Crisis Due to Uncertainty? The Role of Information Processing Styles and Intolerance of Uncertainty in Progress and Crisis during Goal-Striving

Pavol Kačmár [iD], Miroslava Korbová, Jozef Bavoľár [iD]
Department of Psychology, Faculty of Arts, University of Pavol Jozef Šafárik in Košice

Past research has identified a number of stable characteristics affecting goal achievement. However, the role of inter-individual differences in the ways in which an individual reacts to (A) new information and (B) ambiguous situations during the pursuit of personal goals has been overlooked. In the present study (*N* = 245), we focused on the role of *experiential and rational information processing styles* (REI-40) and *intolerance of uncertainty* (IUS-12) in *goal progress* and crisis that can occur during goal-striving due to the accumulation of setbacks, known as an *action crisis.* It was found that intolerance of uncertainty predicted an action crisis. Furthermore, rational ability predicted goal progress indirectly, via a subjective assessment of goal attainability. Autonomous motivation did not play a mediating role in the present study, though. These findings extend previous results, which have focused on the role of individual differences in action crisis and highlight the role of intolerance of uncertainty as a potential risk factor for the development of action crisis.

Key words: intolerance of uncertainty, thinking styles, action crisis, goal progress, goals, goal-directed behavior

Introduction

From short-term goals such as accomplishing a simple work-related task to more long-term oriented goals such as life-long saving for retirement – goals play an important role in the lives of individuals and society. Thus, it is no wonder that the line of research dedicated to goals has proliferated in recent decades covering a huge range of topics (see e.g., Aarts & Elliot, 2012; Austin & Vancouver, 1996; Elliot & Fryer, 2008; Milyavskaya & Werner, 2018). Nonetheless, there remain some areas of re-

search which have been neglected. In particular, only a small amount of research attention has been dedicated to the role of cognitive characteristics in goal-directed behavior, such as thinking styles or intolerance of uncertainty. There has been some indirect evidence, though, suggesting that the way in which individuals process information and how they deal with uncertainty could play a certain role in action crisis and goal progress and that such a role could be indirect – mediated via more proximal goal-related characteristics.

Goals and Goal-Directed Behavior

Goals represent "internal representations of desired states, where states are broadly construed as outcomes, events, or processes" (Austin & Vancouver, 1996; p. 338). More specifically, Milyavskaya and Werner (2018) have defined goal as a "cognitive representation of a desired end state that a person is committed to attain" (p. 4). Goals help an individual direct behavior toward the desired end state (Locke & Latham, 2002; Wentzel, 2000) by providing a reference point to which the current state can be compared (Carver & Scheier, 2016; Massey et al., 2008). While there are many aspects of goals to be considered (see Austin & Vancouver, 1996; Fujita & MacGregor, 2012; Milyavskaya & Werner, 2018 for further discussion), the present study focuses on two widely researched topics in recent years: goal progress and action crisis.

Goal progress can be operationalized in two ways – objectively or subjectively via self-reported measures. Although objectively operationalized goal progress has some merits, it is subjectively perceived goal progress that has dominated current research (see e.g., Holding et al., 2017; Koestner et al., 2008). The subjective assessment of goal progress is crucial, as it serves as valuable feedback for assessing the divergence between the current state and the desired end state. In fact, the assessment of goal progress has been suggested to not only be related to the (goal-related) feedback loop (Carver & Scheier, 2016; Fishbach et al., 2010), but also to goal attainment itself (Harkin et al., 2016) and to more distant outcomes such as well-being (Klug & Maier, 2015).

Both subjective and objective goal progress has been shown to be related to various inter-individual differences in previous research. For example, Moore et al. (2020) found that progress was predicted by personality traits such as consciousness and extraversion. In particular, progress on agentic goals was related to conscientiousness, and progress on communal goals was related to extraversion. However, this relationship was partially mediated by autonomous motivation – a finding in line with previous research documenting the role of autonomous motivation in goal progress (see Koestner et al., 2008). Thus, when focusing on the role of individual differences in goal progress, it seems important to further examine the role of hypothetical mediators situated between more stable traits and more distant goal-related outcomes. As it has been established that goal progress is predicted by autonomous motivation (Koestner et al., 2008) and expectancy of goal attainment (but not goal desirability) (Szumowska et al., 2021), we focused on these two variables as discussed below.

Unfortunately, goal-striving is not always a smooth process. In some circumstances, goal progress is slowed down by obstacles that accumulate during goal striving. In face of setbacks, the individual is trapped in a decisional conflict, contemplating if goal striving should be continued or terminated. This decisional state is known as an *action crisis* (see e.g., Brandstätter et al., 2013; Brandstätter & Schüler, 2013; Ghassemi et al., 2017), where symptoms such as internal disengagement impulses, conflict, rumination, implemental

disorientation, procrastination, and accumulation of setback can be mentioned (Brandstätter & Herrmann, 2018).

Action crisis has been associated with various mental health-related issues such as negative affect and well-being (Brandstätter et al., 2013; Herrmann & Brandstätter, 2013; Holding et al., 2017) or poorer recovery and physical health (Brandstätter et al., 2013; Herrmann & Brandstätter, 2013; Wolf et al., 2019). Furthermore, it has been documented that some inter-individual differences make an individual either more vulnerable (e.g., neuroticism) or shield them (e.g., action orientation) from developing an action crisis (Herrmann et al., 2014; Holding et al., 2017; Wolf et al., 2018). Importantly, similar to goal progress, factors such as goal attainability (but not desirability) (Ghassemi et al., 2017) and autonomous motivation (Holding et al., 2017) have been documented as negative predictors of an action crisis in previous research.

While *goal attainability* refers to the subjective assessment of the likelihood that the goal at hand is attainable, *autonomous motivation* refers to the internal reason for pursuing the goal (i.e., intrinsic and identified reasons as opposed to introjected and external reasons).

Thinking Styles and Intolerance of Uncertainty in Goal Pursuit

Despite the fundamental role of cognitive processes in goal-related behavior (e.g., cost-benefit analysis), the role of cognitive characteristics such as thinking styles and intolerance of uncertainty has been neglected in the research literature dedicated to goal pursuit.

Thinking styles relate to the ways in which individuals react to new information and how they process it in the light of previous experience. More generally, it is the difference between what individuals feel in the heat of the moment and how they respond after contemplating the issue more thoroughly. This distinction is frequently conceptualized by two types of processes often labeled as System 1 and System 2 (for a review and thorough discussion of the conceptual analysis and associated challenges see Evans & Stanovich, 2013; Gawronski et al., 2014). In particular, the approach proposed by Epstein (Epstein, 2003; Pacini & Epstein, 1999) differentiates between the experiential and rational information processing styles. According to Norris and Epstein (2011), the *experiential style* is non-verbal, unconscious and automatic. New information is approached according to previous experience. The *rational style*, on the other hand, is a conscious, verbal and logical system where new information is processed according to the rules of logic. According to the Cognitive-experiential self-theory (CEST; Epstein, 2003), the rational and experiential modes work independently, in parallel, and influence each other (but see also Bago & De Neys, 2020; De Neys, 2012 for critique and an alternative hybrid model).

As Epstein (2003) has emphasized, the experiential system has evolved over millions of years to cope with and adapt to the environment through learning from experience. It is related to affect, and humans share it with higher animals. This contrasts with the logical inference that is characteristic of the rational style. It has a relatively short evolutionary history and is related to understanding and applying the rules of logic and judgment based on the available evidence.

