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Citation

Kuhta, B. (2023). *Exploring Uncertainty: Job Control as a Mediator in the Relationship Between Intolerance of Uncertainty and Job Satisfaction*.

Version: Not Applicable (or Unknown)

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Note: To cite this publication please use the final published version (if applicable).



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Social and Behavioural Sciences

Exploring Uncertainty: Job Control as a Mediator in the Relationship Between Intolerance of Uncertainty and Job Satisfaction

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Date: December 2023

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Abstract

Previous studies on uncertainty have acknowledged the efficacy of job control as a way to cope and enhance job satisfaction, although the literature using intolerance of uncertainty remains relatively scarce. Our study aimed to address this gap by investigating the mediating role of job control in the relationship between intolerance of uncertainty and job satisfaction. The proposed hypotheses were that (i) there would be a statistically significant negative association between intolerance of uncertainty and job satisfaction and that (ii) the relationship between intolerance of uncertainty and job satisfaction would be mediated by job control. The study was carried out on a sample of 109 adults, working in the Netherlands. Mediation analysis using PROCESS Procedure by Andrew Hayes was used. Contrary to expectations, hypotheses were not supported. A positive significant relationship was found between job control and job satisfaction. Results and implications of the study have been discussed.

Key words: intolerance of uncertainty, job control, job satisfaction

Layman's Abstract

In our study, we looked at how uncertainty affects people at work, specifically how it relates to job satisfaction. Previous studies suggested that having control over your job can help you deal with uncertainty, but so far not much research has focused on a specific aspect called 'intolerance of uncertainty'. We carried out a study with 109 adults working in the Netherlands to see if job control plays a role in how intolerance of uncertainty affects job satisfaction. Contrary to our predictions, we did not find a link between intolerance of uncertainty, job control and job satisfaction. But we did find that having more control over your work is connected to being more satisfied with your work. This discovery highlights that in workplaces, giving people more control over their jobs could be a successful way to make them happier with their job. The unexpected results opened new questions for future research, showing that we need to understand more about how these things work together.

Introduction

Exploring Uncertainty: Job Control as a Mediator in the Relationship Between Intolerance of Uncertainty and Job Satisfaction

Uncertainty is an ever-present aspect of our daily lives. It is essentially unpredictability about the future (Aspers, 2019, as cited in Cheng & Hahm, 2019). Uncertain situations can be perceived in many ways, depending on the nature of the circumstances and the individual experiencing uncertainty. There is a range in responses to uncertainty. In the best-case scenario, uncertainty is perceived as a challenge to be confronted and resolved. It can even make individuals feel alive and deliver a sense of satisfaction and accomplishment when ‘conquered’. In the worst-case scenario, is highly anxiety provoking and stressful. It can make an individual feel threatened and unable to predict and control the world around them (Dugas et al., 2001; Hogg, 2007). The diversity in responses to uncertainty is captured by the concept of “intolerance of uncertainty” (Freeston et al., 1994). How we perceive and cope with it can significantly impact our well-being, not only in our personal lives, but also at work (Nelson et al., 1995). Work environments tend to be full of uncertainties and those who do not tolerate it well get affected by it. Under those circumstances, employees’ job satisfaction levels tend to decrease significantly and are accompanied by experiencing stress and decreased job performance (Cheng & Hahm, 2019; Cullen et al., 2014; Ferris, 1977; Peltzer et al., 2008; Wiggins & Moody, 1983, as cited in Spector, 1985). Job satisfaction is a vital work outcome not only for employees, but organisations as well, as it impacts employees’ overall well-being and is the key driver of job turnover (Thatcher et al., 2002, as cited in Yeo et al., 2021). It is therefore crucial to pay attention to it and find ways to lessen the

effects of this negative relationship between uncertainty and job satisfaction. One of those might be increased job control.

Insufficient research has been conducted regarding the construct of intolerance of uncertainty concerning its association with work-related outcomes - job satisfaction and job control being one of them. Furthermore, limited research has examined whether job control mediates the relationship between intolerance of uncertainty and job satisfaction. The present study addresses this gap, delving into the relationship between intolerance of uncertainty, job satisfaction, and the mediating role of job control. It explores whether individuals high in intolerance of uncertainty may experience lower job satisfaction and how job control may serve as a potential buffer, shedding light on the interplay within organisational settings. Through an examination of these relationships, this study seeks to contribute valuable insights to the field of organisational psychology.

Intolerance of uncertainty

Studies have found that the varying ways of perceiving uncertainty seem to be a stable dispositional individual characteristic (Dugas & Robichaud, 2007, as cited in Buhr & Dugas, 2009). Put differently, individuals' reactions to uncertainty tend to be consistent over time – on the spectrum of being seen as positive (a challenge) or as negative (a threat) (Carleton et al., 2007; Hogg, 2007).

This trait-like construct is called 'intolerance of uncertainty'. First mentioned by Freeston et al. (1994) this construct is defined as 'the excessive tendency of an individual to consider it unacceptable that a negative event may occur, however small the probability of its occurrence' (Dugas et al., 2001, p. 552). It arises from negative beliefs

regarding uncertainty. Furthermore, it explains how a person perceives, interprets, and reacts to uncertainty in life. Intolerance of uncertainty manifests as negative reactions to uncertain situations and events on an emotional, cognitive, as well as behavioural level (Dugas et al., 2004, as cited in Buhr & Dugas, 2009).

