

**Belief in a Just World and Conspiracy Theories: The role of Ambiguity Tolerance and  
Scientific Reasoning Skills**



*This thesis is submitted in partial fulfilment of the Honours degree of the Bachelor of  
Psychological Science (Honours)*

School of Psychology

Faculty of Health and Medical Sciences

University of Adelaide

October 2023

Word Count: 6,404

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## ABSTRACT

Belief in a Just World and conspiracy theories represent two forms of beliefs that have each gained significant attention as distinct concepts. Despite operating under different principles, they both share theoretical and functional similarities, suggesting an underlying association. By examining this previously minimally investigated association, the present study aims to provide new insights into the factors that influence conspiracy theory engagement. The study extends previous research by exploring the moderating effect of ambiguity tolerance and scientific reasoning skills on the association between belief in a just world as a predictor of conspiracy theories. A sample of 162 participants completed an observational online survey of self-report measures and a scientific reasoning task. The findings suggest that when individuals have low ambiguity tolerance, belief in a just world negatively predicts conspiracy theory engagement. However, when ambiguity tolerance is high, there is no association. This interaction effect highlights the adaptive role that belief in a just world may play when considering conspiracy theory engagement. While this study has limitations, it demonstrates a novel moderating effect that provides further insight to the individual difference predictors of conspiracy theory engagement. Future research is required to replicate this effect under experimental conditions.

## **DECLARATION**

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the School to restrict access for a period of time.

**October 2023**

### CONTRIBUTOR ROLES

<b>ROLE</b>	<b>ROLE DESCRIPTION</b>	<b>STUDENT</b>	<b>SUPERVISOR 1</b>	<b>SUPERVISOR 2</b>
<b>CONCEPTUALIZATION</b>	Ideas; formulation or evolution of overarching research goals and aims.	X	X	X
<b>METHODOLOGY</b>	Development or design of methodology; creation of models.	X	X	X
<b>PROJECT ADMINISTRATION</b>	Management and coordination responsibility for the research activity planning and execution.	X	X	
<b>SUPERVISION</b>	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.		X	X
<b>RESOURCES</b>	Provision of study materials, laboratory samples, instrumentation, computing resources, or other analysis tools.			
<b>SOFTWARE</b>	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code.	X	X	X
<b>INVESTIGATION</b>	Conducting research - specifically performing experiments, or data/evidence collection.	X		
<b>VALIDATION</b>	Verification of the overall replication/reproducibility of results/experiments.	X	X	
<b>DATA CURATION</b>	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.		X	
<b>FORMAL ANALYSIS</b>	Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data.	X	X	
<b>VISUALIZATION</b>	Visualization/data presentation of the results.	X	X	
<b>WRITING – ORIGINAL DRAFT</b>	Specifically writing the initial draft.	X		
<b>WRITING – REVIEW &amp; EDITING</b>	Critical review, commentary or revision of original draft	X	X	X

## CHAPTER 1: INTRODUCTION

### 1.1 Background

Conspiracy theories (CT) are prominent in public discourse, attributing significant social and political events to the secretive plots of powerful actors (Douglas et al., 2017). Engagement with CTs leads to distrust in institutions, and is associated with the rejection of health advice and scientific information (Georgiou et al., 2021a; Ianello et al., 2022). Further, CT engagement is associated with civic and social disengagement which often extends to acts of political violence and prejudice (van Prooijen & Jostmann, 2013; Douglas & Sutton, 2023). Consequently, psychological research is focused on identifying the factors that influence CT engagement to mitigate these outcomes (See Goreis & Voracek, 2019; Pilch et al., 2023, for reviews).

As CTs provide explanations for uncertain events, engagement with these theories may satisfy needs for meaning and control (Newheiser et al., 2011; Schöpfer et al., 2023). Similarly, Belief in a Just World (BJW), the tendency to believe the world is just, offers similar benefits (Lerner & Simmons, 1966). Although BJW and CTs are seemingly unrelated, both function to make sense of circumstances through rationalising social systems (Furnham, 2021; Jolley et al., 2018). At present the association between CTs and BJW remains minimally explored (Furnham, 2021; Lerner & Simmons, 1966).

To address this gap, the present study aims to explore BJW as a predictor of CT engagement. BJW serves a similar function to CTs, however BJW is associated with greater psychological benefits (Furnham, 2021). Therefore, BJW may negatively predict CT engagement when traits are present that increase the likelihood to engage with CTs. To explore this, I will examine how individual differences in ambiguity tolerance and scientific

reasoning skills may result in a more pronounced association between BJW and CTs. (Bao et al., 2022; Frenkel-Brunswik, 1949).

## **1.2 The Belief in a Just World**

BJW states that individuals need to believe that the world is fair and just (Lerner & Miller, 1978; Lerner & Simmons, 1966). In a just world, people generally get what they deserve and deserve what they get in life (Lerner & Miller, 1978). A just world suggests that positive actions will be rewarded, and negative ones will be punished (Lerner, 1980). BJW is psychologically adaptive, as it enables people to perceive the world as stable (Dalbert, 2001; Lerner & Miller, 1978). Due to the adaptive function that BJW serves, there is often a compelling motivation to defend BJW when it comes under threat by conflicting evidence (Furnham, 2003; Lerner & Miller, 1978).

Lerner (1980) asserts that while individual perceptions of justice differ, many implicitly adopt a BJW view due to the stability engaging provides. As BJW promotes the environment as stable, this allows people to rationalise that outcomes are predictable and promotes confidence for the future (Dalbert, 2001; Lerner, 1980). Dalbert (2001) mentions BJW promotes stability through an assimilation and a trust function. Specifically, when people encounter injustice they assimilate the experience through BJW and rationalise outcomes based on perceptions of deservingness. In turn, BJW promotes trust that the world will treat individuals fairly (Dalbert, 2001).

Notably, applying the principles of BJW to oneself (BJW-self) offers substantial psychological benefits, such as an increased sense of empowerment and optimism for the future (See Bartholomaeus & Strelan, 2019 and Furnham, 2003 for reviews). However, when BJW is applied to others (BJW-other), this often results in harsh social responding such as victim blaming (Hafer & Sutton, 2016).

A general belief in a just world (BJW<sup>1</sup>) refers to the general acceptance or rejection that the world is just (Rubin & Peplau, 1975). This facet of BJW will be the primary focus of the present study. Measures of BJW capture both belief in a just and unjust world (BUW) (Rubin & Peplau, 1975). Belief in a just world is notably adaptive, whereas BUW is associated with opposing outcomes such as defensive coping strategies and increased perception of risk when considering the future (Furnham, 2021; Lench & Chang, 2007).

### ***1.2.1 The Adaptive Function of Belief in a Just World***

The psychological adaptiveness of BJW is well established across the literature. Kiral Ucar et al. (2022) found that a strong BJW was associated with reduced hopelessness and increased perceived control surrounding the risk of the COVID-19 pandemic. BJW has been linked to increased perceptions of institutional trust (Zhang & Zhang, 2015). Further, experimental studies provide evidence that maintaining a strong BJW offers a protective buffer to tolerate threats and risk (Lambert et al., 1999). Accordingly, BJW is associated with increased psychological benefits. When confronting stressful life events BJW reduces prevalence of depression and anxiety (Xie et al., 2011). Jiang et al., (2016) suggest BJW functions to improve mental health through increasing optimism and gratitude.

Despite significant world events and injustices threatening the BJW concept, the empirical evidence suggests maintaining BJW offers a highly adaptive framework to interpret events (Dalbert, 2001). BJW is associated with better psychological outcomes than CTs, however both beliefs share a similar process of rationalisation. Consideration of Justice Motive and System Justification Theory support this notion that both beliefs share a similar function (Jost & Banaji., 1994; Lerner, 1997).

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<sup>1</sup> Throughout this study, BJW-general will be referred to as BJW.

### 1.3 Justice Motive Theory and System Justification Theory

Justice Motive Theory, underpinning BJW, originated as a framework to explain observer reactions to innocent victims (Lerner, 1997). According to Justice Motive Theory, it is psychologically challenging for individuals to believe that suffering and injustice can occur randomly (Lerner, 1997). People tend to rationalise that victims deserve the difficult circumstances they face to alleviate discomfort (Hafer & Sutton, 2016; Lerner, 1997). However, reasoning this way denies how broader social systems contribute to injustices (Jost & Hunyady, 2002).

Jost and Hunyady (2003) suggest that the principles of BJW and Justice Motive Theory involve legitimising the role of social systems. System Justification Theory extends this idea by suggesting that individuals are motivated to view social, economic and political systems positively (Jost & Banaji, 1994). System Justification Theory posits that when an individual encounters threats to the integrity and fairness of social systems, there is a tendency to rationalise and defend these systems (Jost & Hunyady, 2003).

When considering how System Justification Theory is related to CTs, Jolley et al. (2018) imply that this is somewhat paradoxical. Generally, those who engage with CTs undermine support for broader social systems as they distrust traditional institutions and authorities (Douglas et al., 2023). Nevertheless, those who support CTs may unintentionally engage in system-justifying processes (Jolley et al., 2018).

When CT believers encounter a threat to a social system they often attribute the cause to secret and malevolent groups (Douglas et al., 2017). However, by attributing blame to secret actors, this also diverts attention from the role of social structures. This suggests that those who engage with CTs may also have an implicit need to rationalise the role of broader social systems (Jolley et al., 2018).