Both the experiential and rational systems could play a role in goal-directed behavior as it is reasonable to expect a difference in how the straight, affective, and automatic experiential system processes information regarding the goal progress and evaluates problems that occur during goal-striving in comparison

to the rational system that processes information from a distance and then reflects on and corrects spontaneous impulsive thoughts. Importantly, according to Epstein (2003), the rational system can train the impulsive system in a long run to the degree that initial reactions are less escalated or to the degree that thoughts emerging from the rational system become more automated. In fact, multiple studies have reported a positive relationship of thinking styles with the heterogeneous group of objective or subjective decision outcomes (e.g., Bruine de Bruin, Parker, & Fischoff, 2007; Dewberry, Juanchich, & Narendran, 2013; Phillips et al., 2016). Thus, we hypothesized that inter-individual differences in rational and experiential styles will predict subjective assessment of goal progress and experience of an action crisis. In particular, we expected that a rational style will predict goal progress positively (H_1) and action crisis negatively (H_2), while, an intuitive system will predict action crisis positively (H_3) and goal progress negatively (H_4).

However, the rational and experiential systems are not the only factors related to decision making that could play a role in the present context. Another potentially important factor is the way in which individuals respond to a situation or event when stimuli are uncertain or ambiguous. The way in which such a situation is evaluated and interpreted is related to the level of (in)tolerance to the uncertainty that the individual possesses (Birrell et al., 2011). In particular, we speak about *intolerance of uncertainty* when an individual reacts to uncertain and ambiguous situations and events negatively (Berenbaum et al., 2008).

In general, people that have a high level of intolerance of uncertainty aim to lower their level of uncertainty and they behave in a manner that leads them to find more information so the situation becomes more pre-

dictable and less threatening (Birrell et al., 2011). This makes sense, as, from an evolutional perspective, individuals maximize their survival in an environment if they choose certainty (Carleton, 2016). However, uncertain or ambiguous situations can occur relatively frequently during goal-striving, and this could have negative consequences for goal striving.

A negative reaction to uncertainty can be an aspect that determines the emergence of decision conflict known as an action crisis as the previous findings indicate that people with a dispositional higher level of intolerance of uncertainty are more worried in general and consider unpredictable, uncertain or ambiguous situations as threatening (Berenbaum et al., 2008). Paralysis in action and cognition, as an important factor in (in)tolerance of uncertainty, can also contribute to diminished goal progress. This assumption is suggested by multiple studies, which have reported negative relationships of intolerance of uncertainty with various aspects of adaptive behavior (e.g., Miranda, Fontes, & Marroquín, 2008; Carleton et al., 2016). Thus, we hypothesize that intolerance of uncertainty will predict action crisis (H_5), and will be negatively related to goal progress (H_6).

In sum, the present pilot study aims to examine the role of intolerance of uncertainty and thinking styles in the experience of an action crisis and subjectively evaluated goal progress. In order to achieve this goal, a survey was carried out where participants were asked about the one important personal goal they are striving to attain at the moment. Furthermore, we assessed their level of intolerance of uncertainty and rational and intuitive thinking styles. As discussed above, we hypothesized that thinking styles (H_1 to H_4) and intolerance of uncertainty (H_5 to H_6) will predict action crisis and goal progress. Furthermore, to extend the main findings in a theoretically meaningful way, we examined

goal attainability and autonomous motivation as potential mediators (Q_1 to Q_2) in the following exploratory analysis based on previous research documenting the role of these variables in goal progress and in the action crisis (Ghassemi et al., 2017; Holding et al., 2017; Szumowska et al., 2021; Moore et al., 2020).

Methods

Sample

The sample consisted of 245 participants[1] with a mean age of 28.21 years (Mdn_{age} = 24 years, SD_{age} = 12.52, 67% female)[2]. Convenience sampling was used. The participants were approached through social media and their responses were collected online. Participation was voluntary. Participants could win a coupon by participating in the study.

Measures

Thinking styles were measured by The Rational-Experiential Inventory (REI-40) adapted from Pacini and Epstein (1999). A 6-point Likert scale (1 = totally disagree, 6 = totally agree) was used as recommended in Mikušková et al. (2015). The REI consists of four subscales: Rational engagement (e.g., 'I enjoy intellectual challenges', McDonald's ω = .81), Rational ability (e.g., 'I am much better at figuring things out logically than most people', McDonald's ω = .81), Experiential engagement (e.g. 'I believe in trusting my hunches', McDonald's ω = .83), and Experiential ability

(e.g., 'I hardly ever go wrong when I listen to my deepest gut feelings to find an answer', McDonald's ω = .81).

Intolerance of uncertainty was measured by the Intolerance of Uncertainty Scale – Short form (IUS-12) adapted from Carleton et al. (2007). The scale consists of 12 items such as 'The smallest doubt can stop me from acting'. A 5-point Likert scale (1 = not at all characteristic of me; 5 = entirely characteristic of me) was used. McDonald's ω = .85.

Participants were also asked to list one *personal goal* that they were trying to attain at that moment. A goal was defined as something that a person wants to attain, something that they strive for. Following this, participants rated goal attainability, autonomous motivation progress and crisis on a 7-point Likert scale[3,4].

Goal attainability was operationalized by one item 'I think, chances are high that I'm going to attain this goal' – adapted from Brandstätter et al. (2013).

The autonomous motivation was operationalized by a self-concordance scale adapted from Koestner et al. (2008). The scale consisted of items capturing the extent to which participants pursue the goal for identified reasons ('Because you really believe that it is an important goal to have') and intrinsic reasons ('Because of the fun and enjoyment which the goal will provide you'). Spearman-Brown coefficient = 0.54.

Action crisis was operationalized by the Action Crisis Scale (ACRISS) adapted from Brandstätter et al. (2013); Brandstätter and Schüler (2013); and Herrmann and Brandstätter (2013). The ACRISS consists of 6 items:

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[1] Note that 270 participants were sampled. However, not all participants passed the attention check and were used for the subsequent analysis.

[2] Note that the stopping rule has been based on resource constraints in terms of willingness of participant to participate in a study. However, sensitivity power analysis indicated that, considering α = 0.05, we should be able to detect a medium effect (that is of some explanatory and practical use even in the short run; Funder & Ozer, 2019) with power exceeding 80%.

[3] Note that the battery was part of a bigger research project. Thus, additional variables were assessed (e.g., social support), but were not intended for the present manuscript and thus are not analyzed in the context of the present study.

[4] Note that scales were adapted and used in previous research (see e.g., Čopková, Matyiová, & Bartko, 2017).

'I doubt whether I should continue striving for my goal or disengage from it', 'Striving for this goal goes without any problems', 'When striving for this goal I am repeatedly confronted with situations where I do not know how to continue', 'I repeatedly ruminate about my goal', 'I have thoughts of disengaging from my goal', 'I repeatedly haven't done anything for my goal despite the intention to do so.' McDonald's ω = .59. Although this value is below the recommended .70, we decided to work with the scale as A) shorter scales have generally lower internal consistency; B) to omit the item will not improve internal consistency and it will make generalizations more complicated; C) Action crisis is not a stable personality trait but rather a syndrome of issues occurring during goal striving.

