural Equation Modeling (SEM) in Mplus. The SEM path model allowed us to test all predictions simultaneously while accounting for potential correlations. Specifically, the structural model examined whether the experimental manipulation influenced the latent variable *sense of control* and whether this, in turn, affected effort-related cardiovascular reactivity.

To ensure the reliability of the coding process for identifying participants experiencing an action crisis, we assessed interrater reliability (ICC). Three independent raters evaluated the data.

5. Results

H1: Effort-related cardiovascular responses during the writing task will be higher in the action crisis group than in the control group.

The results for H1 were not significant ($t(192.851) = -0.879, p = .810$). This suggests that the grouping variable did not lead to a significant difference in the action crisis response. The effect size, as measured by Cohen's d , was -0.125 , indicating no effect. Participants in the action crisis

condition had a standard deviation (SD) of 1.032, which was nearly identical to the control group (SD = 0.926).

H2: Effort-related cardiovascular responses during the transfer task will be higher in the action crisis group than in the control group.

The results for H2 were significant ($t(169.982) = 2.023, p = .022$), indicating a significant difference in the activity of the pre-ejection period (PEP) during the letter cancellation task between the groups. Participants in the action crisis condition exhibited greater effort, with a standard deviation (SD) of 10.944, compared to the control group (SD = 7.371). The effect size, as measured by Cohen's d , was 0.289, indicating a small effect.

Post-hoc Analysis: Interrater reliability

To further examine the validity of our grouping procedure, we conducted a post-hoc analysis of interrater reliability. The interrater reliability analysis yielded an ICC/Cohen's kappa value of 0.696, indicating a moderate level of agreement among the three independent raters. However, this did not alter the differentiation between the action crisis and control groups, confirming that the classification process was reliable and did not impact the overall findings.

Mediation Analysis: Sense of Control

H3: The effect of an action crisis on effort-related cardiovascular responses will be mediated by perceived control over the ability to achieve subsequent goals.

Integrating the variable "sense of control" as a mediator the results showed it didn't have a significant impact on the PEP change scores ($\beta = 0.026, p = .741, 95\% \text{ CI } [-0.695, 0.978]$). Similarly, the effect of the grouping variable on the variable sense of control was also not significant ($\beta = -0.045, p = .526, 95\% \text{ CI } [-0.332, 0.651]$). However, the direct effect of the grouping variable on PEP change scores was significant ($\beta = -0.151, p = .024, 95\% \text{ CI } [-5.473, -0.194]$), as already shown in Hypotheses 2.

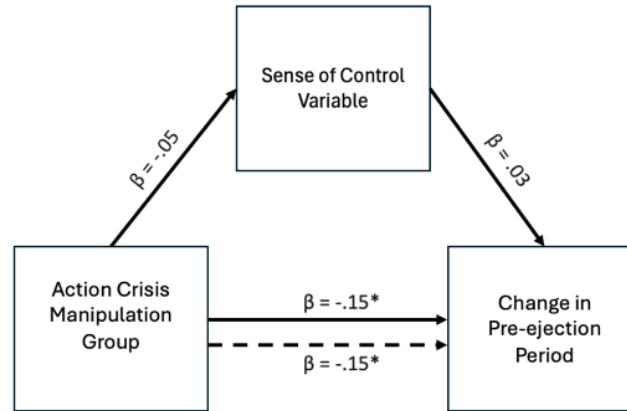


Figure 3. Mediation Path Model of the Action Crisis manipulation group on the PEP change score through the mediator sense of control. * indicates a $p < .050$.

We also examined the indirect effect from the grouping variable through the sense of control variable to the PEP change scores ($\beta = 0.023$, $p = .754$, 95% CI [-0.119, 0.164]). The results indicated that this indirect effect was not significant.

6. Discussion

The goal of this study was to experimentally investigate the concept of an action crisis in connection to unrelated tasks. While previous research has primarily relied on longitudinal designs and self-report measures (Wolf et al., 2019; Brandstätter & Schüler, 2013), this study introduced physiological indicators, primarily pre-ejection period (PEP) changes, to assess action crises.

Our results did not support the hypothesis that the action crisis group would show significant differences in PEP scores. However, we found that participants in the action crisis group exerted more effort during an unrelated transfer task, supporting the hypothesis that action crises can influence effort in unrelated goals. The proposed mediation effect of sense of control was not supported, suggesting that other mechanisms may underlie the observed effects.

This study also aimed to examine the effects of an action crisis on unrelated tasks. Our results indicate that participants in the action crisis group exerted more effort in the letter cancellation task compared to the control group, supporting our hypothesis. However, despite this increased

effort, their actual performance did not improve. This suggests that experiencing an action crisis can make an unrelated goal appear more difficult, leading individuals to invest more effort without necessarily achieving better results. One possible explanation for this finding is that individuals in an action crisis may experience cognitive and emotional strain, which influences their engagement in new tasks.

Additionally, the significant cardiovascular differences observed between the action crisis and control groups during the transfer task suggest a physiological basis for this increased effort. Participants in the action crisis group exhibited heightened cardiovascular responses, which align with previous research on stress-related effort mobilization (Bognar et al., 2024). This supports the idea that goal conflicts do not remain isolated but may extend to other domains of functioning, affecting motivation and physiological effort regulation.