When faced with complex circumstances, it may be challenging to critically evaluate the role of social systems for those who engage with BJW and CTs. Instead, it may be easier to rationalise that the world is fair (BJW), or that malevolent actors are responsible (CT) (Furnham, 2021; Jolley et al., 2018). Therefore, CTs and BJW may functionally serve a similar purpose, even though they are associated with contrasting psychological outcomes.

#### **1.4 Conspiracy Theories**

Akin to BJW, CTs offer individuals an alternative basis to interpret challenging circumstances. These theories often arise in response to uncertain and complex events, particularly in times of crisis (Moulding et al., 2016). This is exemplified by the influx of CTs suggesting the COVID-19 pandemic was a lie the government fabricated, to the notion that political referendums are covert take over plots (Hegarty, 2023; Iannello et al., 2022). These narratives are often unsubstantiated by evidence and oppose generally accepted versions of events (Douglas & Sutton, 2023). However, CTs continue to proliferate.

Given the magnitude of specific theories, the present study focuses on measuring a general tendency to engage with CTs (Brotherton et al., 2013). Rather than specific theory endorsement or attempting to infer conspiracist ideation (Brotherton et al., 2013; Imhoff et al., 2022). This approach is justified by empirical support that CTs tend to be intercorrelated and monological (Imhoff, 2022; Swami et al., 2011, 2017). By attributing blame to powerful malevolent actors, CTs provide explanations that may fulfill certain needs.

Douglas et al. (2017), suggest that engagement with CTs is associated with fulfilling three key needs; epistemic, existential and social and identity needs. Epistemically, CTs offer causal explanations for uncertain events (Douglas et al., 2017). Existentially, CTs may alleviate uncertainty and provide a sense of control. However, the form of control CT engagement offers is often compensatory in comparison to BJW (Douglas et al., 2017; Yu et

al., 2018). From a social and identity perspective, CTs allows people to maintain a positive self-image, particularly when their self-concept is threatened (Douglas et al., 2017).

The fulfilment of these needs does not negate that CTs are associated with negative psychological outcomes such as feelings of powerlessness and anomie, and broader consequences for society (Douglas & Sutton, 2023). Instead, this functional purpose of need fulfilment underscores why engagement with CTs remains appealing.

The factors influencing engagement with CTs have been extensively explored. Engagement with CTs is often associated with lower formal education and right-wing political ideals (Pilch et al., 2023). Associations have been drawn between CT endorsement and the presence of psychopathological factors (Georgiou et al., 2021a). Cognitively, CT engagement is associated with greater need for cognitive closure and a tendency to reject scientific explanations (Georgiou et al., 2021b; Gjoneska, 2021; Leman & Cinnirella, 2013; Marchlewska et al., 2018). Further there are demonstrated links between CTs and religiosity, paranormal beliefs, and magical thinking (Arnulf et al., 2022; Frenken et al., 2023). When considering novel individual difference correlates of engagement with CT, Swami et al. (2011) suggest BJW is worthy of exploration. To date, one study has explored this association.

Furnham's (2021) study was the first to explore BJW as an individual difference predictor of CT engagement. Furnham (2021) identified the similarities underpinning Justice Motive Theory, and System Justification Theory denotes a comparable function between BJW and CTs (Jost & Banaji., 1994; Lerner & Simmons, 1966). Furnham (2021) hypothesised a positive association between belief in an unjust world and CTs. However, he did not expect a relationship between BJW and CT (2021). The results of this study confirmed expectations.

To build on Furnham's findings I propose that the association between BJW and CT may be more nuanced. Theoretically, BJW and CTs serve a similar underlying function of rationalising social systems to make sense of circumstances. However, BJW achieves this function in a way that is of greater psychological benefit to the individual. This suggests BJW may fulfil the needs that CTs attempt to satisfy in a more beneficial way.

Although no empirical associations between BJW and CT have previously been drawn, having a strong BJW may mitigate engagement with CTs when other factors are present. Therefore, BJW might predict CT engagement when individuals possess traits that could increase their inclination to engage with CTs. Individual differences in ambiguity tolerance and scientific reasoning skills may act as moderating factors on the association between BJW and CTs.

### **1.5 Ambiguity Tolerance**

Ambiguity suggests the level to which information or circumstances are complex, unfamiliar, unsolvable or a combination of these factors. (Frenkel-Brunswick, 1949; McInain, 2009). Ambiguity tolerance then refers to an individual's tendency to view ambiguity as desirable or threatening (Frenkel-Brunswick, 1949). Those with strong ambiguity tolerance can accept complicated circumstances and demonstrate greater flexibility and openness across multiple contexts (Jach & Smillie, 2019; Yurtsever, 2000). Conversely, weak ambiguity tolerance is associated with rigidity and a tendency to resort to black-and-white thinking, and seek premature solutions (Ianello et al., 2017; Jach & Smillie, 2019). Individuals with lower ambiguity tolerance may be vulnerable to engaging with CTs causal explanations to reduce uncertainty. However, when ambiguity tolerance is low, drawing on an adaptive resource like BJW may mitigate the appeal of engaging with CTs.

## **1.6 Scientific Reasoning Skills.**

Scientific reasoning skills allow for the critical appraisal and interpretation of scientific information (Bao et al., 2022; Drummond & Fischhoff, 2015). Given the volume of online content, this skill set is particularly valuable for discerning reputable sources from false or misleading information (Čavojová et al., 2020). Those with strong scientific reasoning skills are less prone to accepting simplistic explanations unsupported by evidence (Bao et al., 2022). Conversely, weak scientific reasoning skills can lead to the rejection of scientific findings as discrepancies in information become challenging to evaluate (Koehler & Pennycook, 2023). When scientific reasoning skills are weak, individuals may prefer to accept explanations that alleviate uncertainty, even if they are unsubstantiated by evidence (Koehler & Pennycook, 2019). Individuals with reduced scientific reasoning skills may find the causal explanations of CTs appealing as a means of reducing uncertainty. However, when a strong BJW is present, this may reduce the need for CTs, even when scientific reasoning skills are low.

## **1.7 The Present Study**

The present study aims to investigate how BJW predicts CT engagement by exploring the moderating effect of individual differences in ambiguity tolerance and scientific reasoning skills. I will consider how BJW predicts CT engagement when individual differences exist in the capacity to tolerate ambiguity and further, how BJW predicts CT engagement when there are individual differences in ability to reason scientifically. By exploring these previously minimally investigated factors, the present study seeks to provide a novel contribution to the individual difference predictors of CT engagement.

The following hypotheses are proposed:

*H1:* It is hypothesised that ambiguity tolerance will moderate the association between BJW and CT. Such that at higher levels of ambiguity tolerance, there will be no association between BJW and CT.

*H2:* It is hypothesised that at low levels of ambiguity tolerance, there will be a negative association between BJW and CT.

A similar moderation effect is predicted for scientific reasoning.

*H3:* It is hypothesised that performance on a scientific reasoning skills task will moderate the association between BJW and CT. Such that at higher performance on the scientific reasoning task, there will be no association between BJW and CT.

*H4:* It is hypothesised that at lower performance on the scientific reasoning task, there will be a negative association between BJW and CT.

## CHAPTER 2: METHODOLOGY

### 2.1 Priori Power Analysis

A sample size estimate was determined by a priori power analysis based on a similar study by Furnham (2021). A G\*power analysis indicated that to detect an effect size of  $R=.14$  at an alpha level of  $\alpha = 0.05$  and a power level of  $= 0.95$ , a minimum sample of  $N= 135$  was required. Inclusion criteria specified that participants be over 18 and able to provide informed consent, with participation limited to within Australia. There were no participant exclusion criteria.

#### 2.1.1 Participants

The initial sample comprised 168 participants, six cases were excluded for not meeting data screening criteria. The final sample comprised 162 participants (71 men, 89 women, 2 non-binary) aged from 18-85 years ( $M= 32.14$ ,  $SD= 13.9$ ).  $N=148$  (91.36%) identified English as their primary language and  $N=129$  (79.62%) identified their nationality as Australian. Participants described their political orientation as moderate (36.2%,  $N=58$ ), conservative (23.31%,  $N=38$ ), slightly conservative (13.5%,  $N=22$ ), and very liberal (10.49%,  $N=17$ ). In terms of educational attainment, 35.58% ( $N=58$ ) held a bachelor's degree, 27.61% ( $N=44$ ) had completed Year 12, and 22.08% ( $N=36$ ) held a postgraduate degree.

### 2.2 Sampling Procedure

Prior to data collection ethical approval was granted by the Human Research Ethics Subcommittee in the University of Adelaide's School of Psychology (Approval number 23\_58). Participants were recruited through convenience sampling methods. A social media post promoting the study was shared with social and professional networks. The study also featured on the SONA Research Participation System (RPS) at the University of Adelaide. The RPS provides course credit to first-year Psychology students for participation in research

studies. Participants were also recruited through Prolific and received AUD 12.00 per hour monetary compensation for completing the study.

## **2.3 Procedure**

The study was pre-registered through AsPredicted (#132417) for transparency, accompanied by a research plan (See Appendices A & B). An observational online survey was administered through the Qualtrics Survey platform. Upon entering the survey, participants were presented with study information regarding inclusion criteria and instructions for providing informed consent.

Participants self-selected to participate and completed six psychometric scales measuring BJW, CT, and ambiguity tolerance. For exploratory analysis, measures of BJW-self, BJW-other and sense of control were included. Subsequently, participants completed a scientific reasoning skills task. Participants provided general demographic information and were provided a full debrief (See Appendices C-L for the survey preamble, all measures and debrief in order of presentation).