Goal progress was operationalized by a slider (from 0 to 100%) where participants listed the current level of progress.

Analysis

Results were analyzed in jamovi 2.2.5 and JASP 0.16.2. Although the frequentist approach was considered as primary, Bayesian analysis was consulted when appropriate.

Results

A descriptive statistic is available in Appendix A. Before the main analysis, a correlational analysis was conducted (see Appendix B for the full correlational matrix)[5]. As expected, the results of the Pearson correlation indi-

cated that intolerance of uncertainty was positively correlated with action crisis (r = 0.21, p = 0.001; BF_{10} = 14.78 indicated strong evidence for H_1). However, contrary to our expectations, intolerance of uncertainty was not related to goal progress (r = 0.01, p = 0.91; BF_{01} = 12.42 indicated strong evidence for H_0). Similarly, the sub-scales of REI – rational engagement, rational ability, intuitive engagement, and intuitive ability were not correlated with goal progress (the size of the effect (r) was below 0.10; all p > 0.05; and BF_{01} in a range of 4 to 10), nor with action crisis (all r below 0.11; all p > 0.05; BF_{01} was in a range of 3 to 9).

As the main analysis, hierarchical multiple linear regression was carried out[6,7] to examine the hypothesized model with goal progress and action crisis as the criterion variables while accounting for age and gender. In particular, age and gender were used in the first block as potential confound-blockers, the REI subscales were added in the second block and IUS in the final – third block. In line with correlation analysis, when *action crisis* was analyzed as criterion variable, it was found that the first block with demographic variables significantly predicted goal progress (F (2, 225) = 3.75, p = .025, R^2_{adj} = .02) and, although adding thinking styles did not make a statistically significant contribution (ΔR^2 = .03, F (4, 221) = 1.59, p = .179), adding the intolerance of uncertainty in the third block did (ΔR^2 = .02, F (1, 220) = 1.43, p = .027). Both, the model with thinking styles (F (6, 221) = 2.32, p =

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[5] Results of Pearson correlation coefficient are listed in the main text, as Pearson correlation coefficient is more suitable for comparison with future studies and for future meta-analysis. Furthermore, it was possible to compute BF alongside the *p*-value for more nuanced inferential purposes. Note, however, that due to violation of the assumption of unidimensional normality in some cases, we decided to list both, Pearson correlation coefficient and the non-parametric Spearman correlation in the appendix.

[6] Before analysis, the assumptions were examined. For example, a Durbin-Watson test did not indicate a problem with autocorrelation. VIF and Tolerance were within an acceptable range and the Kolmogorov-Smirnov test did not indicate a violation of the normality assumption.
[7] We decided to include also variables that were not significant according to the correlation analysis, as we wanted to examine the assumed hypothetical model. However, as this decision could bias estimates, we also computed Bayesian regression analysis, that is more suitable in similar cases, in the next step.

Table 1 *Model coefficients for action crisis as a criterion variable*

Predictor	Estimate	SE	t	p	Stand. Estimate	95% Confidence Interval	
						Lower	Upper
Age	-0.01	0.01	-2.58	0.011	-0.17	-0.30	-0.04
Gender:							
Male = 0	0.11	0.15	0.76	0.445	0.12	-0.19	0.42
Rational Engagement	0.06	0.12	0.48	0.628	0.05	-0.15	0.24
Rational Ability	-0.17	0.12	-1.39	0.167	-0.14	-0.35	0.06
Intuitive Engagement	-0.07	0.11	-0.66	0.511	-0.07	-0.27	0.13
Intuitive Ability	-0.02	0.12	-0.16	0.870	-0.02	-0.22	0.18
Intolerance	0.02	0.01	2.22	0.027	0.15	0.02	0.29

.034, R^2_{adj} = .03) and the model with intolerance of uncertainty (F (7, 220) = 2.73, p = .010, R^2_{adj} = .05) were significant, but beside age, intolerance of uncertainty was the only statistically significant predictor of an action crisis. In particular, a change of 1 standard deviation in intolerance is associated with a change of β = 0.15 standard deviations of an action crisis. The model coefficients are presented in Table 1.

Bayesian linear regression analysis was conducted to further examine the relative plausibility of various hypothetical models with different combinations of predictors[8]. After examining the data, it became obvious that the odds in favor of the model containing only intolerance of uncertainty (the most probable model) increased by a factor of 5 (BF_M = 4.88 – moderate support)[9]. Although the predictive performance of various combinations compared to the model with intolerance of uncertainty (as the only predictor) was not substantially worse, the data were 6 times more likely under this model in comparison to null the model (BF_{01} = 6.14). When all models were taken into account simultaneously through Bayesian model-averaged analysis, the results provided moderate evidence for including intolerance of uncertainty as a predictor (BF_{inc} = 4.15; posterior inclusion probability = 0.81)[10]. In Appendix C, inclusion probabilities are visually depicted and a posterior summary of coefficients is provided.

When *goal progress* was analyzed as a criterion variable, it was found that although the first block with demographic variables (age and gender) predicted subjective assessment of goal progress (F (2, 225) = 3.45, p = .033, R^2_{adj} = .02), adding thinking styles in the second block did not make a statistically significant contribution (ΔR^2 = .02, F (4, 221) = 1.43, p = .225). Neither did adding the intolerance of uncertainty in the third block (ΔR^2 = .01,

[8] JZS model prior with *r* scale .364 and uniform model prior were used for analysis.

[9] Convergent results occur if sensitivity analysis is conducted (e.g., demographics are not accounted for/alternative prior is selected).

[10] But note that this result is sensitive to model prior to some degree as has been shown by sensitivity analysis.

Table 2 *Model coefficients for goal progress as a criterion variable*

Predictor	Estimate	SE	t	p	Stand. Estimate	95% Confidence Interval Lower	Upper
Age	0.30	0.14	2.21	0.028	0.15	0.02	0.28
Gender:							
Male = 0	-7.38	4.02	-1.84	0.067	-0.29	-0.59	0.02
Rational Engagement	-3.26	3.23	-1.01	0.314	-0.10	-0.30	0.10
Rational Ability	7.05	3.40	2.07	0.040	0.22	0.01	0.43
Intuitive Engagement	1.28	3.09	0.42	0.678	0.04	-0.16	0.24
Intuitive Ability	0.24	3.35	0.07	0.943	0.01	-0.19	0.21
Intolerance	0.09	0.21	0.41	0.684	0.03	-0.11	0.16

$F(1, 220) = 0.17$, $p = .684$). Both the model with thinking styles ($F(6, 221) = 2.11$, $p = .053$, $R^2_{adj} = .03$) and the model with intolerance of uncertainty ($F(7, 220) = 1.83$, $p = .083$, $R^2_{adj} = .02$) were not significant. Note that beside age, the rational ability was shown to be a statistically significant predictor when accounting for all other variables, although there is the possibility that this finding was a false-positive result. The model coefficients are provided in Table 2.

As in the previous case, Bayesian linear regression was carried out to further examine the relative plausibility of various hypothetical models[11]. Although the model with the rational ability as the only predictor was preferable in comparison to other models (odds in favor of the model containing rational ability increased by a factor of 7 after observing the data; $BF_M = 7.45$ – moderate support),

the predictive performance of some of the alternative models and the null model were not substantially worse[12]. When all the models were taken into account simultaneously through Bayesian model-averaged analysis, the results provided only anecdotal evidence for including the rational ability in comparison to models that did not include the predictor ($BF_{inc} = 1.93$; posterior inclusion probability = 0.66). As in the previous case, inclusion probabilities are visually depicted and a posterior summary of coefficients is provided in Appendix D.