Those high in intolerance of uncertainty are more prone to interpret uncertain situations and stimuli as evidence of a threat and find them intolerable. Given that life is full of uncertainty, individuals high in intolerance of uncertainty may experience several unacceptable and disconcerting events in the course of one day (Buhr & Dugas, 2002; Dugas et al., 2001; Dugas & Robichaud, 2007, as cited in Buhr & Dugas, 2009; Hedayati et al., 2003, as cited in Zlomke & Jeter, 2014). Individuals with high levels of intolerance of uncertainty tend to overestimate the probability of negative outcomes the consequences of their effects (Bredemeier & Berenbaum, 2008). They find uncertainty stressful, negative, and upsetting. These ambiguous aspects of life are found difficult to tolerate and therefore individuals high in intolerance of uncertainty either engage in futile attempts to control or eliminate uncertainty, or they believe it should be avoided altogether. They may go as far as to choose a certain negative outcome over an uncertain one that may or may not be positive (Blanuša et al., 2021; Dugas et al., 2004 as cited in Bredemeier & Berenbaum, 2008; Buhr & Dugas, 2002).

Individuals high in intolerance of uncertainty struggle to navigate situations characterized with high ambiguity, and often exhibit excessive worry about these situations. They experience significant impairment in their daily functioning (Buhr & Dugas, 2002; Lee et al., 2020; Zlomke & Jeter, 2014). Their problem-solving skills tend to be impaired, which leads to inaction and avoidance of uncertain situations. Having a

negative problem-solving orientation may result in higher levels of worry (Dugas et al., 1997; Zlomke & Jeter, 2014). Those high in intolerance of uncertainty also may have a tendency to be ‘frozen in action’, which can result in inability to prevent negative outcomes, and indecisiveness, which is associated with ‘worst case scenario reasoning’ (Bredemeier & Berenbaum, 2008). Research on decision-making and intolerance of uncertainty has found that those high in intolerance of uncertainty tend to delay decision-making under ambiguous conditions, so more information can be gathered (Ladouceur et al., 1997, as cited in Zlomke & Jeter, 2014).

Just as uncertainty is present in daily life, it is also present in the workplace. It can especially appear during organisational change and transitions, since change is usually accompanied by a lack of information and an unpredictable future (Bordia et al., 2004). Heightened levels of uncertainty have consistently appeared as the main associated factor in the context of substantial organizational change. However, organisational change is not the necessary condition for uncertainty to be present. Even in organisations with comparatively little change, uncertainty is present and those who experience it negatively, namely are intolerant to it, will be affected by it, psychologically (Cullen et al., 2014).

Being present in the workplace, studies have found that uncertainty affects multiple work-related outcomes. Blanuša et al. (2021) have identified that individuals with a lower tolerance of uncertainty and higher fear experienced higher distress levels, which consequently led to higher job insecurity. They investigated the presence of job insecurity and work-related distress in Serbia (a country with a very unstable job market) during COVID-19 and found that, during the pandemic, one third of workers experienced

increased levels of distress and uncertainty. They found that job insecurity only contributes to distress if one finds a virus threatening and does not tolerate uncertainty well. Additionally, their results suggested that even in a relatively stable society with better working conditions, those high in intolerance of uncertainty may experience more job insecurity. Their study emphasized the importance of resilience capabilities as protectors in work environments during a crisis.

Uncertainty was found to be negatively associated with commitment (Hui & Lee, 2000, as cited in Cullen et al., 2014), trust in the organisation (Schweiger & Denisi, 1991, as cited in Cullen, et al., 2014), and evaluation of the work environment (Lee et al., 2020). Studies in the medical field by Kuhn et al. (2009) have found emotional exhaustion to be predicted by intolerance of uncertainty, which in turn is a strong predictor of burnout. Lee et al. (2020) also established that individuals high in intolerance of uncertainty tended to become exhausted at work and consequentially showed higher turnover intention. Buhr and Dugas (2002) have found that those with a lower threshold for uncertainty perform lower on ambiguous tasks.

In their study, Bordia et al. (2004) explored uncertainty during organisational change and its consequences on various work outcomes. They established that uncertainty and stress lead to low morale. Communication negatively related to uncertainty and the importance of communication to reduce employee uncertainty was stressed. Moreover, they found that uncertainty was positively related to psychological strain and turnover intentions, and negatively to job satisfaction.

It's clear that uncertainty can have various negative impacts on an individual's overall well-being, both at work and in personal life. This makes it a salient area for research.

Understanding how individuals cope with and navigate uncertainty can provide important insights for improving mental health and job satisfaction of employees and can offer practical strategies for coping with it.

In reference to the previous statement, a work-related outcome that has also received investigations concerning its connection with uncertainty is job satisfaction. A plethora of studies have shown that there is statistically significant correlation between uncertainty and job satisfaction. In their research, scholars researched diverse forms of uncertainty such as general uncertainty, perceived uncertainty, environmental uncertainty, uncertainty concerning performance standards and appropriate behaviour, uncertainty avoidance, job uncertainty etc. (Cheng & Hahm, 2019; Diekmann et al., 2004; Ferris, 1977; Nelson et al., 1995; Yeo et al., 2021) in association with job satisfaction. However, a noteworthy lack of research exists in the specific examination of the relationship between job satisfaction and the construct of intolerance of uncertainty. So far, only a couple of studies focused on this relationship. Kuhn et al. (2009) studied tolerance for uncertainty as a risk factor for emotional exhaustion on emergency physicians, with a secondary focus on satisfaction with the career of emergency medicine. They found that intolerance for bad outcomes turned out to be a better predictor of burnout than dissatisfaction. Warholm and Bjerkreim (2020) studied the mediating role of intolerance of uncertainty on the relationship between digital mindset and job satisfaction. There was no indication of a relationship between intolerance of uncertainty and job satisfaction found. Based on this finding we can conclude that the existing literature is inconclusive and further research is needed.