Six attention checks were presented and Qualtrics logic specified mandatory responses to all questions to progress through the study. Participants were also restricted from moving backwards to prevent attempts to alter responses.

## **2.4 Psychometric Measures**

### ***2.4.1 General Belief in a Just World***

BJW was measured using the Just World Scale (Rubin & Peplau, 1975). Participants rated 20 items on a six-point Likert scale (1=*strongly disagree* to 6=*strongly agree*). Items comprised two subscales, consisting of ten Just ( $\alpha = .78$ ) and ten Unjust items. Higher scores on Just items reflect a higher BJW. A sample item comprises, “Basically, the world is a just place.”

Higher scores on Unjust items reflect higher BUW. A sample Unjust item is, “Many people suffer through absolutely no fault of their own”. The Unjust scale demonstrated lower internal consistency in the current study ( $\alpha = .64$ ). Items that referred to “America” or “American” were changed to reflect a more general demographic.

#### ***2.4.2 The Generalised Conspiracy Beliefs Scale (GCBS)***

CT belief was measured using The Generalised Conspiracy Beliefs Scale (Brotherton et al., 2013). Participants rated 15 items such as, “Certain significant events have been the result of the activity of a small group who secretly manipulate world events”. Items are rated on a five-point Likert scale (1=*definitely not true* to 5=*definitely true*). Higher scores on this measure reflect greater *general* conspiracy belief as opposed to measuring the endorsement of specific theories ( $\alpha = .95$ ).

#### ***2.4.3 Ambiguity Tolerance***

Ambiguity tolerance was measured using The Multiple Stimulus Types Ambiguity Tolerance Scale-II (MSTAT-II) (Mclain, 2009). The scale measures a general aversion or attraction towards ambiguity. Participants rated 12 items on a five-point Likert Scale (1=*strongly disagree* to 5=*strongly agree*). A sample item includes, “I enjoy tackling problems that are complex enough to be ambiguous”. There are nine reverse-scored items such as, “I avoid situations that are too complicated for me to easily understand”. Higher scores reflect a stronger ambiguity tolerance ( $\alpha = .87$ ).<sup>2</sup>

#### ***2.4.4 Scientific Reasoning***

Scientific reasoning was measured using the Scientific Reasoning Scale task (Drummond & Fischhoff, 2017). Participants were presented with 11 scenarios, each scenario

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<sup>2</sup> Due to error, item 11 of the 13 item scale was not included. Item wording: “*I dislike ambiguous situations*”.

measuring a different scientific concept. A sample scenario to measure reliability included, “A researcher develops a new method for measuring the surface tension of liquids. This method is more consistent than the old method.” Participants are then prompted, “*True or False?* The new method must also be more accurate than the old method.”

Task scores ranged from 0-11. Correct responses were awarded one mark and incorrect responses or responses marked ‘unsure’ received no marks. Higher scores indicate better scientific reasoning skills. Items that referred to “America” or “American were changed to reflect a more general demographic. In the present study, the scale demonstrated lower internal consistency, ( $\alpha = .67$ ).

#### ***2.4.5 Exploratory Variables***

Participants were presented with the following scales for exploratory analysis. The Just World scale for self, measuring BJW-self (Lipkus et al., 1996). The Just World scale for others, measuring BJW-other (Lipkus et al., 1996). The Sense of Control Scale measuring control (Lachman & Weaver, 1998). As per the pre-registration, these measures were included for exploratory purposes, therefore analyses for these variables are not presented.

#### ***2.4.6 Demographic Information***

Participants provided their age, gender, nationality, and primary language. Participants selected their highest level of educational attainment from a list of options derived from the Australian Bureau of Statistics National Health Survey (ABS, 2019). Political orientation was measured on a single item, seven-point Likert Scale (*1 = very liberal to 7 = very conservative*) (Sibley et al., 2012). The option of other was also provided to account for apoliticism.

## 2.5 Statistical Analysis

Data screening criteria specified that cases failing two or more of the six attention check items were excluded. Responses that fell two *SDs* above or below the mean completion time were also excluded. A sensitivity analysis was performed to identify significant multivariate outliers. Non-influential outliers were retained for statistical power.

Data was analysed through multiple linear regression using R statistical software. As the Just World Scale comprises BJW and BUW subscales, these were run as separate models. Four moderation models were conducted using the lavaan package in R.

To explore the moderating effect of ambiguity tolerance, Model 1 specified BUW as the predictor variable, ambiguity tolerance as the moderator variable and CT as the dependent variable. Model 2 replicated Model 1, however, BUW was replaced by BJW.

To explore the moderating effect of scientific reasoning skills, Model 3 specified BUW as the predictor variable, scientific reasoning skills as the moderator variable and CT as the dependent variable. Model 4 replicated Model 3 however BUW was replaced by BJW.

## CHAPTER 3: RESULTS

### 3.1 Descriptive Statistics and Bivariate Correlations

Descriptive statistics and bivariate correlations between variables are displayed in Table 1. Notable correlations include the significant negative correlation between CTs and scientific reasoning skills, and CTs and education level. Further, there are significant negative correlations between CTs and age, and CTs and BJW. CTs positively correlated with political views and BUW. Ambiguity tolerance displayed unexpected positive correlations with education and scientific reasoning skills, while BJW negatively correlated with scientific reasoning skills.

**Table 1**

*Descriptive Statistics and Correlation Coefficients for Variables*

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Age	32.14	13.9	-							
2. Education Level	4.58	2.01	.43***	-						
3. Political View	5.09	2.23	.07	-.13*	-					
4. BJW	3.27	0.64	-.06	-.07	.10	-				
5. BUW	3.67	0.56	-.25*	-.17*	-.01	-.36***	-			
6. Ambiguity Tolerance	3.14	0.66	.16*	.24***	-.11	-.12	.02	-		
7. Scientific Reasoning	6.51	2.51	.09	.10	-.24***	-.17*	-.05	.18*	-	
8. Conspiracy Theories	2.53	0.94	-.34***	-.20*	.18*	-.16*	.41***	-.14	-.29***	-

*Note.*  $p < .001 = ***$ ;  $p < .01 = **$ ;  $p < .05 = *$ ; BJW = Belief in a Just World; BUW = Belief in an Unjust World.

### 3.2 Assumption Checks for Multiple Regression

Non-constant variance tests for homoscedasticity yielded non-significant results for all models. Further, Durbin-Watson tests for uncorrelated residuals were also non-significant across models. However, visual inspection indicated that some statistical assumptions for multiple regression were violated. The distribution of the regression residuals deviated from normality, and linearity between the predictor variables and CTs could not be confirmed. To account for this, bias corrected bootstrapped confidence intervals were estimated for all regression parameters (1,000 iterations as per the research plan, see Appendix B.)

### 3.3 Model 1: BUW and CT Moderated by Ambiguity Tolerance

Model 1 tested the moderating effect of ambiguity tolerance on BUW and CTs. The overall regression model was significant ( $F(3, 158) = 12.78, p < .001, R^2 = .19$ ). The association between BUW and CTs was significant and positive ( $b = 0.72, p = .00, 95\% \text{ CI } [-0.49, -0.10]$ ). The association between ambiguity tolerance and CTs was significant and negative ( $b = -0.22, p = .023, 95\% \text{ CI } [-0.40, -0.02]$ ). The interaction effect of ambiguity tolerance on the association between BUW and CTs was not significant ( $b = -0.18, p = .29, 95\% \text{ CI } [-0.49, 0.19]$ ). Given that the interaction effect was not significant, a moderating effect of ambiguity tolerance on the association between BUW and CTs was not supported.

### 3.4 Model 2: BJW and CT Moderated by Ambiguity Tolerance

Model 2 tested the moderating effect of ambiguity tolerance on BJW and CTs. The overall regression model was significant ( $F(3, 158) = 4.43, p = .005, R^2 = .07$ ). The association between BJW and CTs was significant and negative ( $b = -0.29, p = .012, 95\% \text{ CI } [-0.52, -0.06]$ ). The association between ambiguity tolerance and CTs was also significant and negative ( $b = -0.21, p = .032, 95\% \text{ CI } [-0.41, -0.05]$ ). The model also demonstrated a significant interaction effect of ambiguity tolerance on the association between BJW and CTs

( $b = 0.36, p = .014, 95\% \text{ CI } [0.07, 0.66]$ ). This model partially supported Hypothesis 1, supporting a moderating effect of ambiguity tolerance on the association between BJW and CTs.

### **3.5 Model 3: BUW and CT Moderated by Scientific Reasoning Skills**

Model 3 tested the moderating effect of scientific reasoning skills on BUW and CTs. The overall regression model was significant ( $F(3, 158) = 16.72, p < .001, R^2 = .24$ ). The association between BUW and CTs was significant and positive ( $b = 0.67, p = .00, 95\% \text{ CI } [0.43, 0.98]$ ). The association between scientific reasoning skills and CTs was significant and negative ( $b = -0.11, p = .00, 95\% \text{ CI } [-0.15, -0.06]$ ). The model demonstrated a non-significant interaction effect of scientific reasoning skills on the association between BUW and CTs ( $b = 0.02, p = .62, 95\% \text{ CI } [-0.11, 0.12]$ ). As the model fell short of statistical significance, the moderating effect of scientific reasoning on BUW and CTs was not supported.