Third, mediation analyses were carried out with thinking styles and intolerance of uncertainty as the predictors (X), goal attainability and autonomous motivation as the mediators (M) and progress and action crisis as the criterion variables (Y_1 and Y_2, respectively). Age

[11] Note that as in previous analysis, JZS model prior with *r* scale .364 and uniform model prior were used.

[12] In fact, the null model is preferred if sensitivity analysis is conducted – e.g., demographics are not accounted for/ alternative prior is selected.

and gender were accounted for as potential confounder blockers as in the previous analysis[13, 14].

As summarized in Appendix E, when the mediation model with action crisis as the criterion variable was examined, the total effect of intolerance of uncertainty was the only statistically significant result (β = .15, SE = .07, p = .030, CI [.01, .29]). This is in line with previous analysis. Total effects of rational engagement (β = .05, SE = .10, p = .613, CI [-.14, .24]), rational ability (β = -.14, SE = .10, p = 0.145, CI [-.34, .05]), intuitive engagement (β = -.07, SE = .10, p = .492, CI [-.26, .12]), and intuitive ability (β = -.02, SE = .11, p = .883, CI [-.24, .20]) were not statistically significant. Importantly, when accounting for the mediators, the direct effect of intolerance of uncertainty remained statistically significant (β = .15, SE = .06, p = .024, CI [.02, .27]). The direct effect of rational engagement (β = .04, SE = .09, p = .626, CI [-.13, .21]), rational ability (β = -.08, SE = .10, p = .417, CI [-.28, .12]), intuitive engagement (β = -.04, SE = .09, p = .654, CI [-.22, .14]), and intuitive ability (β = -.05, SE = .10, p = .657, CI [-.25, .16]) were not statistically significant.

When the indirect effects were considered, the indirect effect of rational ability on action crisis through goal attainability (β = -.06, SE = .03, p = .063, CI [-.12, -.01]) was not statistically significant, nor was the indirect effect for rational engagement (β =3.93e-3, SE = .03, p = .879, CI [-.05, .05]), intuitive engagement (β = -.03, SE = .03, p = .288, CI [-.08, .03]), intuitive ability (β = .03, SE = .03, p = .332, CI [-.03, .09]), and intolerance (β = .01, SE = .02, p =

.674, CI [-.03, .05]). Similarly, the indirect effects for rational ability (β = -6.60e-3, SE = .01, p = .548, CI [-.03, .01]), rational engagement (β = 1.58e-3, SE = 4.85e-3, p = .745, CI [-.08, .01]), intuitive engagement (β = -3.73e-3, SE = 6.82e-3, p = .585, CI [-.01, .02]), intuitive ability (β = -6.49e-4, SE = 5.57e-3, p = .907, CI [-.01, .01]), and intolerance (β = -3.85e-3, SE = .6.11e-3, p = .678, CI [-.02, 8.13e-3]) via autonomous motivation were not statistically significant.

As summarized in Appendix F, when the simple mediation model with goal progress as the criterion variable was examined, the total effect of rational ability (β = .22, SE = .11, p = .053, CI [-3.08e-3, .044]), rational engagement (β = -.10, SE = .11, p = .348, CI [-.31, .11]), intuitive engagement (β = -.04, SE = .10, p = .680, CI [-.16, .25]), intuitive ability (β = 7.26e-3, SE = .10, p = .941, CI [-.18, .20]), and intolerance (β = .03, SE = .07, p = .696, CI [-.11, .17]) were not statistically significant. The effect of rational ability (β =.13, SE = .11, p = .237, CI [-.09, .35]), rational engagement (β = -.09, SE = .10, p = .357, CI [-.29, .11]), intuitive engagement (β = 7.62e-3, SE = .10, p = .940, CI [-.19, .21]), intuitive ability (β = .05, SE = .10, p = .632, CI [-.15, .24]), and intolerance (β = .03, SE = .06, p = .591, CI [-.09, .16]) on goal progress were also not statistically significant when potential mediators were accounted for.

Crucially, there was found an indirect effect of rational ability on goal progress through goal attainability (β = .08, SE = .04, p = .039, CI [.01, .15]) but it is possible that the finding is false positive due to multiple paths. The indirect effects for rational engagement (β = -5.37e-3, SE = .04, p = .878, CI [-.07, .06]), intuitive engagement (β = .04; SE = .04; p = .284, CI [-.03, .01]), intuitive ability (β = -.04, SE = .04, p = .284, CI [-.03, .11]), and intolerance (β = -.01, SE = .03, p = .662, CI [-.07, .04]) were not statistically significant. Similarly, the in-

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[13] Note that we included autonomous motivation into analysis despite the fact it was not related to predictors. The reason was that we wanted to be comprehensive and examine hypothesized model. However, note that results are convergent when this mediator is not included or not as indicated by sensitivity analysis.

[14] Note that results are convergent if the age and gender are not included as indicated by sensitivity analysis.

direct effects for rational ability (β = 9.82e-3, SE = .01, p = .363, CI [-.01, .03]), rational engagement (β = -2.35e-3, SE = 6.13e-3, p = .878, CI [-.01, .01]), intuitive engagement (β = -5.54e-3, SE = 8.05e-3, p = .284, CI [-.02, .01]), intuitive ability (β = 9.65e-4, SE = 8.45e-3, p = .909, CI [-.02, .02]), and intolerance (β = -.01, SE = .03, p = .662, CI [-.07, .04]) via autonomous motivation were not statistically significant.

Discussion

The present study was interested in the role of thinking styles and intolerance of uncertainty with regard to action crisis and goal progress. As expected, it has been shown that crisis in goal pursuit occurring due to an accumulation of setbacks (known as an action crisis) was related to intolerance of uncertainty. Moreover, the higher level of intolerance of uncertainty predicted the higher severity of action crisis even when other variables were accounted for. Considering the size of the effect, the relationship between intolerance of uncertainty and action crisis was medium in size, meaning that it could be of "some explanatory and practical use even in the short run" (Funder & Ozer, 2019, p. 166)[15]. This is in line with H_5 and with the nature of intolerance of uncertainty and action crisis as discussed below.

However, in contrast to H_2 and H_3, thinking styles were not shown to be important predictors of an action crisis. Similarly, in contrast to H_1, H_4, and H_6, it has been shown that neither thinking styles, nor intolerance of uncertainty predicted goal progress directly. Although there was some indication that the rational ability was a predictor of goal progress when accounted for age and gender, these result could be false-positive findings. Importantly, though, it has also been shown, that there

[15] Potentially true only when assumptions are fulfilled – see Funder and Ozer (2019) for further discussion.

was an indirect effect of the rational ability on goal progress through the assessment of goal attainability (Q_1). The higher the individuals scored in rational ability, the more they assessed their goal as attainable, and the more progress on their personal goal they reported. However, there is a chance that this finding is also false positive. The role of autonomous motivation as a potential mediator has not been supported (Q_2).