Job satisfaction

Job satisfaction is referred to as “an emotional-affective response to a job or specific aspects of a job” (Locke, 1976, as cited in Spector, 1985, p. 695). It is an employee’s comprehensive evaluation of every facet of their job and tells us how much people like their jobs (Hirschfeld, 2000). It is a salient construct, as it increases organisational commitment, which in turn, reduces job turnover. Scholars seem to agree that job satisfaction is in fact a central motivator for job turnover (Thatcher et al., 2002, as cited in Yeo et al., 2021). Furthermore, it impacts employees’ subjective well-being, and even their general life satisfaction (Hirschfeld, 2000; Yeo et al., 2021).

Levels of job satisfaction seem to decrease significantly during periods of uncertainty. Nelson et al. (1995) found that during periods of major change, like privatization, perceived uncertainty was predictive of job dissatisfaction. Those with a low tolerance for ambiguity and a lesser degree of control, (i.e., manual workers) seemed to suffer the most, as they showed a significantly higher deterioration in job satisfaction and well-being during the period of organisational change.

Cheng and Hahm (2019) focused on the relationship between job satisfaction and job uncertainty (uncertainty about job and role changes, and promotion opportunities (Hirst, 1981, as cited in Cheng & Hahm, 2019)). The results showed that with more job uncertainty, job satisfaction will be lower. Their explanation for the findings was that in an uncertain environment, employees encounter challenges in determining the most appropriate approach to tackle their tasks. There is need for adaptability and learning new things and skills in those situations. Employees might no longer be able to use the existing skills that they are competent with. That can be stressful and therefore has a

negative impact on job satisfaction, as well as job performance (Dunst et al., 2018, as cited in Cheng & Hahm, 2019; Jermisittiparsert, 2016, as cited in Cheng & Hahm, 2019; Park & Jung, 2017, as cited in Cheng & Hahm, 2019).

Investigating environmental uncertainty – where individual's understanding of their surroundings is uncertain, Ferris (1977) found that, as environmental uncertainty increases, one may anticipate that the accuracy of their role might decrease, and therefore score lower on job satisfaction. According to research conducted by Johnson et al. (1996, as cited in Bordia et al., 2004), individuals who experienced uncertainty about their future in an organisation undergoing downsizing, exhibited decreased job satisfaction and increased turnover intentions. In a study by Bovier and Perneger (2007) results yielded a significant association between anxiety due to uncertainty and work-related satisfaction. Another study by Diekmann et al. (2004) focused on uncertainty concerning performance standards and appropriate behaviour, using the uncertainty management model of fairness by Van den Boss and Lind (2002, as cited in Diekmann et al., 2004). Their findings revealed that the more uncertain individuals are, the stronger the relationship between job satisfaction and fairness perceptions is.

Stress, experienced due to difficulty tolerating uncertainty tends to be another thing that affects employees' job satisfaction. Studies have found a relationship between job stress and job satisfaction. Not only that, job stress and lack of job satisfaction were found to be associated with most work-related illnesses, including stomach ulcers, hypertension, heart disease, and mental distress (Peltzer et al., 2008).

Additionally, individuals high in intolerance of uncertainty tend to score lower on job performance. A study on human service employees found that satisfaction is related

to employee performance (Wiggins & Moody, 1983, as cited in Spector, 1985).

Therefore, since job performance is affected for those high in intolerance of uncertainty, their job satisfaction might also decrease.

A consensus appears to be emerging regarding the observation that employees exhibit decreased job satisfaction under heightened uncertainty. It is suggested that a potential way to influence this relationship and increase job satisfaction in situations characterised by uncertainty is enhancing job control for employees, as proposed by Wright and Cordery (1999). Job control is recognized as a work resource, contributing to multiple positive outcomes within the work environment, among which job satisfaction holds significance (Cheng et al., 2014).

Dealing with uncertainty: job control

Whereas there is no such thing as absolute certainty, especially for those with high intolerance of uncertainty, there are many ways to cope with it and reduce its effects (Hogg, 2007). One of those can be increasing job control.

There is a difference between the objective control and the individual's perception or belief in that control. In this paper, the emphasis is on the perception of control, so the perceived control at work. Job control refers to 'the perceived control one has over one's own tasks, goals and general work activity'. Put differently, it refers to the degree of control an employee experiences over their work environment (Dwyer & Ganster, 1991; Karasek & Theorell, 1990, as cited in Cheng et al., 2014, p. 1272). There are two main aspects of job control: skill discretion – the chance to apply specific skills in the workplace, and decision-making authority – how much one can make their own work-

related decisions (Hausser et al. 2010, as cited in Cheng et al., 2014). Job control covers many domains, namely work tasks, task tempo, work scheduling, physical surroundings, decision making, interactions, and mobility (Ganster, 1989).

