

# Final Destination?: exploring the cognitive effects of eschatological anxiety in Christians

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## Abstract

This paper explores the interrelationship between religious worldview construction, cognitive processes that undergird worldview defence, and anxieties around salvation in Christians. Synthesising theories relating to the literal-symbolic dimension of religious cognition (Wulff, 1997), need for cognitive closure (Roets et al, 2015), and the link between mortal anxiety and worldview defence (Pyszczynski et al, 2015), this paper seeks to answer whether eschatological anxiety drives need for cognitive closure and indirectly influences literal and dogmatic hermeneutical modes in Christians. Employing a mixed methods approach, a randomised control trial (n=200) in the form of an online survey was conducted in which eschatological anxiety was manipulated by a prime to observe its effects on need for cognitive closure as well as literal and dogmatic modes of textual interpretation. Results were consistent with a hypothesised moderate causal relationship between eschatological anxiety and need for cognitive closure but provided a more complicated and incomplete picture for the dynamic interrelationship between all of the variables under consideration, in part impacted by sampling, scale reliability and operationalisation limitations.

## Introduction

The past decade has highlighted in the popular consciousness something that has been known to social scientists for decades, that groups that share geographical space can often occupy very little shared psychological space in their social imaginaries. This divergence, amplified by modern technological innovations in social communication that produce 'echo chambers', underpins societal conflict from the healthy and generative to the pathological and destructive. For those interested in contributing to societal flourishing an understanding and appreciation of divergent systems of knowledge is critical to the production of interventions designed to reduce harmful beliefs, attitudes and behaviours within individuals and across populations. In particular, the development of cognitive process theories that help account for and explain the belief and attitude formation of individuals and groups are a vital part of a necessary psychological mapping process that can assist conflict reduction.

Inter-group dynamics and conflict is a wide field of social psychological research. Groups are often understood through the lens of social-identity theory (Tajfel & Turner, 1986) where meaningful categories of group identification produce norms and beliefs specific to that sub-population. Individuals navigate the psychological landscape and the very real social structures that are produced based on their varying degrees of membership or exclusion in these social groups and associated imaginaries.

One particular category of social identity that can contribute to societal conflict is religious expression if it takes an exclusionary form that derogates outgroups. Understanding the cognitive processes and social imaginaries of religious groups and identifying patterns that may lead to negative social behaviours is fundamental to improved cross-religious community relations.

There is a growing recognition within the social scientific study of religion that positionality is not solely a limitation of research but can be a strong asset (Knott, 2005). Insider knowledge coupled with robust and replicable methodology can produce new complementary insights to traditional research that emphasises distance between researcher and subject. My own positionality, as a middle-of-the-road Anglican committed to cross-religious engagement has led me to observe first-hand how individuals within my own faith from different theological expressions and traditions have varying levels of desire and capacity to positively engage with religious outgroups.

Those most resistant to this positive engagement have explicitly or implicitly expressed concerns that this exposure and encounter might in some way undermine and destabilise their core beliefs, drawing them further from God and ultimate salvation. This fear of being led astray seems to be

intimately connected with worldview defence mechanisms that avoid and delegitimise alternative systems of knowledge, perpetuating unhealthy inter-group conflict.

This paper seeks to explore in much more detail the interrelationship between religious worldview construction, cognitive processes that undergird worldview defence and anxieties around salvation in Christians. It seeks to answer whether this anxiety is an important contributing factor in the prevalence of cognitive processes producing closure and how these facets interact with the building blocks of Christian belief and attitude formation that informs positive and negative out-group directed behaviour.

## Literature Review

### Religious Cognition

The purpose of this paper is the exploration of religious cognition, namely that of Christians. To understand religious cognition is to go beyond a simple observation of beliefs and behaviours and attempt to account for their formation. Social scientists of religion have approached this in a variety of ways, but the dominant logic appears to be that of constructing a meaningful dimension that differentiates typologies of observable beliefs and behaviours, and directly or partially accounts for them.