Although future replication is necessary to establish that results of the present pilot study are robust, the present findings are in line with body of literature documenting the role of individual differences in action crisis (Herrmann et al., 2014; Holding et al., 2017; Wolf et al., 2018) as well as with literature documenting the role of goal attainability in goal progress and action crisis (Bettschart et al., 2019; Ghassemi et al., 2017; Szumowska et al., 2021). For example, Holding et al. (2017) found that conscientiousness shielded individuals from an action crisis, while neuroticism served as a risk factor in the action crisis development. In a similar fashion, intolerance of uncertainty could be considered as another potential risk factor in a more complex nomological network. However, in future research it would be important to establish that intolerance of uncertainty predicts emergence of action crisis over and above other predictors.

Considering the mediating role of goal attainability, Ghassemi et al. (2017) found that low goal attainability (but not desirability) predicted an action crisis later. This finding suggests a role of the goal attainability as potential mediator between more stable individual differences and action crisis as supported by the present study. However, although also established in previous research (Holding et al., 2017), autonomous motivation did not play a role of a mediator in the present context.

The most important finding – the role of intolerance of uncertainty in action crisis devel-

opment – could be explained by the fact that intolerance of uncertainty has been linked with worry in previous research (for a review see e.g., Birrell et al., 2011), while rumination, as a related construct, is said to be one of the symptoms of an action crisis. Moreover, the tendency to interpret an ambiguous situation in a negative light could be related to symptoms of an action crisis such as disengagement impulses, conflict, implemental disorientation, and procrastination (Brandstätter & Herrmann, 2018). In fact, Birrell et al. (2011) concluded that intolerance of uncertainty encompasses two aspects, desire for and seeking of predictability on the one hand; and paralysis in action and cognition due to uncertainty on the other hand. From the two suggested aspects, the second seems to be especially related to action crisis. However, future research is needed to explicitly corroborate the role of these two sub-factors of intolerance of uncertainty in action crisis, as the scale used in present research (IUS-12) was not suitable for this purpose. Moreover, this could also indicate that other potential mediators, such as goal-related stress and negative emotions could be of some importance here. However, examination of these potential mediators is reserved for future research as well.

With regards to thinking styles, it was shown that, potentially, rational ability played some role in goal progress, but this role seems to be indirect, rather than direct. In particular, this relationship was mediated by goal attainability. On one hand, the absence of the experiential style in the prediction of an action crisis seems surprising as this style could be related to affective experience of obstacles during goal pursuit due to non-verbal, unconscious, and automatic processing based on previous experience. On the other hand, as both styles are suggested to work in parallel and influence each other (Epstein, 2003; Pacini & Epstein, 1999), the role of the

rational style could be amplified as it shields the individual from the influence of more eminent automatic response, and could be related to assessment of attainability of a goal. An alternative approach (see Bago & De Neys, 2020; De Neys, 2012) suggests that instead of parallel activation of the intuitive and rational system, two different types of intuitive responses are activated (heuristic intuitive response and logical intuitive response) and the deliberative system is implemented only if a conflict is indicated. However, as a decisional conflict is a crucial part of an action crisis, the role of the rational system could be bolstered. There is also an alternative explanation that the rational style is related to additional variables that are important in the context of a goal-directed behavior. For example, a higher capacity to use a rational system could be related to increased self-efficacy and consequently influence the assessment of goal attainability, so the pattern could be more nuanced here. Nonetheless, deciphering this puzzle is reserved for future research.

There are some limitations of the present study which need to be taken into account. First, although the selection of predictors (more stable variables – information processing styles and intolerance of uncertainty), potential mediators (more changeable perceptions of the attainability of the goal and degree of autonomous motivation), and the criterion variable (current level of crisis and progress during goal-striving) is theoretically justifiable, as the present study was cross-sectional in nature, any statements regarding causality are not warranted and should be omitted. In fact, all we can say is - conditional on the model assumption ($X \rightarrow M \rightarrow Y$), our statistical test shows that variable of interest can account for a significant portion of shared variance. Thus, we reserve the examination of causality for future systematic research. Therefore, extension in terms of longitudinal

and experimental corroboration is highly recommended. Moreover, as the present study was a pilot into a neglected topic, type II error was considered as more important than type I error. Thus, it should be acknowledged that it is possible that some of the present results are false positives as commented in the text.

When focusing on perspective for future research, it could be of some importance to examine the role of intolerance of uncertainty and information processing styles not only in action crisis and goal progress, but also in other goal characteristics (see e.g., Austin & Vancouver, 1996; Fujita & MacGregor, 2012; Milyavskaya & Werner, 2018 for a review and Čopková et al., 2017, for selection of goal-related scales available in the Slovak language). Relatedly, the role of the goal domain could be further examined in future research, as it is possible that some individual-level predictors could play a distinct role in various types of goals as has been documented in the context of attainment of agentic and communal goals and personality (see Moore et al., 2020). Moreover, it is worth noting that a more complex operationalization of intuition could be used, as previously suggested by Mikušková et al. (2015) in a different context. For example, a measure of intuition differentiating holistic, inferential, and affective aspects, as proposed by Pretz et al. (2014), could serve as a fruitful template for future research. Relatedly, different operationalization of other variables could be also implemented as some of the present scales had limited psychometric properties. Relatedly, the analysis of the descriptive statistics has indicated that participants did not have a high level of action crisis and, at least hypothetically, different pattern can emerge if only problematic goals will be examined. Moreover, self-report scales and questionnaires were used in the present research and although this corresponds to the trend in research that the study was

built upon, more objective operationalization of goal progress could be used in future research. Connectedly, actual goal disengagement could be examined in future research to further extend our understanding of the role of information processing styles and intolerance of uncertainty in goal-directed behavior beyond the experience of crisis.

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Authors' ORCID

Pavol Kačmár
https://orcid.org/0000-0003-0076-1945
Jozef Bavoľár
https://orcid.org/0000-0003-0179-7261

References

Aarts, H., & Elliot, A. J. (Eds.). (2012). *Goal-directed behavior*. Psychology Press.

Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin*, *120*(3), 338–375.

Bago, B., & De Neys, W. (2020). Advancing the specification of dual process models of higher cognition: A critical test of the hybrid model view. *Thinking & Reasoning*, 26(1), 1–30. https://doi.org/10.1080/13546783.2018.1552194

Berenbaum, H., Bredemeier, K., & Thompson, R. J. (2008). Intolerance of uncertainty: Exploring its

dimensionality and associations with need for cognitive closure, psychopathology, and personality. *Journal of Anxiety Disorders*, *22*(1), 117–125. https://doi.org/10.1016/j.janxdis.2007.01.004

Bettschart, M., Herrmann, M., Wolf, B. M., & Brandstätter, V. (2019a). The seed of goal-related doubts: A longitudinal investigation of the roles of failure and expectation of success among police trainee applicants. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.02151

Birrell, J., Meares, K., Wilkinson, A., & Freeston, M. (2011). Toward a definition of intolerance of uncertainty: A review of factor analytical studies of the Intolerance of Uncertainty Scale. *Clinical Psychology Review*, *31*(7), 1198–1208. https://doi.org/10.1016/j.cpr.2011.07.009

Brandstätter, V., & Herrmann, M. (2018). Goal disengagement and action crises. In *Why people do the things they do: Building on Julius Kuhl's contributions to the psychology of motivation and volition* (pp. 87–108). Hogrefe Publishing.