Oesterreich (1981, as cited in Schreurs et al., 2010) has pointed out that people have an intrinsic need for control. Increasing the levels of control that employees have over their work is helpful because those high in intolerance of uncertainty already tend to feel like they cannot control the world around them, so giving them additional control over their work restores some sense of control in their lives (Hogg, 2007). Wall et al. (2002, as cited in Leach et al., 2013) have found that at higher levels of uncertainty, enhancing job control is beneficial as it gives employees an opportunity to learn about tasks and requirements. This in turn also increases their job performance. As proposed by Jackson and Wall (1991, as cited in Wright & Cordery, 1999), employees are also able to respond to operating problems more effectively and faster when decision control is enhanced. Furthermore, high job control increases active coping and consequentially reduces exposure to stressful job events. As a result, employees' health is positively impacted (Sauter et al., 1989, as cited in Schreurs et al., 2010; Daniels, Tregaskis & Seaton, 2007, as cited in Schreurs et al., 2010). In their paper, Leach et al. (2013) emphasize that the level of job control and the degree of uncertainty should always be corresponding, as giving employees more job control under low uncertainty, for instance, might not produce desired effects.

Moreover, studies have found that job control increased job satisfaction. Wright and Cordery (1999) were researching production uncertainty and its relationship to job design. They found that employees who were provided with increased job control in

situations characterized by substantial uncertainty reported higher levels of job satisfaction, as well as intrinsic motivation. Greenberger et al. (1989) studied the impact of personal control (the belief that one can initiate a change in any way, at any time) on satisfaction and performance, and discovered that personal control showed a positive association with satisfaction and performance – independent of locus of control. Tetrick and LaRocco (1987) carried out a study using a sample of physicians, dentists, and nurses. They found that control over one's work environment was found to moderate the negative relationship between perceived stress over one's role and satisfaction.

Mullarkey et al. (1997, as cited in Wright & Cordery, 1999) also found that under situations with high uncertainty, levels of anxiety were higher in situations where employees had lower levels of a specific form of job control – timing control. Carayon and Zijlstra (1999) were researching specific kinds of job control and found that task control particularly has an indirect effect on anxiety and stress and is related to low strain. Task and organisational control were found to be directly related to high job satisfaction.

Additionally, having control in the work environment has been found to decrease the impact of physical stressors, motivation, job strain and lessen the negative effects of job insecurity (Furthermore et al., 1999, as cited in Leach et al., 2013; Ganster, 1989; Karasek, 1979; Schreurs et al., 2010; Wright & Cordery, 1999).

Present study

In the field of organisational psychology, understanding what contributes to employee well-being and job satisfaction is crucial. One such factor is uncertainty. Previous research has, to some extent, demonstrated the effects of uncertainty on various aspects

of work-related outcomes, including job satisfaction (Cheng & Hahm, 2019; Diekmann et al., 2004; Ferris, 1977; Nelson et al., 1995). Some studies have also touched on how job control may be an efficient way to cope with uncertainty, but the research in this area is limited (Wall et al., 2002, Leach et al., 2013; Wright & Cordery, 1999). However there remain limited or inconclusive body of literature regarding the relationship between intolerance of uncertainty in particular, and job satisfaction, as well as between intolerance of uncertainty and job control. Overall, there is little research on the construct of intolerance of uncertainty in association with any work-related outcomes. Furthermore, there is a notable research gap regarding the role of job control as a potential mediator between intolerance of uncertainty and job satisfaction. Job control, encompassing aspects such as decision-making authority and autonomy at work, has been recognized as a significant predictor of job satisfaction (Greenberger et al., 1989; Tetrick & LaRosso, 1987; Wright & Cordery, 1999). However, limited research has examined whether job control mediates the relationship between intolerance of uncertainty and job satisfaction. Therefore, this study aims to address this gap by investigating the mediating role of job control in the relationship between intolerance of uncertainty and job satisfaction, providing valuable insights into the mechanisms underlying this relationship in organisational settings.

The aim of this study is twofold. The first aim is to examine the relationship between intolerance of uncertainty and job satisfaction. The second aim is to explore the mediating effect of job control on intolerance of uncertainty and job satisfaction.

Two hypotheses were set for this study. The first hypothesis states that there is a negative relationship between intolerance of uncertainty and job satisfaction. This

hypothesis is based on findings that effects of various types of uncertainty result in negative experiences, lower functioning, stress and even burnout, all of which can influence job satisfaction. A relationship between uncertainty and job satisfaction, as well as other job outcomes that can influence job satisfaction, such as stress, job performance and job insecurity, has been found (Blanuša et al., 2021; Bordia et al., 2004; Bovier & Perneger, 2007; Buhr & Dugas, 2002; Cheng & Hahm, 2019; Diekmann et al., 2004; Ferris, 1977; Lee et al., 2020; Nelson et al., 1995; Peltzer et al., 2008). Taking this into account, we predict that since various types of uncertainty were found to have a significant relationship with job satisfaction, so should the construct of intolerance of uncertainty. Therefore, we want to explore the effect of the intolerance of uncertainty on job satisfaction.

The second hypothesis states that the relationship between the intolerance of uncertainty and job satisfaction is mediated by job control. This derives from results of previous studies that found a significantly positive effect of control on job satisfaction (Greenberger, 1989; Tetrick & LaRocco, 1987) and research that proposed that increased job control in uncertainty conditions can help with more effective operation of problems and provides an opportunity to better learn about tasks and requirements (Leach et al., 2013; Wall et al., 2002). Furthermore, this hypothesis is based on previous research by Wright and Cordery (1999), who found that employees provided with increased job control in situations of high production uncertainty reported increased levels of job satisfaction. In accordance with the past research, we predict that job control will act as a similar mediator in the relationship between intolerance of uncertainty and job satisfaction.