One such distinction is that of doctrinal and imagistic modes of religiosity (Whitehouse, 2002). Building on previous distinctions that emphasise a 'sober or routinised' vs 'high emotional intensity' dichotomy (Weber, 1947), Whitehouse (2002) suggests that religious transmission is a function of memory and motivation and that the doctrinal and imagistic modes have developed to serve these functions respectively. Whitehouse acknowledges that 'doctrinal and imagistic modes of religiosity are not types of religion but organizing principles for religious experience and action' implying that both may be present in varying degrees within any tradition but that this does not 'result in a simple fusion of the two modes' (Whitehouse, 2002, 306).

In attempting to create a model that neatly maps onto a clear-cut distinction between memory and motivation, Whitehouse underemphasises the intrinsic motivational importance of doctrines themselves. For Christians, meta-physical truth claims have motivational capacity independent of religious experience. In particular, existential doctrines around salvation, clearly have motivational properties for religious transmission, as we are evolutionarily motivated to protect and preserve ourselves and those that we love. Whilst an incredibly insightful analysis, the focus on explaining religious transmission without accounting for motivation connected with existential doctrines makes it an inappropriate frame in this context.

Another distinction is that of intrinsic vs extrinsic religiosity (Allport, 1959; Allport 1966). The basic difference being, extrinsic religiosity treats religion as a means to serve other ends, whereas intrinsic religiosity sees religion as its own higher good. This distinction has been severely critiqued on various grounds including: lack of conceptual clarity (Hunt & King, 1971), the good-religion-bad-religion assumption underlying the framework (Kirkpatrick & Hood, 1990), and variable independence rather than continuum properties (Hoge, 1972). This led Batson and Ventis (1982) to develop an alternative measurable dimension of religious orientation – quest – characterised by 'honestly facing existential

questions in their complexity, while at the same time resisting clear-cut, pat answers' (Batson & Schoenrade, 1991, 417). Whilst Batson has identified an important theoretical phenomenon that describes a particular religious mode, the quest scale itself has major validity concerns because of its attempt to merge content and process measures (Hood & Morris, 1985).

A more recent conceptual model of religion plots attitudes and beliefs on a quadrant with two axes (1) inclusion vs exclusion of transcendent reality and (2) literal vs symbolic, creating four foundational attitudes to religion: literal affirmation, literal disaffirmation, reductive interpretation and restorative interpretation (Wulff, 1997). Whilst the transcendent reality dimension captures degrees of belief commitment, the literal-symbolic dimension appears to be a particularly insightful continuum that is especially appropriate for understanding Christian belief formation derived from and justified by authoritative texts.

The theories and methodologies of textual interpretation - hermeneutics - employed by Christian communities vary significantly and can be understood as an important driving force in doctrinal and moral differences that often undergird and justify other socio-political attitudes. Wulff's literal-symbolic dimension appears to reflect an individual's reflex, or lack thereof, to interrogate the layers of possible meanings that can be attached to particular words, passages and narratives within scripture. A more literal hermeneutical mode will tend to exhibit behaviour of the form *it is written, thus it is so* in comparison with a symbolic hermeneutical mode of the form *what is written is a signpost towards a truth beyond words*.

Wulff's typology has been developed into a post-critical beliefs scale (PCB) first by Hutsebaut (1996) and later revised by Duriez et al (2000). The scale operationalises these dimensions by items that explicitly express certain beliefs and claims about reality and the bible. Whilst at face value the content of the items on each subscale does theoretically reflect quadrant prototypicality, such content measures can only be a proxy of the hermeneutical modes that Wulff's dimensions describes. The scale is careful not to mix content and process measures like Batson & Ventis' (1982) quest scale, but a complementary process theory and scale is necessary to explore the implications of Wulff's frame more effectively.

### **Lay epistemics & need for cognitive closure as complementary process theory**

Within the field of social psychology the theory of lay epistemics provides such a frame (Kruglanski et al, 2009). Lay epistemics attempts to provide an overview for the 'why, how and who' of knowledge formation by addressing and integrating the relevant motivation, process, and meta-cognition components (Kruglanski et al, 2009, 182).

Working in reverse order, the 'who' of lay epistemics refers to the concept of epistemic authority. The fundamental premise of lay epistemic theorists is that knowledge is deeply relational. We rely on others to be our knowledge providers and assign a heuristic of credibility to them as we seek out and verify information (Kruglanski et al, 2005). Individuals will seek out external information where they ascribe low epistemic authority to themselves (Pierro & Manetti, 2004). Individuals vary significantly in the manner by which they assign and seek out epistemic authority, and this is impacted significantly by underlying assumptions and cognitive biases (Bar, 1999).