### **3.6 Model 4: BJW and CT Moderated by Scientific Reasoning Skills**

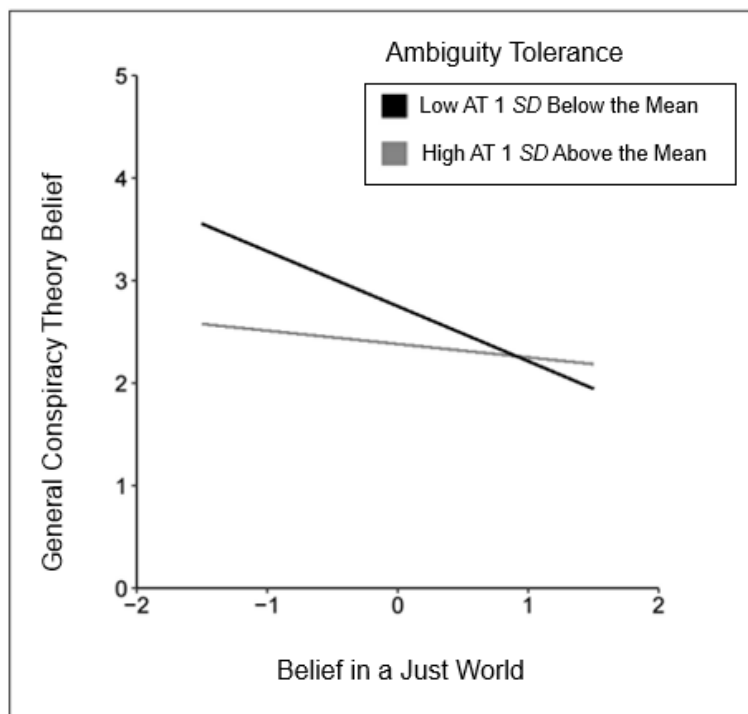
Model 4 tested the moderating effect of scientific reasoning skills on BJW and CTs. The overall regression model was significant ( $F(3, 158) = 7.90, p < .001, R^2 = .13$ ). The association between BJW and CTs was significant and negative ( $b = -0.31, p = .007, 95\% \text{ CI } [-0.49, -0.04]$ ). The association between scientific reasoning skills and CTs was also significant and negative ( $b = -0.12, p = .00, 95\% \text{ CI } [-0.18, -0.06]$ ). The model demonstrated a nonsignificant interaction effect of scientific reasoning skills on the association between BJW and CTs ( $b = -0.02, p = .54, 95\% \text{ CI } [-0.12, 0.06]$ ). As the model fell short of statistical significance, the moderating effect of scientific reasoning skills on the association between BJW and CT was not supported.

### 3.7 Simple Slopes Analyses Model 2: BJW and CT Moderated by Ambiguity Tolerance

As Model 2 demonstrated a significant moderating effect of ambiguity tolerance on BJW and CTs, I conducted a simple slopes analysis to further interpret the interaction (Figure 1). The analysis revealed that the association between BJW and CTs was statistically significant when ambiguity tolerance was 1 *SD* below the mean ( $b = -0.53, p = .001$ ). When ambiguity tolerance was at the mean, the association between BJW and CTs was also significant ( $b = -0.29, p = .013$ ). However, when ambiguity tolerance was 1 *SD* above the mean, the association between BJW and CTs was not significant ( $b = -0.06, p = .68$ ). These findings support Hypothesis 1 and Hypothesis 2.

**Figure 1**

*Moderation Effect of Ambiguity Tolerance on Belief in a Just World and Conspiracy Theories*



*Note.* Simple Slopes analysis of ambiguity tolerance 1 *SD* above and 1 *SD* below the mean. At higher levels of ambiguity tolerance there is no association between BJW and CT, at lower levels of ambiguity tolerance there is an interaction effect. AT = Ambiguity Tolerance.

## CHAPTER 4: DISCUSSION

Given belief in CTs is associated with detrimental outcomes, the present study aimed to contribute novel insights to the individual difference predictors of CT engagement.

Through consideration of BJW and CTs as system justifying processes, I investigated how BJW may predict CT engagement (Furnham, 2021). It was hypothesised that the association between BJW and CTs may be more nuanced when other individual difference factors are present. To extend Furnham's (2021) findings I examined the moderating effect of ambiguity tolerance and scientific reasoning skills on the association between BJW and CT engagement. It was hypothesised that at lower levels of ambiguity tolerance BJW would negatively predict CT engagement, whereas at high levels of ambiguity tolerance there would be no association. A similar moderation effect was hypothesised for scientific reasoning skills.

### 4.1 Supported Findings

As hypothesised, Model 2 provided support of a moderation effect of ambiguity tolerance on the association between BJW and CT engagement. Simple slopes analysis illustrated when tolerance for ambiguity was high, the association between BJW and CT was not significant, confirming support for Hypothesis 1. However, when ambiguity tolerance was low, BJW negatively predicted CT engagement, supporting the proposed interaction effect of Hypothesis 2. This moderating effect of ambiguity tolerance was observed for BJW, though not for BUW in Model 1. Although BUW was not moderated by ambiguity tolerance, Model 1 demonstrated a significant positive association between BUW and CTs, aligning with Furnham's (2021) findings.

### 4.2 Unsupported Findings

Contrary to expectations, the results did not support a moderation effect for scientific reasoning skills on the association between BJW and CT. Therefore, the predicted moderation

effect proposed by Hypotheses 3 and 4 was not supported across either Model 3 or Model 4. This unexpected outcome could be attributed to the demand characteristics of the task, or the lower internal consistency of the Scientific Reasoning Scale in the present study (Drummond & Fischhoff, 2017). Although the hypothesised moderation effect of scientific reasoning skills was not confirmed, both models revealed significant negative associations between CTs and scientific reasoning skills. These findings support the existing literature suggesting CT engagement is associated with reduced scientific reasoning ability, however when they are related to BJW these skills may not directly influence the association (Gjoneska, 2021).

### **4.3 General Discussion**

As theorised, the findings suggest that the association between BJW and CT is more nuanced when other traits are present (Furnham, 2021). These results offer the first demonstration of a moderating interaction effect of ambiguity tolerance on the association between BJW and CT. Expectedly, for individuals with a high ambiguity tolerance and a strong BJW, there was no association with CT engagement. However, when individuals had a reduced capacity to tolerate ambiguity, they were less likely to engage with CTs when a strong BJW was present. Individuals with lower ambiguity tolerance tend to view ambiguity as threatening, therefore they seek explanations to resolve uncertainty (Ianello et al., 2017). For individuals with this tendency, the findings imply BJW offers a framework that weakens the appeal of CTs. This finding contributes new insights to BJW theory, System Justification Theory and the individual difference correlates of CT.

#### ***4.3.1 Belief in Just World and Stability***

The findings provide further confirmatory support for the adaptive function that BJW affords individuals (Furnham, 2003; Lerner, 1980). For those who find it difficult to tolerate ambiguity, the BJW framework offers an adaptive means to approach uncertainty (Kiral Ucar

et al. 2022; Lerner, 1980). Primarily, BJW may reduce the need for CTs amongst those who view ambiguity as threatening as there is substantial support to suggest BJW provides a sense of stability and control (Dalbert, 200; Furnham 2003; Yu et al., 2018).

This sense of stability is implied in the tenets of BJW, and further has been empirically demonstrated (Kiral Ucar et al., 2022; Lerner & Miller, 1978). Although CT explanations attempt to increase control, the control that CTs offer is *compensatory* in comparison to BJW (Douglas et al., 2017). Further, the stability that BJW affords is also illustrated by the fixed nature of the BJWs framework (Dalbert, 2001; Lerner, 1980). Ultimately, as BJW offers a set rationale to interpret situations, this may function to buffer CTs that arise when uncertain circumstances occur (Moulding et al., 2016).

For individuals with low tolerance for ambiguity, a specific way that BJW may provide stability and mitigate CTs is through offering a decreased perception of risk, and there is literature to support this (Kiral Ucar et al., 2022; Lambert et al., 1999). For example, Lambert et al., (1999) demonstrated that BJW served as a buffer to tolerate perceived risk for individuals who felt more threatened. In a sample of right-wing authoritarians, a group associated with perceiving greater threats in the environment, BJW negatively predicted perceived risk when authoritarianism was high (Lambert et al., 1999). Within the context of the present study, individuals who have a low ambiguity tolerance, view uncertainty as threatening (Jach et al., 2019). Therefore, it is plausible that BJW offers a similar buffer effect to prevent engagement with CTs. Through offering a decreased perception of risk and a foundation of stability, the adaptiveness of the BJW framework may buffer the appeal of CTs as it already provides a means to tolerate uncertainty.

### ***4.3.2 System Justification Theory***

Theoretically, these findings align with the principles of System Justification Theory, positing individuals are motivated to view social systems in a positive regard (Jost & Banaji, 1994). If a need exists to view social systems positively, the literature suggests that BJW provides a more comforting rationalisation of the social system than CTs (Furnham, 2021). As BJW posits the world is fair, this might enhance trust in the environment, and in turn social systems (Dalbert, 2001). Considering the present study, the fairness and order that BJW provides may be a preferable method of system justification for the ambiguity intolerant (Jolley et al., 2018). This is supported in the literature, which indicates that system justifying through CTs may only be desirable when other means of justifying the social system are unattainable (Jolley et al., 2018). Therefore, when a strong BJW is present this provides a robust means of justifying social systems as fair and just, and therefore, system justifying through believing in CTs may not be necessary.