Brandstätter, V., & Schüler, J. (2013). Action crisis and cost–benefit thinking: A cognitive analysis of a goal-disengagement phase. *Journal of Experimental Social Psychology*, *49*(3), 543–553. https://doi.org/10.1016/j.jesp.2012.10.004

Brandstätter, V., Herrmann, M., & Schüler, J. (2013). The struggle of giving up personal goals: Affective, physiological, and cognitive consequences of an action crisis. *Personality and Social Psychology Bulletin*, *39*(12), 1668–1682. https://doi.org/10.1177/0146167213500151

Bruine de Bruin, W., Parker, A. M., & Fischhoff, B. (2007). Individual differences in adult decision-making competence. *Journal of Personality and Social Psychology*, 92(5), 938-956.

Carleton, R. N. (2016). Fear of the unknown: One fear to rule them all? *Journal of Anxiety Disorders*, *41*, 5–21. https://doi.org/10.1016/j.janxdis.2016.03.011

Carleton, R. N., Duranceau, S., Shulman, E. P., Zerff, M., Gonzales, J., & Mishra, S. (2016). Self-reported intolerance of uncertainty and behavioural decisions. *Journal of Behavior Therapy and Experimental Psychiatry*, 51, 58-65.

Carleton, R. N., Norton, M. A. P. J., & Asmundson, G. J. G. (2007). Fearing the unknown: A short version of the Intolerance of Uncertainty Scale. *Journal of Anxiety Disorders*, *21*(1), 105–117. https://doi.org/10.1016/j.janxdis.2006.03.014

Carver, C. S., & Scheier, M. F. (2016). Self-regulation of action and affect. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications 3rd edition* (pp. 3–23).

Čopková, R., Matyiová, N., & Bartko, M. (2017). Prediktory porušovania noriem v správaní orientovanom na cieľ. *E-Psychologie*, *11*(1), 30–43.

De Neys, W. (2012). Bias and conflict: A case for logical intuitions. *Perspectives on Psychological Science*, *7*(1), 28–38. https://doi.org/10.1177/1745691611429354

Dewberry, C., Juanchich, M., & Narendran, S. (2013). Decision-making competence in everyday life: The roles of general cognitive styles, decision-making styles and personality. *Personality and Individual Differences*, 55(7), 783–788.

Elliot, A. J., & Fryer, J. W. (2008). The goal construct in psychology. *Handbook of Motivation Science*, *18*, 235–250.

Epstein, S. (2003). Cognitive-Experiential Self-Theory of Personality. In *Handbook of Psychology* (pp. 159–184). John Wiley & Sons, Ltd. https://doi.org/10.1002/0471264385.wei0507

Evans, J. St. B. T., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. *Perspectives on Psychological Science*, *8*(3), 223–241. https://doi.org/10.1177/1745691612460685

Fishbach, A., Eyal, T., & Finkelstein, S. R. (2010). How positive and negative feedback motivate goal pursuit. *Social and Personality Psychology Compass*, *4*(8), 517–530.

Fujita, K., & MacGregor, K. E. (2012). Basic goal distinctions. In *Goal-directed behavior* (pp. 85–114). Psychology Press.

Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science*, 2(2), 156–168. https://doi.org/10.1177/2515245919847202

Gawronski, B., Sherman, J. W., & Trope, Y. (2014). Two of what?: A conceptual analysis of dual-process theories. In *Dual-process theories of the social mind* (pp. 3–19). The Guilford Press.

Ghassemi, M., Bernecker, K., Herrmann, M., & Brandstätter, V. (2017). The process of disengagement from personal goals: Reciprocal influences between the experience of action crisis and appraisals of goal desirability and attainability. *Personality and Social Psychology Bulletin*, *43*(4), 524–537.

Harkin, B., Webb, T. L., Chang, B. P. I., Prestwich, A., Conner, M., Kellar, I., Benn, Y., & Sheeran, P. (2016). Does monitoring goal progress promote goal attainment? A meta-analysis of the experimental evidence. *Psychological Bulletin*, *142*(2), 198–229. https://doi.org/10.1037/bul0000025

Holding, A. C., Hope, N. H., Harvey, B., Jetten, A. S. M., & Koestner, R. (2017). Stuck in limbo: Motivational antecedents and consequences of experiencing action crises in personal goal pursuit. *Journal of Personality, 85(6),* 893–905. https://doi.org/10.1111/jopy.12296

Herrmann, M., & Brandstätter, V. (2013). Overcoming action crises in personal goals – Longitudinal evidence on a mediating mechanism between action orientation and well-being. *Journal of Research in Personality*, *47*(6), 881–893. https://doi.org/10.1016/j.jrp.2013.09.005

Herrmann, M., Baur, V., Brandstätter, V., Hänggi, J., & Jäncke, L. (2014). Being in two minds: The neural basis of experiencing action crises in personal long-term goals. *Social Neuroscience*, 1–14. https://doi.org/10.1080/17470919.2014.933715

Klug, H. J. P., & Maier, G. W. (2015). Linking goal progress and subjective well-being: A meta-analysis. *Journal of Happiness Studies*, *16*(1), 37–65. https://doi.org/10.1007/s10902-013-9493-0

Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *Journal of Personality*, *76*(5), 1201–1230. https://doi.org/10.1111/j.1467-6494.2008.00519.x

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, *57*(9), 705–717. https://doi.org/10.1037/0003-066X.57.9.705

Massey, E. K., Gebhardt, W. A., & Garnefski, N. (2008). Adolescent goal content and pursuit: A review of the literature from the past 16 years. *Developmental Review*, *28*(4), 421–460. https://doi.org/10.1016/j.dr.2008.03.002

Mikušková, E. B., Hanák, R., & Čavojová, V. (2015). Appropriateness of two inventories measuring intuition (the PID and the REI) for Slovak population. *Studia Psychologica*, *57*(1), 63–82. https://doi.org/10.21909/sp.2015.01.674

Milyavskaya, M., & Werner, K. M. (2018). Goal pursuit: Current state of affairs and directions for future research. *Canadian Psychology/Psychologie Canadienne*, *59*(2), 163–175. https://doi.org/10.1037/cap0000147

Miranda, R., Fontes, M., & Marroquín, B. (2008). Cognitive content-specificity in future expectancies: Role of hopelessness and intolerance of uncertainty in depression and GAD symptoms. *Behaviour Research and Therapy, 46*(10), 1151–1159.

Moore, A., Holding, A., Verner-Filion, J., Harvey, B., & Koestner, R. (2020). A longitudinal investigation of trait-goal concordance on goal progress: The mediating role of autonomous goal motivation. *Journal of Personality*, *88*(3), 530–543. https://doi.org/10.1111/jopy.12508

Norris, P., & Epstein, S. (2011). An Experiential Thinking Style: Its facets and relations with objective and subjective criterion measures. *Journal of Personality*, *79*(5), 1043–1080. https://doi.org/10.1111/j.1467-6494.2011.00718.x

Pacini, R., & Epstein, S. (1999). The relation of rational and experiential information processing styles to personality, basic beliefs, and the ratio-bias phenomenon. *Journal of Personality and Social Psychology*, *76*(6), 972–987. https://doi.org/10.1037/0022-3514.76.6.972

Phillips, W. J., Fletcher, J. M., Marks, A. D., & Hine, D. W. (2016). Thinking styles and decision making: A meta-analysis. *Psychological Bulletin*, 142(3), 260–290.