The 'how' of lay epistemics refers to what is termed the unimodal of human judgement. Lay epistemic theorists argue that knowledge formation is the product of evidence accumulation and a basic inference rule of 'If X ... then Y' that forms 'the fundamental building block from which all epistemic edifices are constructed' (Kruglanski et al, 2009, 164). This reasoning need not be explicit and is often automatic, leading to many classical human judgement fallacies (Schwarz & Clore, 2006; Kahneman, 2003).

The 'why' of lay epistemics is perhaps its most interesting theoretical contribution for the primary focus of this paper. Underpinning knowledge formation and the stability or reconfiguration of knowledge systems is the motivational construct termed need for cognitive closure (NFC) (Roets et al, 2015). NFC can be defined as the desire for a definitive answer on a particular issue in favour of confusion and ambiguity (Kruglanski, 1990). This desire can be understood as both a function of context where time-pressure (Bukowski et al, 2013), cognitive labour (Webster et al, 1996) and stress (Kruglanski et al, 1993) can temporarily heighten NFC within individuals as well as being a somewhat stable dispositional psychological construct (Webster & Kruglanski, 1994).

NFC is measured as a stable psychological construct by a psychometric scale with five sub-dimensions: preference for order, preference for predictability, decisiveness, aversion to ambiguity and closed-mindedness (Webster & Kruglanski, 1994; Roets & van Hiel, 2007). NFC is distinguished from similar constructs in the field such as intolerance of ambiguity (Frenkel-Brunswik, 1949) and need for cognition (Cacioppo & Petty, 1982) because of its explicit focus on intrinsic motivation over personality or cognition (Kruglanski, 2004). Given its nature as a motivational construct, its relative stability over an individual's lifetime should be lower than that of the big-five personality constructs (Cobb-Clark & Schurer, 2012) and may indeed fluctuate significantly as personal experiences and worldviews develop.

High levels of NFC within individuals prompts two behavioural patterns relating to knowledge formation: urgency (seizing) and permanence (freezing) tendencies (Kruglanski & Webster, 1996). The urgency tendency encourages the quick seizing of easily accessible or processable information



that brings about closure often from partial or inconclusive evidence. The permanence tendency encourages the freezing of held positions and the rejection of contradictory information. At the conceptual level one can begin to draw links between NFC and religious cognition. The urgency tendency should be associated with more literal patterns of textual interpretation as it requires much less cognitive effort, and the permanence tendency should elicit singular answers, and a derogation of alternatives, behaviours aligned with religious dogmatism.

Carlucci et al (2021) partially test this relationship between NFC and dogmatism in a wider paper exploring the covariates of religious fundamentalism and anxiety. They find a particularly strong link between dogmatism and the closed-mindedness sub-dimension of NFC, but its relationship with the other dimensions is less conclusive and obscured by research design. In part, this can be accounted for by the paper's focus on explanatory variables affecting state or trait anxiety, with dogmatism only operating as a control variable for religious fundamentalism in its mediation of NFC and anxiety. Further exploration of more direct associations between NFC and dogmatism are needed.

Research connecting NFC and the post-critical beliefs scale (PCB) has been carried out by Kossowska and Sekerdej (2015). In their paper they found that NFC was positively associated with the transcendent reality dimension but not significantly associated with the literal vs symbolic dimension. This is theoretically a highly surprising finding that is not given much attention by the authors. Literal interpretations should be connected with the seizing and freezing tendencies of NFC, as they are by definition easier to grasp and hold. One might account for this in two ways. First, the PCB scale is not a single scale but four – each constructed to reflect a quadrant prototype with items indicative of both dimensions (Hutsebaut, 1996). It appears that the authors have amalgamated certain scale scores to produce singular positions on the horizontal and vertical axes. This would be an inappropriate way to use the scales as you cannot extricate the dual dimensions meaningfully after the fact. This potential misuse may have also been compounded by sampling. Their sample was predominantly Catholic. Catholicism is known for a particularly strong level of orthodoxy and doctrinal interpretation. It is likely that there would be limited variance along the literal-symbolic dimension in such a sample, providing greater opportunity for the cultural vs committed catholic difference to skew NFC associations in favour of the transcendent reality dimension.