An alternative explanation for this result can be drawn from self-completion theory (SCT). The theory proposes that individuals who experience a sense of incompleteness compensate by exerting additional effort in other areas (Lange, 2015). In this context, participants in an action crisis may have unconsciously increased their effort in the transfer task as a compensatory mechanism, attempting to reaffirm their sense of competence. Future research should investigate whether this effect is driven more by self-regulation deficits associated with an action crisis or by an unconscious compensation process to restore self-integrity.

The lack of significant differences in action crisis scores between groups without the unrelated task may be attributed to methodological challenges. We used the same goal-related questionnaire in the writing task in the action crisis group and in the control group. While this approach aimed to improve upon a previous study (Ghassemi Tabrizi, 2017), which used different questionnaires for the action crisis and the control group, it may have inadvertently reduced group differentiation. The self-reported action crisis scores in this study were notably lower than in previous research (Ghassemi Tabrizi, 2017) likely due to both groups answering the same set of questions. These findings suggest that a refinement of the coding process is necessary. To enhance differentiation between groups, future research should first assess participants' action crisis scores using the ACRISS scale (Brandstätter & Schüler, 2013) and then implement distinct, tailored questionnaires for each group.

Establishing clear criteria to differentiate an action crisis from temporary doubts or setbacks will further strengthen experimental manipulations. A possible way to assess whether participants in our study experienced an action crisis could be Lewin's theory. Interpreting Lewin's theory (Lewin, 1963) in an action crisis, it could be viewed as an aversive-aversive conflict, where both continuing and disengaging carry negative consequences. To explore whether it truly is an action crisis, future research could specifically ask participants whether pursuing and/or letting go of their goals leads to undesirable outcomes.

Additionally, the effort variable during the writing task served as an untested indicator of action crisis presence. This raises questions about its validity. While effort-related cardiovascular responses like PEP provided meaningful insights, it remains unclear whether these responses are reliable measures of an action crisis. On top of this we didn't know if writing about your goal striving is enough to provoke signs of an action crisis. Future studies should assess whether effort-related cardiovascular responses are reliable and valid measures of an action crisis by comparing them with self-reported crisis intensity and behavioral markers of disengagement. Incorporating additional physiological markers, such as cortisol levels (Brandstätter & Schüler, 2013), skin conductance or heart rate variability, could also provide a more comprehensive understanding of the processes involved. Besides this it should be further investigated if writing about your goal is enough to measure an action crisis.

A major limitation to explain the lack of differences between the groups was that the study sample consisted mainly of psychology undergraduate students, many of whom were still highly motivated at the beginning of their studies. This raises concerns about whether they were truly experiencing an action crisis and limits the generalizability of the study. Their willingness to participate in the study and to actively engage with their goals suggests they are probably not having an action crisis. Recruiting participants further along in their goal pursuit – when they are more likely to experience a genuine action crisis – may yield clearer results.

Cultural differences may also influence how individuals experience and navigate an action crisis. Moreover, studies should differentiate between shelving a goal temporarily and fully abandoning it, as some participants may have merely postponed their goals rather than facing an action crisis (Mayer & Freund, 2022).

Finally, since goal engagement fluctuates over time (Brandstätter & Schüler, 2013) and the duration of goal commitment can intensify an action crisis (Herrmann & Brandstätter, 2013), future research should consider the length of goal commitment as a critical factor. While we ensured that participants had either a positive or negative stance toward their goal, we did not consider the length of their commitment.

Additionally, it is essential to incorporate a measure of struggle intensity (Bernecker et al., 2019), as not all goals hold the same personal significance or emotional weight. For instance, completing a degree may have far greater life implications than training for a marathon. Assessing goal centrality and the intensity of internal conflict could refine hypotheses and improve the generalizability of future findings.

Finally, this study examined whether sense of control mediates the relationship between an action crisis and effort-related physiological responses. However, the mediation analysis did not support this proposed effect. The relationship between the action crisis manipulation and changes in PEP remained unchanged even after including sense of control in the model. While the action crisis manipulation influenced sense of control, this variable did not significantly predict effort-related changes. These findings suggest that sense of control alone may not be the primary mechanism underlying the observed effort differences in the transfer task.

Future studies should explore alternative mediators to better understand the connection between action crises and effort-related physiological responses. Potential mediators include cognitive load, stress levels, or specific emotional responses such as frustration or anxiety, which were not captured by in the present study

Additionally, refining the measurement of sense of control is crucial to determine whether its operationalization in this study adequately reflects its role in effort regulation. Developing experimental designs that manipulate sense of control more directly – rather than relying on self-reported measures – may give further insights into its role in action crises. Investigating whether fluctuations in perceived control over time influence effort persistence during an action crisis could further clarify its role in goal pursuit.

7. Conclusion

This study provides initial experimental insights into action crises but highlights the need for several methodological improvements. Enhancing pretesting, refining group differentiation, considering goal importance, and identifying mediators of action crisis effects will strengthen the validity and reliability of future findings. Addressing these limitations will contribute to a more nuanced understanding of how action crises influence effort allocation and goal-related behaviors.

8. References

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List of figures

Figure 1. Motivational Intensity Theory

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Figure 2. Study Design

Own illustration

Figure 3. Mediation Path Model

Own illustration