### ***4.3.3 Conspiracy Theories***

Ultimately, in line with the primary aims of the study, the results imply it is plausible that BJW may act as a buffer to reduce susceptibility to CT engagement, for individuals with specific tendencies. The results provide preliminary evidence of how BJW could potentially act as a protective factor in reducing susceptibility to CT engagement, for individuals who are less likely to tolerate ambiguity. Theoretically, Douglas et al., (2017) posit that CTs attempt to satisfy epistemic, existential and social identity needs. The current investigation provides some support that BJW may satisfy the epistemic and existential needs that CTs attempt to satisfy, in a more adaptive way. Although BJW and CTs are not associated at baseline, the findings provide greater insight into how these beliefs interact, and suggest that this association is subject to individual difference variables. Although these implications propose

many considerations for future research, it is important to first acknowledge the limitations of the study.

#### **4.4 Limitations**

As assumptions for multiple regression were violated the results, therefore, must be interpreted with caution. This study measured a general tendency to endorse CT beliefs through convenience sampling methods, resulting in a sample that was mostly politically conservative and English-speaking Australians. Therefore, the generalisability of these results is limited. As the study employed a cross-sectional survey, we cannot establish causation or causal directions when considering the results. Further, Self-report measures may lead to forms of response bias such as social desirability responding, particularly for controversial topics like CTs. In terms of measurement, the Unjust Scale and Scientific Reasoning Task demonstrated questionable internal consistency in the present study. This suggests these measures may have tapped into other constructs, and therefore replication is required with more robust measures.

Although the moderation effect of ambiguity tolerance on BJW and CTs was significant, this model only accounts for a small portion of the variance. These results cannot rule out the influence of additional factors that may also explain the association. Despite this limitation, small effect sizes for the individual difference correlates of CTs remain common in the literature (Furnham, 2021). Further, although System Justification Theory provides a strong rationale through which to examine BJW and CT, further research is required to empirically demonstrate how this system justifying function may operate. These considerations highlight the need to continue exploration of the individual difference correlates of CTs.

#### 4.5 Directions for Future Research

The current study provided support for a moderating effect of ambiguity tolerance on BJW and CTs. This prompts the need to replicate the study to confirm the validity of the current findings. To extend the current findings, future research could replicate the present study with larger, cross-cultural samples to support the generalisability of the findings. Further, future research could employ experimental designs to empirically confirm how BJW acts as a buffer to negatively predict CT engagement. Longitudinal studies could also establish how these associations may change over time.

Considering this is the first example of a moderation effect on the association between BJW and CTs, there may be other trait level predictors that play a stronger role in predicting CT engagement. The present study suggests the association between BJW and CT is contingent on the presence of other individual difference factors. Future studies could consider replicating the present study under experimental conditions with other variables that are associated with CT engagement susceptibility, such as the need for cognitive closure (Iannello et al., 2022).

As the BJW-self dimension of Just World Beliefs is notably the most psychologically adaptive (Bartholomaeus & Strelan, 2019). Replicating the study with this measure may further demonstrate how BJW buffers CT engagement. To better capture the adaptive function of BJW in relation to CTs, future research could also explore how BJW fulfills the needs Douglas & Sutton (2017) posit that CTs seek to fulfil. These are epistemic, existential, and social and identity. Whilst this study provided some potential insight into the epistemic and existential factors further exploration is required.

Ultimately, obtaining samples who strongly endorse CTs remains a difficult pursuit (Pilch et al., 2023). It is very possible that the present sampling method did not adequately

capture the target population of interest, those who strongly engage with CTs. This prompts the need to consider more innovative methods of sampling populations who engage with CTs. As CTs often proliferate in online forums, a reasonable approach to address this may be through online communities.

#### **4.6 Conclusion**

The present study provides novel insights into the individual differences of BJW as a predictor of CTs. Being the first study to demonstrate that BJW may diminish support for CTs when traits that increase CT susceptibility are present. The findings also provide further confirmatory support for the adaptive function of BJW. Given how detrimental CTs are, it is imperative that research continues to better understand the factors that predict an individual's tendency to engage with these theories, and how this can be changed. This research builds our understanding of the association between BJW and CT, however future empirical work is needed to further investigate how these beliefs are linked.

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## APPENDICES

### Appendix A: AsPredicted Pre-Registration

#### Just World Beliefs and Conspiracy Theories: Observational Survey (#132417)

Created: 05/16/2023 08:11 PM (PT)

This is an anonymized copy (without author names) of the pre-registration. It was created by the author(s) to use during peer-review. A non-anonymized version (containing author names) should be made available by the authors when the work it supports is made public.

**1) Have any data been collected for this study already?**

No, no data has been collected for this study yet.

**2) What's the main question being asked or hypothesis being tested in this study?**

Does Belief in a Just World (BJW) endorsement predict Conspiracy Theory (CT) endorsement and how are they associated?  
Are there other factors that may strengthen or hinder the association between BJW and CT?

H1

It is hypothesized that Ambiguity Tolerance (AT) will moderate the association between BJW and CT such that at higher levels of AT there will be no association between BJW and CT.

H2

It is hypothesized that at low levels of AT there will be a negative association between BJW and CT.

H3

A similar moderation effect is expected for Scientific Reasoning Skills (SRS). We hypothesize that performance on a SRS task will moderate the association between BJW and CT such that at higher performance on the SRS task, there will be no association between BJW and CT.

H4

It is hypothesized that at lower performance on the SRS, there will be a negative association between BJW and CT.

**3) Describe the key dependent variable(s) specifying how they will be measured.**

The key dependent variable is CT endorsement, this will be measured through administering The Generic Conspiracy Beliefs Scale (Brotherton et al, 2013)

Brotherton, R., French, C. C., & Pickering, A. D. (2013). Measuring belief in conspiracy theories: the generic conspiracist beliefs scale. *Frontiers in psychology*, 4, 279-279. <https://doi.org/10.3389/fpsyg.2013.00279>

**4) How many and which conditions will participants be assigned to?**

The study will employ an observational self-report survey design, therefore participants will not be assigned to separate conditions. The survey will consist of validated scales measuring the endorsement of Just World Beliefs for the Self (BJW-self), Just World Beliefs for Other (BJW-other), Belief in a Just World General (BJW-General), CT, AT and Sense of Control (SC). In addition, participants will be presented with an SRS task.

**5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.**

We will use 2 moderation models to examine associations between variables. Model 1 will examine the moderating influence of AT on the association between BJW-general and CT. Similarly, Model 2 will examine the moderating influence of SRS on the association between BJW-general and CT.

**6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.**

To screen data we will adhere to the following criteria:

- Responses will be excluded that fail 2 or more of the 6 attention check items.
- Responses that fall within 2 Standard Deviations (SD) below or above the mean completion time will be excluded.
- A sensitivity analysis will be conducted to identify significant multivariate outliers. Non-influential outliers will be retained for statistical power.

**7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.**

A priori power analysis indicated that to detect an effect size of  $R^2 = .14$  (estimate based on Furnham (2021) at an alpha level of  $\alpha = 0.05$ , and a power level of  $1-\beta = 0.95$ , a sample of  $N = 135$  is required. This sample size estimate forms a minimum required sample, we will aim to recruit more participants than this to allow for attrition.

**8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)**

BJW-self and BJW-other, will be run as predictor variables using the same moderation modelling as discussed above. Additionally, we will run a mediation model to explore the mediating affect of SC on BJW-general and CT. These results will be interpreted in an exploratory manner, therefore no formal hypotheses have been made.

Available at [https://aspredicted.org/ZDG\\_B44](https://aspredicted.org/ZDG_B44)

## Appendix B: Research Plan

### Psychology Honours Project 2023 – Research Plan

Student Name:

Student ID:

Study Information

1. **Title:** Just World Beliefs and Conspiracy Theories: The explanatory role of control, ambiguity tolerance and scientific reasoning.
2. **Target Journal:**  
Personality and individual differences (Online). (1980). Pergamon.
3. **Research Aim/s:**  
Both Belief in a Just World (BJW) and Conspiracy Theories (CT) have been extensively researched as distinct concepts. Although BJW is often psychologically adaptive whilst CTs are maladaptive, both serve a similar psychological function through fostering a sense of meaning and control (Douglas et al., 2019; Kiral Ucar, 2019). Despite this similarity, there is little research on how the two may be linked from an Individual Differences perspective. Further, much of the CT literature has struggled to yield significant effect sizes to

consistently predict and explain the Individual Difference variables of CT endorsement (Furnham, 2021). For this reason, exploring how BJW and related constructs may influence CT endorsement will address a gap in the literature of how other beliefs (specifically BJW) may influence the endorsement of CT.

Furnham (2021) explored associations between BJW and CTs and demonstrated significant associations between strong CT endorsement and a strong belief that the world is unjust. However, there was no significant association between BJW and CT endorsement yielded from this study ( $p < .06$ ) (Furnham, 2021). We argue that further exploration of related constructs such as Ambiguity Tolerance (AT), Sense of Control (SC) and Scientific Reasoning Skills (SRS) may lead to observations of interaction effects between BJW-self, BJW-other, BJW-general and CT's. Specifically, whether BJW endorsement influences CT endorsement may be contingent on how AT, SRS and SC moderate or mediate the association.