Pretz, J. E., Brookings, J. B., Carlson, L. A., Humbert, T. K., Roy, M., Jones, M., & Memmert, D. (2014). Development and validation of a new measure of intuition: The types of Intuition Scale. *Journal of Behavioral Decision Making*, *27*(5), 454–467. https://doi.org/10.1002/bdm.1820

Szumowska, E., Jasko, K., Dukała, K., & Górska, P. (2021). *Goal Cycle: Antecedents and Consequences of Goal Progress*. PsyArXiv. https://doi.org/10.31234/osf.io/3b8aw

Wentzel, K. R. (2000). What is it that I'm trying to achieve? Classroom goals from a content perspective. *Contemporary Educational Psychology*, *25*(1), 105–115. https://doi.org/10.1006/ceps.1999.1021

Wolf, B. M., Herrmann, M., & Brandstätter, V. (2018). Self-efficacy vs. action orientation: Comparing and contrasting two determinants of goal setting and goal striving. *Journal of Research in*

Personality, *73*, 35–45. https://doi.org/10.1016/j.jrp.2017.11.001

Wolf, B. M., Herrmann, M., Zubler, I., & Brandstätter, V. (2019). Action crises in personal goals compromise recovery during physical therapy. *Motivation Science*, *5*(2), 179–184. https://doi.org/10.1037/mot0000106

Appendix

Appendix A – Descriptive statistics

Table A *Descriptive statistics*

	Predictors					Criterion variables		Mediators	
	Intolerance of uncertainty	Rational Engagement	Rational Ability	Intuitive Engagement	Intuitive Ability	Progress	Action Crisis	Attainability	Autonomous motivation
Median	3.00	4.60	4.70	4.40	4.30	56.00	3.17	6.00	6.00
Mean	2.94	4.63	4.76	4.47	4.37	54.13	3.30	5.69	5.93
Std. Deviation	0.70	0.80	0.80	0.86	0.78	25.55	0.97	1.43	1.29

Appendix B – Correlation matrix

Table B *Correlation among variables*

Variable		1. Intolerance of uncertainty	2. Rational Engagement	3. Rational Ability	4. Intuitive Engagement	5. Intuitive Ability	6. Progress	7. Action Crisis	8. Attainability	9. Autonomous motivation
1. Intolerance of uncertainty	Pearson's r	—								
	Spearman's rho									
2. Rational Engagement	Pearson's r	-0.06	—							
	Spearman's rho	-0.05	—							
3. Rational Ability	Pearson's r	-0.19**	0.75***	—						
	Spearman's rho	-0.17**	0.72***	—						
4. Intuitive Engagement	Pearson's r	0.03	3.39e-3	-0.04	—					
	Spearman's rho	0.02	0.02	-0.03	—					
5. Intuitive Ability	Pearson's r	-0.08	0.04	0.09	0.74***	—				
	Spearman's rho	-0.09	0.05	0.12	0.72***	—				
6. Progress	Pearson's r	7.30e-3	0.03	0.10	0.08	0.10	—			
	Spearman's rho	-0.03	0.02	0.10	0.08	0.11	—			
7. Action Crisis	Pearson's r	0.21**	-0.05	-0.12	-0.08	-0.11	-0.22***	—		
	Spearman's rho	0.21***	-0.07	-0.13*	-0.08	-0.16*	-0.23***	—		
8. Attainability	Pearson's r	-0.05	0.16*	0.20**	0.04	-4.20e-3	0.32***	-0.27***	—	
	Spearman's rho	-0.13*	0.18**	0.25***	0.02	0.03	0.32***	-0.26***	—	
9. Autonomous motivation	Pearson's r	0.08	0.05	0.09	-0.06	-0.05	0.17**	-0.07	0.31***	—
	Spearman's rho	0.07	0.09	0.12	-0.02	0.02	0.18**	-0.08	0.28***	—

Note. $* p < .05, ** p < .01, *** p < .001$

Appendix C – Bayesian analysis for action crisis as a criterion variable

Figure C Inclusion probabilities (action crisis as criterion variable)

Table C *Posterior summaries of coefficients*

Coefficient	P(incl)	P(excl)	P(incl|data)	P(excl|data)	BF$_{inclusion}$	Mean	SD	95% Credible Interval	
								Lower	Upper
Intolerance	0.50	0.50	0.81	0.19	4.15	0.01	9.31e-3	0.00	0.03
Rational Engagement	0.50	0.50	0.28	0.72	0.38	-2.09e-3	0.06	-0.15	0.14
Rational Ability	0.50	0.50	0.49	0.51	0.97	-0.07	0.09	-0.27	0.01
Intuitive Engagement	0.50	0.50	0.32	0.68	0.47	-0.02	0.06	-0.17	0.05
Intuitive Ability	0.50	0.50	0.32	0.68	0.46	-0.02	0.06	-0.22	0.05

Appendix D – Bayesian analysis for goal progress as a criterion variable
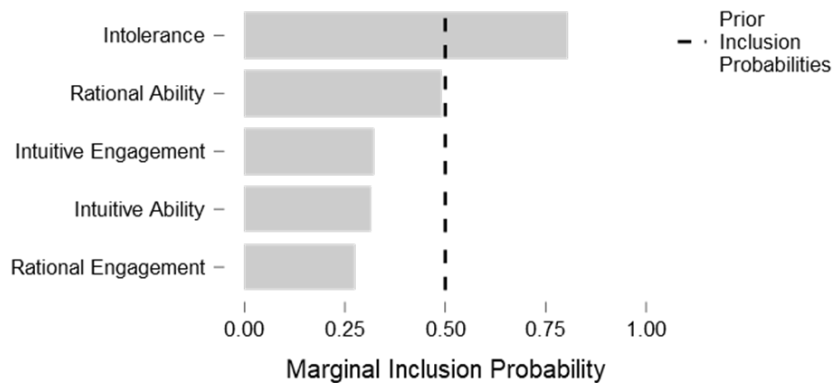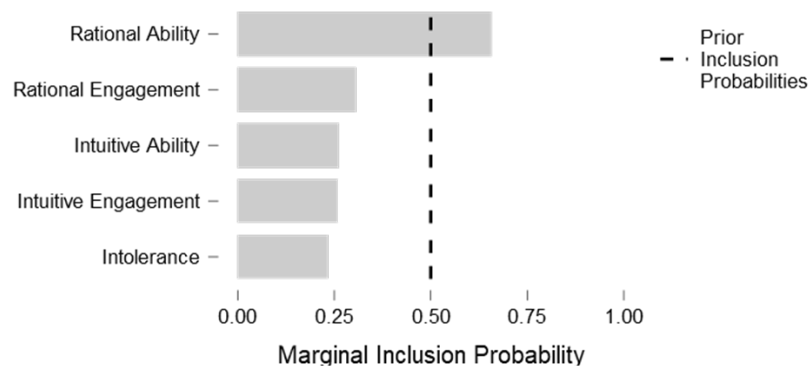

Figure D Inclusion probabilities (goal progress as criterion variable)