The literature appears to leave an open door to a more intentional and direct exploration of the relationship between NFC and religious cognition, namely hermeneutical modes that tend towards literal-dogmatic or symbolic-pluralist, which this paper will partially attempt to address.

## **Need for cognitive closure, group dynamics and eschatological anxiety as contributing driving force**

It is also important to note that NFC does not just operate at the level of individual cognition. It has been shown to be significantly positively associated with various behaviours and dispositions relevant to group dynamics including: group centrism (Kruglanski et al, 2006), autocratic group organisation (Pierro et al, 2003), intolerance of diversity (Shah et al, 1998) and political conservatism (Jost et al, 2003).

The association of such behaviours and dispositions creates a complexity for NFC, namely that it is a construct that operates at the interface between individual cognition and group socialisation. Individuals high in NFC tend to form and sustain groups that in turn provide conditions that form and heighten NFC amongst its members. This is evident at all cultural scales from the organisational (Pierro et al 2012; Pierro et al 2005) to the cross-national (Chiu et al, 2000) leading Kossowska et al (2002) to observe significant differences in dispositional NFC in their American, Polish and Korean samples. This raises a very interesting area of inquiry, for a particular group cultural context, what are the significant driving forces that heighten or dampen NFC that contribute to group level construct variance?

It is unlikely there is one singular driving force behind NFC variance at the group level, but this paper proposes one that might be particularly relevant for Christians – eschatological anxiety – the extent to which individuals are apprehensive over their own prospects, and those that they love, at the moment of final judgment. The relationship between fear and the seeking of certainty has received much attention within the literature. Particularly relevant to this concept is Terror Management Theory (TMT) (Greenberg et al, 1986). TMT's claim is that there is a fundamental connection between heightened awareness of mortality and worldview defence, linked to deep psychological mechanisms, explored and demonstrated by multiple manipulation studies (Pyszczynski et al, 2015).

Theoretically this might be the way that the state and trait like properties of NFC converge for Christians. Some Christian groups explicitly reject all notions of Hell and damnation whilst others verge on obsession. Might this be a critical factor in explaining the divergent beliefs and behaviours of different Christian groups? As noted in the previous section, manipulations of time-pressure (Bukowski et al, 2013), cognitive labour (Webster et al, 1996) and stress (Kruglanski et al, 1993) temporarily increase NFC within persons. But what if we extend the time frame? Could one's entire belief system over a transcendental time horizon induce a sustained feeling of time pressure and stress that leads to a higher dispositional NFC? The stakes couldn't be higher, that of eternal salvation or damnation, and *not knowing the time or the hour* creates a necessity for present moral

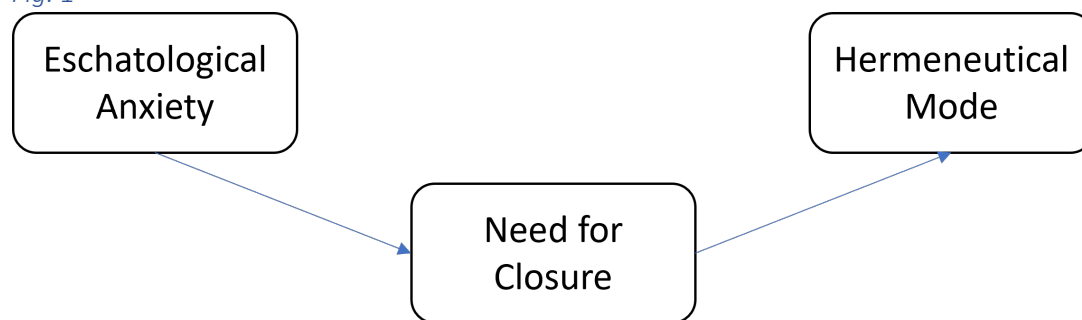
certitude. Eschatological anxiety could well partially explain individual and group level NFC variance in Christians.

### **Theoretical implications**

Drawing all of this theoretical work together, we can thus pose the following question: does eschatological anxiety drive need for cognitive closure and indirectly influence literal and dogmatic hermeneutical modes in Christians?