4. **Research Question/s:**

Specifically, the research aims to address,

*Does BJW endorsement predict CT endorsement and how are they associated?*

*Are there other factors that may strengthen or hinder the association between BJW and CT?*

5. **Use of Theory:**

The research design is quantitative and primarily operates from a deductive paradigm with inductive aspects. Deductively, our research question, data collection and analysis are primarily driven by theory based on Furnham's (2021) study. Inductively, a literature review was conducted to identify supplementary themes to further explore existing theory. This combination of inductive and deductive theory allowed us to generate informed hypotheses that may lead to new theoretical discoveries. Based upon this, we propose the following hypotheses:

- **H1**  
It is hypothesized that AT will moderate the association between BJW and CT such that at higher levels of AT there will be no association between BJW and CT.
- **H2**  
It is hypothesized that at low levels of AT there will be a negative association between BJW and CT.
- **H3**  
A similar moderation effect is predicted for SRS. We hypothesize that performance on a SRS task will moderate the association between BJW and CT such that at higher performance on the SRS task, there will be no association between BJW and CT.
- **H4**  
It is hypothesized that at lower performance on the SRS, there will be a negative association between BJW and CT.

Design Plan

6. **Tradition (optional):** Frequentist

7. **Study Design:**

To address our research question, we will employ an observational self-report survey design. We will administer a survey consisting of validated scales measuring the endorsement of Just

World Beliefs for the Self (BJW-self), Just World Beliefs for Other (BJW-other), Belief in a Just World General (BJW-General), CT, AT and SC. In addition, participants will be presented with an SRS task. We will use 2 moderation models to examine associations between variables.

**8. Study Measures (optional):**

- Dependent Variable: Conspiracy Theory Endorsement (CT) The Generic Conspiracy Beliefs Scale (Brotherton et al., 2013)
- Predictor Variable: BJW-self - Just World Scale for Self (Lipkus, 1996)
- Predictor Variable: BJW-other - Just World Scale for Others (Lipkus, 1996)
- Predictor Variable: BJW-general - Just World Scale (Rubin & Peplau, 1975)
- Predictor Variable (Moderator): Ambiguity Tolerance (AT) - The Multiple Stimulus Types Ambiguity Tolerance Scale-II (MSTAT-II) (McLain, 2009)
- Predictor Variable (Moderator): Scientific Reasoning Skills (SRS) – Scientific Reasoning Scale (Drummond & Fischhoff, 2017)
- Predictor Variable (Mediator): Sense of control (SC) - Sense of Control Scale (Lachman & Weaver, 1998)

**9. Study Materials (optional):**

All study materials are provided in Question 8, Study Measures.

**Study Procedure:**

This research will be conducted using an online survey design as follows:

1. Participants, including first year University of Adelaide psychology students and those recruited through personal and professional networks, will self-select to participate in the research.
2. Students will access the survey via the Research Central webpage where they will be presented with a Qualtrics link.
3. Upon clicking the link, participants will be presented with a welcome page, information sheet, and consent form.
4. As stated in the preamble, participants will provide informed consent by clicking to participate in the survey.
5. Participants will be presented with:
  - Just World Scale for Self (Lipkus, 1996)
  - Just World Scale for Others (Lipkus, 1996)
  - Just World Scale (Rubin & Peplau, 1975)
  - The Generic Conspiracy Beliefs Scale (Brotherton et al., 2013)
  - Sense of Control Scale (Lachman & Weaver, 1998)
  - The Multiple Stimulus Types Ambiguity Tolerance Scale-II (MSTAT-II) (McLain, 2009)

6. Participants will be presented with a Scientific Reasoning task, Scientific Reasoning Scale (Drummond & Fischhoff, 2017)
7. Participants will be presented with general demographic questions
8. Participants will be presented with a debrief of the study's purpose.
9. Student participants will enter their research ID to be awarded course credit.

#### Sampling Plan

10. **Existing Data/Partial Existing Data/Original Data (choose one)**

Original Data will be collected.

11. **Data Collection Procedures :**

Convenience sampling and passive snowball sampling methods will be utilised to recruit participants. Participants will be drawn from a convenience sample of first year Psychology students from the University of Adelaide. This cohort receive course credit for study participation. Additionally, an ethically approved social media post will be presented to social and professional networks as a passive snowball sampling method. These sampling methods were primarily chosen due to time and resource constraints.

12. **Type of Data Collected:**

Participants will be administered scales that produce ordinal Likert Scale self-report data. Level of agreement is coded numerically on a continuum, for example 'strongly disagree' denotes a 1 and 'strongly agree' denotes a 7, the number of points is specific to the item scale specifications (As discussed in Question 9). The use of Likert Scale responses allows for quantification of nuanced attitudes. Additionally, we will collect self-report performance task data from the SRS task, whereby a True or False answer will be collected for 11 scenarios. The number of correct answers will be quantified to indicate SRS skills.

13. **Sample Size:** A priori power analysis indicated that to detect an effect size of  $R^2 = .14$  (estimate based on Furnham (2021) at an alpha level of  $\alpha = 0.05$ , and a power level of  $1-\beta = 0.95$ , a sample of  $N = 135$  is required. This sample size estimate forms a minimum required sample, we will aim to recruit more participants than this to allow for attrition.

14. **Stopping Rule:**

As per the power analysis, we will aim to collect a minimum sample of 135 participants. To account for possible attrition, we plan to collect a minimum of 150 participants. Data collection will cease once this number is reached.

#### Analysis Plan

15. **Data Analyses:**

Data will be collected through the Qualtrics Survey platform and analysed using R and JASP Statistical Software. Data analysis will primarily be conducted by X, under the guidance of X and X

#### Data Analyses Procedure

## Data Screening Criteria

To screen data, we will adhere to the following criteria:

- Responses will be excluded that fail to 2 or more of the 6 attention check items.
- Responses that fall within 2 Standard Deviations (SD) below or above the mean completion time will be excluded.
- A sensitivity analysis will be conducted to identify significant multivariate outliers. Non-influential outliers will be retained for statistical power.

## Analysis Approach

Data will be analysed through multiple linear regression. Specifically, 2 moderation models will be conducted using the lavaan package in R and reproduced in JASP. Model 1 will examine the moderating influence of AT on the association between BJW-general and CT. Similarly, Model 2 will examine the moderating influence of SRS on the association between BJW-general and CT.

BJW-self and BJW-other, will be run as predictor variables using the same moderation modelling discussed above. Additionally, we will run a mediation model to explore the mediating affect of SC on BJW-general and CT. These results will be interpreted in an exploratory manner.

## Moderation Model Procedure

### Model 1

- Step 1: Enter CT as the outcome variable.
- Step 2: Enter BJW as a predictor variable.
- Step 3: Enter AT as a predictor Variable.
- Step 4: Enter the AT \* BJW as a predictor.
- Step 5: Interpreting beta coefficients and p values to determine support for the hypotheses.

### Model 2

- Step 1: Enter CT as the outcome variable.
- Step 2: Enter BJW as a predictor variable.
- Step 3: Enter SRS as a predictor Variable.
- Step 4: Enter the SRS \* BJW as a predictor.
- Step 5: Interpreting beta coefficients and p values to determine support for the hypotheses.

## Assumption Tests

Linear multiple regression assumes:

- Linearity between predictor variables and the dependent variable. This will be tested by plotting predicted values against residuals and assessing if points fall between  $-2$  and  $+2$ .
- Normally distributed residuals will be tested via a QQ plot and a Shapiro-Wilk (SW) test of normality. The results should produce a straight QQ plot and non-significant SW test.
- Homoscedasticity will be tested via a non-constant variance test; the p value should be non-significant.

- Uncorrelated residuals will be tested via Durbin Watson test whereby the p value should not be significant.
- No multicollinearity, whereby the predictor variables are similar. This will be tested through analysis of a correlation matrix of predictor variables, whereby predictor variables should correlate  $r < .85$ .
- No multivariate or univariate outliers. Mahalanobis distance, Cook's distance and Centre Leverage value will be calculated for each value. To meet assumptions calculated values will need to fall below the critical value. We will apply the "two-strikes" rule, if an observation falls above the critical value for two or more of these tests, it will be deemed an outlier.

If assumptions are violated, we will use BCA (bias-corrected) Bootstrapping to generate 95% confidence intervals for the beta coefficients.

### Other (Optional):

#### Reference

Douglas, K., Uscinski, J. E., Sutton, R. M., Cichocka, A., Nefes, T., Ang, C. S., & Deravi, F. (2019). Understanding Conspiracy Theories. *Political Psychology*, 40(S1), 3–35. <https://doi.org/10.1111/pops.12568>

Furnham, A. (2021). Just world beliefs, personal success and beliefs in conspiracy theories. *Current psychology (New Brunswick, N.J.)*, 1-7. <https://doi.org/10.1007/s12144-021-01576-z>

Kiral Ucar, G., Hasta, D., & Kaynak Malatyali, M. (2019). The mediating role of perceived control and hopelessness in the relation between personal belief in a just world and life satisfaction. *Personality and Individual Differences*, 143, 68–73. <https://doi.org/10.1016/j.paid.2019.02.021>

## Research Plan Checklist

**Students:** This checklist must be completed and signed by your primary supervisor as a requirement of the research plan component of the thesis. Please append a signed copy of the completed checklist to your research plan document and submit them together (as a single PDF document) via the MyUni assignments tab no later than **9am 15th of May**. To ensure your supervisor has sufficient time to review your research plan and complete the checklist, we encourage you to provide them with a copy of the checklist and a draft of your research plan as early as possible — at least one week before the due date. We also encourage you to work with supervisors to develop your research plans from early on in the semester.