Method

Design and participants

The study was conducted in accordance with the Leiden University Psychology Research Ethics Committee. The ethical approval was received on 17.05.2023 in communication with the thesis supervisor. Participant confidentiality and anonymity were strictly maintained throughout the study. All data collected were securely stored and accessed only by the research team.

The study used a correlational cross-sectional design. GPower (Faul et al., 2007) was used to carry out a power analysis for sample determination. The aim of the analysis was to establish the minimum sample size required to obtain a power of 0.80 at a significance level of 0.01. The calculated sample size of $N = 98$ was deemed sufficient to our study. In total, there were 115 responses, however 6 of them were excluded, as they either contained no answers or only answered one of the three questionnaires. The final research sample consisted of 109 respondents who work in the Netherlands and are over the age of 16. The sample was mostly male (72.7%). The participants were aged 18 to 55 years ($M = 29.3$; $SD = 7.8$). Fifteen and a half percent of respondent's highest level of education was secondary education, 6.4% vocational education, 39.1% completed their Bachelor's degree, 37% their Master's degree and 4.5% a Doctorate degree. Almost 67% had a full-time job, the rest had a part-time job. Their mean organisational tenure was 4.1 years ($SD = 4.6$).

Procedure

Participants were recruited via the website Prolific and filled out the questionnaires on Qualtrics. The survey was published on 13.6.2023. Participants were instructed to answer the questions as best as they could and made aware that the data would remain completely confidential and would be analysed anonymously. They were also made aware that they can withdraw their responses from the study (if they no longer wished to be part of it) at any time without further consequences. They were first presented with an information form that included information about the general purpose, length of the study and compensation information. Respondents were also presented with an informed consent form. Next, they filled out some general demographic questions (e.g., their gender, age, and highest education level) and three questionnaires – covering intolerance of uncertainty, job control and job satisfaction. The survey concluded with a debriefing, providing more information about the study. The survey also included scales from another student, researching a similar topic. The survey took approximately 15 minutes to be completed. Participants were compensated for, receiving 1.50€ for filling out the surveys.

Measures

Demographics

Participants were asked to fill out their gender (male; female; non-binary/third gender; prefer not to say), age (years), education level (primary education; secondary education; higher education), whether their employment is full-time or part time, and organisational tenure (years with current employer).

Intolerance of uncertainty

Intolerance of uncertainty was measured using the short version of the Intolerance of Uncertainty Scale (IUS) by Carleton et al. (2007). The original, 27-item scale was developed by Freeston (1994) to measure intolerance of uncertainty. The short version scale contains 12 items. Participants were asked to respond to each item based on how characteristic it is of them. Example items were “Uncertainty keeps me from living a full life” and “It frustrates me not having all the information I need”. Responses to items were measured on a 5-point Likert scale from 1 (not at all characteristic of me) to 5 (entirely characteristic of me). Performing a reliability analysis, internal consistency for the 12-items version was found to be adequate ($\alpha = .84$).

Job control

Job control was measured via the Job Control Scale developed by Ganster (1989). The scale contains 22 items. The instructions asked participants to indicate the extent to which each item is an accurate or an inaccurate description of their job. Example items were “How much control do you have personally over how much work you get done?” and “How much control do you have over how you do your work?”. Responses to items were measured on a 5-point Likert scale from 1 (very little) to 5 (very much). Internal consistency was adequate ($\alpha = .90$).

Job satisfaction

Job satisfaction was measured by the Job satisfaction Survey by Spector (1985). The scale contains 36 items. The instructions asked participants to choose the answer that best describes their belief towards it for each item. Example items were “I feel a sense of pride in doing my job” and “I do not feel that the work I do is

appreciated". Responses to items were on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Internal consistency was adequate ($\alpha = .92$).

Results

In this section, we present the results of the statistical analysis conducted to assess the mediating role of job control in the relationship between intolerance of uncertainty and job satisfaction. The analysis was carried out using IBM SPSS Statistics 28.0.1.0. To aid graphical visualisation, RStudio, version 2023.09.1+494 was used.

Total scores of the three used scales were calculated. Reversal on certain items applies (Spector, 1985). Pairwise deletion was applied for missing values in calculation of sum scores. The dataset was checked for influential outliers. As there were no influential points, outliers were kept in the dataset.

Assumptions were checked. Assumption for linearity was presumed to hold. When checking the normality assumption, slight deviations in both tails were found, but nothing of significant concern, so we proceeded with the last assumption of equality of variances. Approximately equal variances were found at all levels of the independent variable with only slight smaller variances in the left tail. Overall, the assumptions were met. Find graphical visualisations in Figure 2 in Appendix.

Descriptive statistics were performed to explore the nature of the data. The mean, standard deviation, minimum and maximum values for intolerance of uncertainty, job control and job satisfaction are presented in Table 1. Graphical visualisations of the data can be found in Figure 1 in Appendix. Most scores for job satisfaction are distributed around the mean, the distribution seemed normal.