Table D *Posterior summaries of coefficients*

Coefficient	P(incl)	P(excl)	P(incl|data)	P(excl|data)	BF$_{inclusion}$	Mean	SD	95% Credible Interval Lower	95% Credible Interval Upper
Intolerance	0.50	0.50	0.23	0.77	0.31	9.21e-3	0.10	-0.19	0.27
Rational Engagement	0.50	0.50	0.31	0.69	0.44	-0.42	1.99	-6.03	3.18
Rational Ability	0.50	0.50	0.66	0.34	1.93	3.08	3.07	-0.79	9.02
Intuitive Engagement	0.50	0.50	0.26	0.74	0.35	0.30	1.25	-1.42	3.63
Intuitive Ability	0.50	0.50	0.26	0.74	0.35	0.33	1.36	-1.06	4.29

Appendix E - Mediation analysis for action crisis as a criterion variable

					Estimate	Std. Error	z-value	p	95% Confidence Interval	
									Lower	Upper
Direct effects										
Intolerance	→	ActionCrisis			0.15	0.06	2.26	0.02	0.02	0.27
Rational Engagement	→	ActionCrisis			0.04	0.09	0.49	0.63	-0.13	0.21
Rational Ability	→	ActionCrisis			-0.08	0.10	-0.81	0.42	-0.28	0.12
Intuitive Engagement	→	ActionCrisis			-0.04	0.09	-0.45	0.65	-0.22	0.14
Intuitive Ability	→	ActionCrisis			-0.05	0.10	-0.44	0.66	-0.25	0.16
Indirect effects										
Intolerance	→	Attainability	→	ActionCrisis	8.79×10^{-3}	0.02	0.42	0.67	-0.03	0.05
Intolerance	→	Autonomous motivation	→	ActionCrisis	-3.85×10^{-3}	6.11×10^{-3}	-0.63	0.53	-0.02	8.13×10^{-3}
Rational Engagement	→	Attainability	→	ActionCrisis	3.93×10^{-3}	0.03	0.15	0.88	-0.05	0.05
Rational Engagement	→	Autonomous motivation	→	ActionCrisis	1.58×10^{-3}	4.85×10^{-3}	0.33	0.74	-7.93×10^{-3}	0.01
Rational Ability	→	Attainability	→	ActionCrisis	-0.06	0.03	-1.86	0.06	-0.12	2.95×10^{-3}
Rational Ability	→	Autonomous motivation	→	ActionCrisis	-6.60×10^{-3}	0.01	-0.60	0.55	-0.03	0.01
Intuitive Engagement	→	Attainability	→	ActionCrisis	-0.03	0.03	-1.06	0.29	-0.08	0.03
Intuitive Engagement	→	Autonomous motivation	→	ActionCrisis	3.73×10^{-3}	6.82×10^{-3}	0.55	0.58	-9.65×10^{-3}	0.02
Intuitive Ability	→	Attainability	→	ActionCrisis	0.03	0.03	0.97	0.33	-0.03	0.09
Intuitive Ability	→	Autonomous motivation	→	ActionCrisis	-6.49×10^{-4}	5.57×10^{-3}	-0.12	0.91	-0.01	0.01
Total effects										
Intolerance	→	ActionCrisis			0.15	0.07	2.17	0.03	0.01	0.29
Rational Engagement	→	ActionCrisis			0.05	0.10	0.51	0.61	-0.14	0.24
Rational Ability	→	ActionCrisis			-0.14	0.10	-1.46	0.15	-0.34	0.05
Intuitive Engagement	→	ActionCrisis			-0.07	0.10	-0.69	0.49	-0.26	0.12
Intuitive Ability	→	ActionCrisis			-0.02	0.11	-0.15	0.88	-0.24	0.20
Total indirect effects										
Intolerance	→	ActionCrisis			4.94×10^{-3}	0.02	0.22	0.83	-0.04	0.05
Rational Engagement	→	ActionCrisis			5.52×10^{-3}	0.03	0.20	0.84	-0.05	0.06
Rational Ability	→	ActionCrisis			-0.06	0.03	-1.98	0.05	-0.13	-6.13×10^{-4}
Intuitive Engagement	→	ActionCrisis			-0.03	0.03	-0.85	0.39	-0.09	0.03
Intuitive Ability	→	ActionCrisis			0.03	0.03	0.85	0.39	-0.04	0.10

Note. Robust standard errors, robust confidence intervals, DWLS estimator.

Appendix F - Mediation analysis for goal progress as a criterion variable

				Estimate	Std. Error	z-value	p	95% Confidence Interval	
								Lower	Upper
Direct effects									
Intolerance	→	Progress		0.03	0.06	0.54	0.59	-0.09	0.16
Rational Engagement	→	Progress		-0.09	0.10	-0.92	0.36	-0.29	0.11
Rational Ability	→	Progress		0.13	0.11	1.18	0.24	-0.09	0.35
Intuitive Engagement	→	Progress		7.62×10^{-3}	0.10	0.08	0.94	-0.19	0.21
Intuitive Ability	→	Progress		0.05	0.10	0.48	0.63	-0.15	0.24
Indirect effects									
Intolerance	→	Attainability	→ Progress	-0.01	0.03	-0.44	0.66	-0.07	0.04
Intolerance	→	Autonomous motivation	→ Progress	5.72×10^{-3}	7.63×10^{-3}	0.75	0.45	-9.23×10^{-3}	0.02
Rational Engagement	→	Attainability	→ Progress	-5.37×10^{-3}	0.04	-0.15	0.88	-0.07	0.06
Rational Engagement	→	Autonomous motivation	→ Progress	-2.35×10^{-3}	6.13×10^{-3}	-0.38	0.70	-0.01	9.67×10^{-3}
Rational Ability	→	Attainability	→ Progress	0.08	0.04	2.6	0.04	3.75×10^{-3}	0.15
Rational Ability	→	Autonomous motivation	→ Progress	9.82×10^{-3}	0.01	0.91	0.36	-0.01	0.03
Intuitive Engagement	→	Attainability	→ Progress	0.04	0.04	1.7	0.28	-0.03	0.11
Intuitive Engagement	→	Autonomous motivation	→ Progress	-5.54×10^{-3}	8.05×10^{-3}	-0.69	0.49	-0.02	0.01
Intuitive Ability	→	Attainability	→ Progress	-0.04	0.04	-1.01	0.31	-0.12	0.04
Intuitive Ability	→	Autonomous motivation	→ Progress	9.65×10^{-4}	8.45×10^{-3}	0.11	0.91	-0.02	0.02
Total effects									
Intolerance	→	Progress		0.03	0.07	0.39	0.70	-0.11	0.17
Rational Engagement	→	Progress		-0.10	0.11	-0.94	0.35	-0.31	0.11
Rational Ability	→	Progress		0.22	0.11	1.93	0.05	-3.08×10^{-3}	0.44
Intuitive Engagement	→	Progress		0.04	0.10	0.41	0.68	-0.16	0.25
Intuitive Ability	→	Progress		7.26×10^{-3}	0.10	0.07	0.94	-0.18	0.20
Total indirect effects									
Intolerance	→	Progress		-6.27×10^{-3}	0.03	-0.20	0.84	-0.07	0.05
Rational Engagement	→	Progress		-7.72×10^{-3}	0.04	-0.21	0.83	-0.08	0.06
Rational Ability	→	Progress		0.09	0.04	2.27	0.02	0.01	0.16
Intuitive Engagement	→	Progress		0.04	0.04	0.84	0.40	-0.05	0.12
Intuitive Ability	→	Progress		-0.04	0.05	-0.87	0.38	-0.13	0.05

Note. Robust standard errors, robust confidence intervals, DWLS estimator.