**Supervisors:** Research plans for honours projects should be well reasoned and well thought-out (sound), and also manageable within the scope of the timeline, available resources and the student's capabilities (feasibility). Please review the student's research plan (template provided on MyUni) and indicate if each step of their plan is sound and feasible by ticking the appropriate box. If the component is not applicable given the nature of the project please tick "Not Applicable". If any step of the plan is not yet sound or feasible please leave the box/s unticked.

Study Information	Not Applicable	Feasible	Sound
Title	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Target Audience	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Research Aim/s	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Research Question/s	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use of Theory	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Design Plan	Not Applicable	Feasible	Sound
Tradition	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Study Design	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Study Measures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Study Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Study Procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sampling Plan	Not Applicable	Feasible	Sound
Data Collection Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Type of Data Collected	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Size	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Stopping Rule	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Analysis Plan	Not Applicable	Feasible	Sound
Data Analyses	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Other	Not Applicable	Feasible	Sound
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Student Name	Signature	Date
██████████	██████████	12/05/2023

Primary Supervisor Name	Signature	Date
██████████	██████████	12/05/2023

### Appendix C: Qualtrics Participant Information Sheet and Consent Form

#### INDIVIDUAL DIFFERENCES IN WORLD VIEW

HREC Approval Number: 23\_58

Principal Investigator: ██████████

Student Researcher: ██████████

Associate Investigator: ██████████

**What is the project about, and who is undertaking the research?**

World view consists of beliefs that shape how we make sense of our reality and the society we live in. As our world view can affect our thoughts, behaviours and how we interact with others, further exploration of what psychologically contributes to world view endorsement is a necessary investigation. This research project aims to understand different aspects of how you view the world and will ask a few questions about you in the process.

This research is being conducted by student researcher [REDACTED] under the supervision of Principal Investigator [REDACTED] and Associate Investigator [REDACTED]. This study will form partial fulfillment of the Honours Degree of the Bachelor of Psychological Science at the University of Adelaide.

**Why am I being invited to participate, and how long will it take?**

You are being invited to participate in the research as you meet the participant selection criteria:

- You are over the age of 18 years.
- You can provide informed consent to participate.

You are invited to complete an anonymous online survey that is expected to take no longer than **20 minutes**. The survey will ask questions regarding your beliefs, some of which are related to social and political issues. These questions will range from Likert Scales, where you will be asked to rate how you feel about certain ideas on a scale, others will ask you to provide True or False answers.

**What are the potential benefits of the research project?**

Your participation in the study will contribute to an area of psychological research that has previously been minimally investigated.

**Are there any associated risks, and can I withdraw my participation?**

Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time prior to submitting the survey without negative consequence. There are minimal foreseeable risks for participation in the research, however some questions may provoke distress or discomfort. If this occurs, you may immediately withdraw from the study and access the additional support services provided below.

**Additional Support Services:**

**Lifeline:** 13 11 14

**Beyond Blue:** 1300 224 636

**The University Counselling Service:** 8313 5663

**In Case of Emergency:** 000

Participants wishing to make a formal complaint can request an Independent Complaints Procedure Sheet from the researcher and/or contact The Deputy Convenor of the University of Adelaide Human Research Ethics Committee. **Professor [REDACTED]:**  
[REDACTED]@adelaide.edu.au

### **What happens with my information?**

Participation in this research is anonymous and no identifying data will be collected throughout the study except for general demographic information. All responses will only be observed by researchers in group form, meaning they are made anonymous. If you are a first year Psychology Student at the University of Adelaide, you will be awarded 30 minutes of course credit for your participation in the study. Identifiers such as Student ID numbers are only retained for the purpose of rewarding participation credit. No single responses are observed prior to being made anonymous.

Data will be collected using the Qualtrics platform under a secure University account. During the data collection process, the data will be stored on this platform behind a secure, password protected firewall. Collected data will be stored securely on the researchers' university U drives.

Participants will not be identified in any way during the reporting of this study. Any published information will only contain de-identified data. The University will retain all research materials and data for five years from date of any publication. De-identified data collected in this study will be reported in an Honours Thesis, written by [REDACTED]. Excluding the thesis there are currently no specific plans for future use of this data. However, non-identifiable data will be made available on a public repository if the findings of this study are published in a peer-reviewed publication.

Your information will only be used as described in this participant information sheet and it will only be disclosed according to the consent provided, except as required by law.

### **Who do I contact if I have questions about the project?**

**Principal Investigator:** [REDACTED] **Ph:** [REDACTED]

**Email:** [REDACTED]

**Student Researcher:** [REDACTED] **Email:** [REDACTED]

**Associate Investigator:** [REDACTED] **Email:** [REDACTED]

### **What if I have a complaint or concerns?**

The study has been approved by the Human Research Ethics Committee at the University of Adelaide (approval number 23\_58). This research project will be conducted according to the NHMRC National Statement on Ethical Conduct in Human Research 2007 (Updated 2018). If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the Principal Investigator. If you wish to speak with an independent person regarding concerns or a complaint, the University's policy on research involving human participants, or your rights as a participant, please contact the Deputy Convenor on:

**Phone:** +61 [REDACTED] **Email:** [REDACTED]@adelaide.edu.au **Post:** [REDACTED]

[REDACTED] ADELAIDE SA 5000

Any complaint or concern will be treated in confidence and fully investigated.

You will be informed of the outcome.

Yours sincerely,

[REDACTED]

In agreeing to participate in this project, I state that:

- I am at least 18 years of age.
- I understand that participation in the project is entirely voluntary, and I may withdraw from the research project at any stage, and that this will not impact negatively on me now or in the future.
- I understand that while information gained during the study may be published, I will not be identified and my personal information will remain confidential.
- I understand that personal information about me that is collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to.
- I give consent for my anonymous data collected in this study to be deposited in a public repository (the Open Science Framework) so it can be used for future research and learning.

**Q1 Do you give consent to participate in this study?**

Yes (1)

No (2)

**PROLIFIC SURVEY**

**Q2 Please enter your Prolific ID**

---

**RPS SURVEY**

**Q2 Are you a student at the University of Adelaide?**

Yes (1)

No (2)

**Q3 If you are a student at the University of Adelaide, please enter your 5-digit RPS ID**

---

**Q4 If you are a student at the University of Adelaide, please enter your student ID here:**

---

#### **Appendix D: Just world scale for self**

Participants rate items on a 6-point Likert scale ranging from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). Higher scores reflect a greater BJW-self. (Lipkus, 1996)

1. I feel that the world treats me fairly.
2. I feel that I get what I deserve.
3. I feel that people treat me fairly in life.
4. I feel that I earn the rewards and punishments I get.
5. I feel that people treat me with the respect I deserve.
6. I feel that I get what I am entitled to have.
7. I feel that my efforts are noticed and rewarded.
8. I feel that when I meet with misfortune, I have brought it upon myself.

#### **Appendix E: Just world scale for others**

Participants rate items on a 6-point Likert scale ranging from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). Higher scores reflect a greater BJW-other. (Lipkus, 1996)

1. I feel that the world treats people fairly.
2. I feel that people get what they deserve.
3. I feel that people treat each other fairly in life.
4. I feel that people earn the rewards and punishments they get.
5. I feel that people treat each other with the respect they deserve.
6. I feel that people get what they are entitled to have.
7. I feel that a person's efforts are noticed and rewarded.
8. I feel that when people meet with misfortune, they have brought it upon themselves.

#### **Appendix F: Just World Scale**

Participants rate items on a 6-point Likert scale ranging from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). Higher scores on (J) items reflect a higher BJW whilst higher scores on (U) items reflect higher belief in an Unjust World. Items that refer to American, or men will be changed to reflect a more general demographic. These changes are in brackets. (Rubin & Peplau, 1975)

1. I've found that a person rarely deserves the reputation he has. **(U)**  
("he has" changed to "they have")
2. Basically, the world is a just place. **(J)**
3. People who get "lucky breaks" have usually earned their good fortune. **(J)**
4. Careful drivers are just as likely to get hurt in traffic accidents as careless ones. **(U)**
5. It is common occurrence for a guilty person to get off free in American Courts. **(U)**  
("American Courts" changed to "in court".)
6. Students almost always deserve the grades they receive in school. **(J)**
7. Men who keep in shape have little chance of suffering a heart attack. **(J)**  
("Men" changed to "People")
8. The political candidate who sticks up for their principles rarely gets elected. **(U)**
9. It is rare for an innocent man to be wrongly sent to jail. **(J)**  
("Man" changed to "Person")
10. In professional sports, many fouls and infractions never get called by the referee. **(U)**
11. By and large, people deserve what they get. **(J)**
12. When parents punish their children, it is almost always for good reasons. **(J)**
13. Good deeds often go unnoticed and unrewarded. **(U)**
14. Although evil men may hold political power for a while, in the general course of history good wins out. **(J)**  
("evil men" changed to "evil people")
15. In almost any business or profession, people who do their job well rise to the top. **(J)**
16. American parents tend to overlook the things most to be admired about their children. **(U)**  
("American parents" changed to "parents")
17. It is often impossible for a person to receive a fair trial. **(U)**
18. People who meet with misfortune have often brought it on themselves. **(J)**
19. Crime doesn't pay. **(J)**
20. Many people suffer through absolutely no fault of their own. **(U)**

### **Appendix G: The Generic Conspiracy Beliefs Scale**

Participants rate items on a 5-point scale, ranging from 1 (*Definitely not true*) to 5 (*Definitely true*). Higher scores on this measure reflect greater generic conspiracist ideation. (Brotherton et al., 2013)

1. The government is involved in the murder of innocent citizens and/or well-known public figures and keeps this a secret.