Table 1

Descriptive statistics of variables intolerance of uncertainty, job control, and job satisfaction

	<i>M (SD)</i>	<i>min</i>	<i>max</i>
Intolerance of uncertainty	2.8 (0.6)	1.3	4.83
Job control	3.2 (0.6)	1.5	4.5
Job satisfaction	3.3 (0.6)	1.7	4.6

We looked at the correlations between the variables and various demographics we measured. The correlations are presented in Table 2. We found a significant weak positive correlation between gender and type of employment, and a moderate correlation between gender and intolerance of uncertainty, as well as a weak negative correlation between gender and number of years at company. Age turned out to be positively significantly correlated with education (moderate correlation) and number of years at company (strong correlation). Additionally, age was found to be negatively correlated with type of employment, correlation being moderate. There was a moderate negative correlation observed between education and type of employment, and a weak positive one between education and job control. Lastly, job control was found to be moderately positively correlated with job satisfaction.

Table 2*Correlation matrix between all variables in the dataset*

	1	2	3	4	5	6	7	8
1. Gender	1.00							
2. Age	.08	1.00						
3. Education	.10	.34*	1.00					
4. Employment	.24*	-.30*	-.42*	1.00				
5. Years at company	.26*	.61*	.12	-.14	1.00			
6. Intolerance of uncertainty	.32*	-.08	.04	.18	-.15	1.00		
7. Job control	-.15	.12	.22*	-.45	.16	-.14	1.00	
8. Job satisfaction	.03	.03	.02	-.17	-.09	-.14	.41*	1.00

Note. *. Correlation is significant at the 0.05 level (2-tailed).

We conducted a mediation analysis, using PROCESS model 4 for SPSS Version 4.2, by Andrew Hayes (2022), to examine the relationships between intolerance of uncertainty, job control and job satisfaction, controlling for age and gender. Throughout the analysis no effects on age or gender were found. The coefficients of the mediation analysis are presented in Table 3 below.

To test the first hypothesis, we looked at the total effect of intolerance of uncertainty on job satisfaction. The overall model was not statistically significant, $F(3, 105) = 0.88, p = .45$. The results revealed that intolerance of uncertainty did not significantly predict job satisfaction, $\beta = -0.15, t(105) = -1.57, p = .12$. Only 2.45% change in job satisfaction is being accounted for by intolerance of uncertainty.

To test the second hypothesis, we looked at the rest of our analysis output. The effect of intolerance of uncertainty on job control was examined, controlling for age and

gender. The overall model was not statistically significant, $F(3, 105) = 1.72, p = .17$, explaining 4.68% of the variance in job control. The results indicated that intolerance of uncertainty did not significantly predict job control, $\beta = -.10, t(105) = .95, p = .34$.

The mediation analysis using the PROCESS procedure did not find a statistically significant indirect effect of intolerance of uncertainty on job satisfaction through job control ($\beta = -.04$, BootSE = .05, BootLLCI = -.13, BootULCI = .06). These findings suggest that the relationship between intolerance of uncertainty and job satisfaction is not mediated by job control, and other factors may be influencing the observed relationship. The analysis was conducted with a 95% confidence level and 5000 bootstrap samples for the estimation of confidence intervals.

Table 3*Coefficients of mediation analysis*

Effect of	β	SE(β)	t	p	Confidence interval	
					Lower level	Upper level
Intolerance of uncertainty on job control	-.10	.10	-.95	.34	-.30	.10
Job control on job satisfaction*	.40	.09	4.67	.00	.23	.57
Intolerance of uncertainty on job satisfaction*	-.11	.09	-1.28	.20	-.29	.06
Intolerance of uncertainty on job satisfaction	-.15	.10	-1.57	.12	-.35	.04

Note. *In the presence of the mediator.

Discussion

The study was designed to examine the mediating effect of job control on the relationship between intolerance of uncertainty and job satisfaction. Intolerance of uncertainty appears to be under-examined in association with work-related outcomes. Specifically, there seems to be a gap regarding the role of job control as a potential mediator between intolerance of uncertainty and job satisfaction. Drawing from propositions from past research, we proposed that (i) there will be a statistically significant and negative association between intolerance of uncertainty and job satisfaction and that (ii) the relationship between intolerance of uncertainty and job satisfaction will be mediated by job control. These predictions were tested on a heterogeneous sample of adults, working in the Netherlands.

Contrary to our initial expectations, none of the hypotheses were supported. The first hypothesis stated that there would be a statistically significant negative association between intolerance of uncertainty and job satisfaction, and even though the relationship between intolerance of uncertainty and, satisfaction was found to be negative, the analysis did not yield statistically significant results. This means that proposed intolerance of uncertainty did not significantly contribute to the variance in job satisfaction and our first hypothesis was therefore not supported. The second hypothesis stated that the relationship between intolerance of uncertainty and job satisfaction would be mediated by job control, however, the indirect effect through job control was not statistically significant. This indicates that the proposed mediation model did not provide evidence of a significant mediating effect. While our hypothesis suggested that job control would play a crucial mediating role in the association between intolerance of

uncertainty and job satisfaction, our hypothesis was not supported, and the non-significant findings prompt a reconsideration of our conceptual model. Several factors, discussed later in text, might contribute to our results and merit careful consideration.

There were some noteworthy correlations found. Gender was found to be positively correlated to intolerance of uncertainty, meaning the women experience higher levels of uncertainty. A positive correlation was found between education and job control. Individuals with higher levels of education seem to perceive higher levels of job control in their workplace. Job control was found to be positively correlated with job satisfaction, meaning that those with higher levels of job control seem to experience more job satisfaction.

As mentioned, we noted a positive, statistically significant relationship between job control and job satisfaction. Consistent with the theoretical framework, it appears that enhanced levels of job control have a positive effect on employees' satisfaction with their job. The positive relationship between job control and job satisfaction aligns with previous studies by Wright and Cordery (1999), Greenberger et al. (1989), and Tetrick and LaRocco (1987), supporting the idea that providing employees with increased control over their tasks, goals, and work activities contributes to higher levels of job satisfaction. Job control appears to be a crucial determinant of employee well-being, affecting not only satisfaction but also job performance, stress levels and coping mechanisms. It seems to not only help satisfy the needs of employees but might also have a positive effect upon organisations (Greenberger et al., 1989; Schreurs et al., 2010). Our study emphasizes the importance of recognizing and promoting job control at the organisational level as an

effective strategy in trying to achieve high levels of job satisfaction, and overall well-being.

Circling back to our non-significant results, we considered all aspects that could have influenced them. We suggest that the lack of statistical significance in our results might indicate a genuine absence of a relationship between the variables or the potential influence of other constructs on the studied relationship. It is however also likely that our non-significant results may be attributed to various methodological limitations. We will delve into these explanations in the following paragraphs.

A plausible interpretation for the absence of statistical significance in our findings might be attributed to the notion that the effects of uncertainty and job control only manifest during periods of organisational change or under other extreme working circumstances, where additionally to the individual's perception of uncertainty, there is an objectively uncertain situation present. This stems from a previous study where Nelson et al. (1995) found that uncertainty only seems to affect job satisfaction when upheaval is present in the organisation. It is suggested that effects of control and uncertainty only become relevant in the presence of an event of substantial scale to make uncertainty a source of concern. Only during periods of upheaval do organisations become more unsettling and evoke uncertainty for individuals who rely heavily on a stable and predictable environment.

Furthermore, it is possible that there may be additional unaccounted-for variables influencing the relationship between intolerance of uncertainty and job satisfaction. Social support, for example, has been found in association with effects of organisational conditions on psychological health, and could therefore influence our researched

relationship. The presence of social support within the workplace could affect how individuals cope with uncertainty and how they perceive job control (Tetrick & LaRocco, 1987). Similarly, perceived organisational support may influence how employees experience control and job satisfaction (Eisenberger et al., 1986). Role ambiguity and role conflict may also play a role in the mediating effects of job control, as they are correlated with personal control (Tetrick & LaRocco, 1987). Finally, next to job satisfaction, Warr (1987, as cited in Wright & Cordery, 1999) identified intrinsic motivation as one of the central elements in job-related mental health. Motivation might therefore also influence the relationship between our variables. Since there is a possibility that other factors might influence observed relationships, our inferences remain incomplete.

Another probable reason for our non-significant results and a limitation to the study might be the reliance of self-report measures. Relying solely on self-report data comes with certain biases, which may limit the results of our study. It is likely that respondents were inclined to provide answers that they perceive as socially desirable or acceptable rather than expressing their true behaviours and feelings. This in turn leads to underrepresentation of socially undesirable traits. It is possible that when providing answers on the intolerance of uncertainty scale, which could be perceived as an undesirable trait, respondents were not answering truthfully and therefore the relationship between intolerance of uncertainty and job satisfaction was not found. Furthermore, responses to Likert scales are inherently subjective. Participants may have provided answers based on their perceptions rather than on objectively measurable criteria. Other than wanting to report socially desirable answers, respondents might not even have the

awareness of how they truly tolerate uncertainty or might have had difficulty accurately recalling past experiences with uncertainty. This might have resulted in non-significant relationships between intolerance of uncertainty and other researched variables. There is also the limitation of subjective interpretations of responses when using Likert scales, leading to variability in responses that might not accurately reflect researched constructs.

It is important to mention that our results were limited to the population of people working in the Netherlands. While the results might be generalized to the Netherlands and other Western cultures with similar job markets, it is important to note that they cannot be generalized to countries whose job markets differ from the Netherlands, or to other cultures, therefore the working population in general. This limitation is supported by past research by Yeo et al. (2021), who researched job satisfaction in the specific context of East Asian cultures. They pointed out that predictors of job satisfaction have been found to be different for various parts of the world.

Finally, a limitation worth mentioning is the cross-sectional study design. While efficient for capturing data at a single point in time, it comes with certain limitations. There is limited ability to establish causation and no ability understand changes over time.

The non-significant relationships between our variables challenge the theoretical assumption of direct associations and the mediating effect. A theoretical implication of our study would be that there is need for reconsideration of the theoretical framework that posits these relationships, which calls for a deeper exploration of alternative pathways that may influence this relationship in organisational settings. The significant positive association between job control and job satisfaction holds considerable theoretical

significance, as it provides a valuable contribution to the theoretical frameworks that focus on what influences and helps enhance employees' job satisfaction. Moreover, the practical implications of this significant relationship suggest that interventions, aimed at increasing job control have the potential to positively impact job satisfaction. May they be behavioural or cognitive, direct, or indirect, any kind of attempts to increase control seem to be valuable to employees and therefore, organisations should be encouraged to provide their employees with more job control (Greenberger et al., 1989). Recognizing the non-significant (mediating) relationship between intolerance of uncertainty and job satisfaction from a practical point of view highlights the importance of considering the significance of individual differences in employees' reactions to uncertainty. It shows a need for an individual approach of managing employees and tailoring interventions and support that is specific to one's needs. In a way, this might be as effective as addressing job satisfaction.