2. The government permits or perpetrates acts of terrorism on its own soil, disguising its involvement.
3. The Government uses people as patsies to hide its involvement in criminal activities.
4. The power held by heads of state is second to that of small, unknown groups who really control world politics.
5. A small secret groups of people is responsible for making all major world decisions, such as going to war.
6. Certain significant events have been the result of the activity of a small group who secretly manipulate world events.
7. Secret organisations communicate with extra-terrestrials but keep this fact from the public.
8. Evidence of alien contact is being kept from the public.
9. Some UFO sightings and rumours are planned or staged in order to distract the public from real alien contact.
10. The spread of certain viruses and/or diseases is the result of deliberate, concealed efforts of some organisations.
11. Technology with mind-control capacities is used on people without their knowledge.
12. Experiments involving new drugs or technologies are routinely carried out on the public without their knowledge or consent.
13. Groups of scientists manipulate, fabricate, or suppress evidence in order to deceive the public.
14. New and advanced technology which would harm current industry is being suppressed.
15. A lot of important information is deliberately concealed from the public out of self-interest.

### **Appendix H: Sense of Control Scale**

Participants rated 12 items on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

Comprises 2 subscales. The Personal Mastery subscale items are Q1, Q2, Q3, and Q4. The Perceived Constraints (**Reversed**) subscale items are Q5, Q6, Q7, Q8, Q9, Q10, Q11, and Q12.

Higher scores indicate a higher Sense of Control. (Lachman & Weaver, 1998)

1. I can do just about anything I really set my mind to.
2. When I really want to do something, I usually find a way to succeed at it.

3. Whether or not I am able to get what I want is in my own hands.
4. What happens to me in the future mostly depends on me.
5. There is little I can do to change many of the important things in my life.
6. I often feel helpless dealing with the problems in life.
7. Other people determine most of what I can and cannot do.
8. What happens in my life is often beyond my control.
9. There are many things that interfere with what I want to do.
10. I have little control over the things that happen to me.
11. There is really no way I can solve the problems I have.
12. I sometimes feel I am being pushed around in my life.

#### **Appendix I: The Multiple Stimulus Types Ambiguity Tolerance Scale-II (MSTAT-II)**

Participants rate items on a 5-point Likert Scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Higher scores reflect a stronger Ambiguity Tolerance, 9 reverse scored items. (McLain, 2009)

1. I don't tolerate ambiguous situations well. **(Reversed)**
2. I would rather avoid solving a problem that must be viewed from several different perspectives. **(Reversed)**
3. I try to avoid situations that are ambiguous **(Reversed)**
4. I prefer familiar situations to new ones. **(Reversed)**
5. Problems that cannot be considered from just one point of view are a little threatening. **(Reversed)**
6. I avoid situations that are too complicated for me to easily understand **(Reversed)**
7. I am tolerant of ambiguous situations
8. I enjoy tackling problems that are complex enough to be ambiguous
9. I try to avoid problems that don't seem to have only one "best" solution. **(Reversed)**
10. I generally prefer novelty over familiarity
11. **I dislike ambiguous situations (Reversed) (Omitted due to error)**
12. I find it hard to make a choice when the outcome is uncertain. **(Reversed)**

13. I prefer a situation in which there is some ambiguity.

### Appendix J: Scientific Reasoning Scale

The following 11 scenarios test participants' knowledge of scientific concepts. Participants are asked to read the scenario and provide a *True* or *False* answer. Participants are not told what scientific concept the scenario is testing. Correct answers indicate higher scientific reasoning skills. Items that refer to America, or American will be changed to reflect in general, changes in brackets. Participants are presented the scenarios in the following order. (Drummond & Fischhoff, 2017)

#### 1. Blind/double blind

In a taste test, a researcher puts Brand A coffee in a cup with white tape on it and Brand B coffee in an identical cup with black tape on it. A lab assistant gives tasters one of the cups, while the researcher watches their facial expressions. True or False? The lab assistant should not watch the cups being filled. **True**

#### 2. Causality

A researcher finds that American states with larger parks have fewer endangered species. True or False? This data shows that increasing the size of American state parks will reduce the number of endangered species. **False**

**Item changed to:** A researcher finds that *states with larger national parks* have fewer endangered species. True or False? This data shows that increasing the size of *national parks* will reduce the number of endangered species.

#### 3: Confounding Variables

A researcher has subjects put together a jigsaw puzzle either in a cold room with a loud radio or in a warm room with no radio. True or False? The scientist cannot tell if the radio caused subjects to solve the puzzle more slowly. **True**

#### 4. Construct Validity

An education researcher wants to measure the general math ability of a sample of high-performing math students. All the students have taken classes in geometry and pre-calculus. True or False? The education researcher can measure general math ability by giving the students a geometry test. **False**

**Item changed to:** An education researcher wants to measure the general *mathematic* ability of a sample of high-performing *maths* students. All the students have taken classes in geometry and pre-calculus. True or False? The education researcher can measure general *mathematic* ability by giving the students a geometry test.

#### 5. Control Group

Two scientists test an anti-acne cream on teenagers with acne. Scientist A wants to give the cream to all the teenagers in the study. Scientist B wants to give the cream to

half the teenagers and give a cream without anti-acne ingredients to the other half. True or False? Both ways of testing the cream are equally good. **False**

### 6. Ecological Validity

A researcher has a group of subjects play a competitive game. Each subject's goal is to make money by buying and selling tokens. Subjects are paid a flat fee for participating in the experiment. True or False? The researcher can confidently state that the behaviour in the experiment reflects real life buying and selling behaviour. **False**

### 7. History

A randomly selected sample of Americans is surveyed about Disease A before and after a 6 month media campaign about the disease. Mid-way through the media campaign, a famous celebrity dies of Disease A. The survey data indicate that knowledge of Disease A is higher after the campaign. True or False? The media campaign may not have increased knowledge of Disease A. **True**

**Item changed to:** "A randomly selected *sample is surveyed...*"

### 8. Maturation

Subjects in an experiment must press a button whenever a blue dot flashes on their computer screen. At first, the task is easy for subjects. But as they continue to perform the task, they make more and more errors. True or False? The blue dot must flash more quickly as the task progresses. **False**

### 9. Random Assignment to Condition

Researchers want to see whether a health intervention helps school children to lose weight. School children are sorted into either an intervention or control group. True or False? The researchers should assign the overweight children to the intervention group. **False**

### 10. Reliability

A researcher develops a new method for measuring the surface tension of liquids. This method is more consistent than the old method. True or False? The new method must also be more accurate than the old method. **False**

### 11. Response Bias

Two researchers are developing a survey to measure consumers' feelings about customer service. Researcher A wants customers to rate their agreement with the statement "I am satisfied with customer service" on a 5-point scale, where 1=strongly agree and 5=strongly disagree. Researcher B wants customers to rate customer service on a 5-point scale, where 1=not dissatisfied at all and 5=highly dissatisfied. True or False? These questions are equally good for measuring how consumers feel about customer service. **False**

## Appendix K: Qualtrics Demographic Questions

Thank you for your responses so far!  
You have nearly completed the study.  
To finish, please answer these demographic questions.

Gender: How do you identify?

- Male
- Female
- Non-binary
- Other
- Prefer not to say

How old are you? (eg. 21)

---

What is your nationality?

---

What is your primary language?

---

How would you describe your political orientation?

- Very Liberal
- Liberal
- Slightly Liberal
- Moderate
- Slightly Conservative
- Conservative
- Very Conservative
- Other

What is your highest level of educational attainment?

(Presented a drop down box of the following options)

- Postgraduate Degree
  - Graduate Diploma / Graduate Certificate
  - Bachelor Degree
  - Advanced Diploma / Diploma
  - Certificate III/IV
  - Year 12
  - Year 11
  - Year 10
  - Certificate I/II
  - Year 9 or below
  - Certificate not further defined
  - Level not determined
- Never attended school and no non-school qualification

## Appendix L: Participant Debrief

### IMPORTANT! PLEASE READ THIS DEBRIEFING

Thank you for participating in the research!

The primary aim of the research is to explore associations between Just World Beliefs and conspiratorial belief endorsement, otherwise known as Conspiracy Theories. To explore associations between these belief systems, we have measured Sense of Control, Ambiguity Tolerance and performance on a scientific reasoning task to observe interaction effects.

We do not endorse or encourage belief in any of the conspiratorial beliefs that have appeared in this study.

If the discussion of these beliefs, or any of the above information has caused distress or discomfort, please access the following support services.

#### Support Services

**Lifeline:** 13 11 14

**Beyond Blue:** 1300 224 636

**The University Counselling Service:** 8313 5663

**In Case of Emergency:** 000

#### Final Report

If you would like to receive a copy of the final report of this study or a summary of the findings, please contact the researchers.

#### Contact Information

If you have any questions or concerns regarding this study, its purpose or procedures please contact the researchers.

**Principal Investigator:** ■■ **Ph:** ■■ **Email:** ■■

**Student Researcher:** ■■ **Email:** ■■ **Associate Investigator:** ■■ **Email:** ■■

Thank you for your participation!

Yours Sincerely,

■■