There is clearly need for further research in this area. Many promising pathways remain to deepen our understanding of the relationships between intolerance of uncertainty, job control and job satisfaction. To further explore the possibility of a genuine absence of the relationship between intolerance of uncertainty and job satisfaction, as well as intolerance of uncertainty and job control, additional studies both using the same variables, but ideally improving study design, or using alternative variables, should be carried out. A suggestion would be to exchange intolerance of uncertainty for another type of uncertainty, more suitable for research in the organisational context, like for instance job uncertainty (Cheng & Hahm, 2019) and explore the mediating effect of job control between using this type of uncertainty in place

of intolerance of uncertainty. A valuable addition to the research field would additionally be to compare various types of uncertainty and their effects on work-related outcomes. Based on findings by Nelson et al. (1995) another possible pathway for future research would be to replicate this study specifically with participants undergoing organisational change or other extreme working conditions. For this, constructs such as uncertainty during change (Bordia et al., 2004), or change-related uncertainty (Cullen et al., 2014) could be used. Additionally, these results could be compared with results of participants working under ‘regular’ circumstances. This would provide a real opportunity to see whether relationships between intolerance of uncertainty, job control, and job satisfaction are only present when dealing with organisational upheaval. Furthermore, future research could benefit from inclusion of additional predictors or examination of potential confounding factors, such as previously mentioned social support, perceived organisational support, role ambiguity, role conflict, and intrinsic motivation (Eisenberger et al., 1986, Tetrick & LaRocco, 1987; Warr, 1987 as cited in Wright & Cordery, 1999).

Based on the methodological limitations we have identified; we propose the following opportunities for further future research. Replicating our analyses with a more diverse sample should be considered. This would enhance robustness, external validity of the observed relationships, and increase statistical power. Where our study relied on a single research method, using multiple methods is suggested for future research as it might strengthen the validity of findings as well as enable further, deeper understanding of the dynamics in play. Additionally, combining self-report measures with observational data or behavioural assessments in future studies would decrease chances of biases like

social desirability and subjectivity. In-depth interviews, for instance, might provide a richer understanding of participants experiences and feelings. Longitudinal design might be used in place of a cross-sectional design, as it could be used to collect measurements of more and less uncertain working conditions and employees' ways of tolerating those. An experimental study with implementing various interventions aimed to enhance job control, and looking at their impacts on job satisfaction might also provide valuable practical insights. Lastly, based on the relationship between job control and job satisfaction, a study exploring and examining the effectiveness of specific policy recommendations or interventions, such as 'quality circles' for instance, an intervention that increases job control by involving employees in solving organisational problems, is suggested (Pereira & Osburn, 2007). Examining which of the interventions yields the best results in terms of their effect on job satisfaction would provide important practical implications.

In conclusion, despite the non-significant mediation result, our study provides valuable insight into the field of organizational psychology by highlighting the complexity of the relationship between intolerance of uncertainty, job control, and job satisfaction. Though the results were unexpected and the relationships between intolerance of uncertainty, job control, and job satisfaction are unclear, they have highlighted the importance of an individual approach of managing employees and opened many possible pathways for future research to expand the understanding and underlying mechanisms of these relationships. Finally, the significant relationship between job control and job satisfaction emphasized the importance of recognizing and fostering job control in organizational contexts for enhanced job satisfaction.

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Appendix

Figure 1

Job satisfaction scores distribution

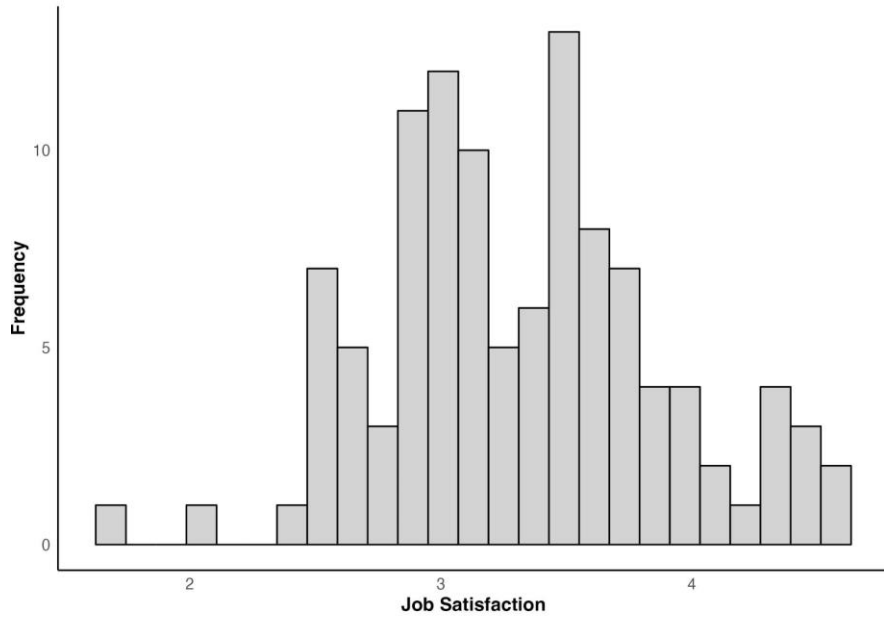


Figure 2

Assumptions of linearity, normality, and homoscedasticity of residuals