Based on the above discussion figure 1 proposes a theoretical interaction model between eschatological anxiety, need for cognitive closure and hermeneutical modes.

*Fig. 1*



A more comprehensive breakdown of these pathways and specific hypotheses will follow in the methods section.

## Method

### **Operationalisation**

To measure many of the constructs discussed in the previous section this paper draws on existing psychometric scales where possible to further robustness, replicability and to make meaningful claims within the existing literature. Given the number of constructs involved in the theoretical model, it was necessary to seek out abridged versions of various scales to maximise full completion of the final survey. To avoid idiosyncratic abridging, this paper has drawn on methods papers specifically designed to validate appropriate abridged scales.

The original need for cognitive closure scale consists of 41 items (Webster & Kruglanski, 1994). This is because each of the five sub-dimensions consists of 8-9 items. The length of such a scale provides deep construct capture but it is too extensive to compare with multiple constructs if one seeks a large sample with high completion rate. An abridged 15-item NFC scale created and validated by Roets and van Hiel (2011) was chosen as the appropriate measure.

To operationalise what this paper has termed hermeneutical mode this study will utilise scales that describe dogmatism and literal or symbolic interpretation. To measure dogmatism this paper used Altemeyer's (1996) operationalisation of the construct. The construct validity of this 23-item scale has been explored in depth by Shearman and Levine (2006) where the authors, through confirmatory factor analysis, produced an abridged 11-item version of the scale. Further investigation of the construct and its relation to other scales such as religious fundamentalism, national identification and others has been confirmed by Crowson (2009).

To measure literal or symbolic interpretation the revised post-critical beliefs (PCB) scale produced by Duriez et al (2000) was used. It is important to note when using the PCB scale that it is not a single scale but four, each measuring the prototype of one of Wulff's (1997) quadrants. This paper will therefore consider the scales that measure the two upper quadrants: literal affirmation and restorative interpretation (defined by higher belief in God), but will not attempt to merge the two into a single literal-symbolic dimension as relative religiosity obscures this collapse to a single dimension.

To measure eschatological anxiety this paper employed an adapted version of the nine-item Hell anxiety scale produced by Cranney et al (2018). The authors use this scale in a paper exploring the mental health implications of such a construct. The scale is modelled on other clinical anxiety scales and is demonstrated to have good validity. The scale, however, is very personal pronoun oriented.

This paper proposes that eschatological anxiety extends beyond personal fear of Hell and salvation to a corporate anxiety for loved ones. One might believe in Hell and its terrible consequences but be fully assured of one's personal salvation. In its current form this scale cannot fully capture other oriented anxiety. The decision was taken to adapt four of the items. Three were adapted to reflect third person pronouns. A fourth item was changed from fear of clerical speech to a more holistic affirmation of the concept of judgment. A full adaptation of the hell anxiety scale, and all other scales used can be found in Appendix A.

### **Research Design**

Much research involving need for cognitive closure and its relation to other constructs rely on associative studies and then make indirect causal inference claims due to the motivational characteristics of the construct (see Roets et al, 2015, for a comprehensive survey of NFC studies). To directly answer this paper's research question 'does eschatological anxiety drive need for cognitive closure and indirectly influence literal and dogmatic hermeneutical modes in Christians?' an experimental research design has been chosen to provide sufficient evidence consistent with more causal claims.

To manipulate the eschatological anxiety variable a prime was employed. The prime was designed to heighten eschatological anxiety so that observable differences in other variables can be directly attributed to this factor. Heightening eschatological anxiety raised ethical concerns that had to be considered in the production of the prime. The prime could not be so severe or triggering that it left participants traumatised, but it couldn't be so weak that it had no utility. The decision was taken to provide participants with a textual prime, a medium assumed to be less emotionally evocative than audio or visual alternatives. The text selected was also taken from the gospel of Matthew rather than a non-scriptural source. This was for two reasons. First, a passage from the bible should provide more salience and authority to the prime itself. Second, participants should have some degree of familiarity with the text chosen, so it is less likely to be surprising or blindsiding emotionally.

It was important for participants not just to read the text but to actively engage with it to maximise the prime's effects. Participants who were exposed to the prime therefore also had to complete six comprehension questions that have provided useful qualitative data. An interpretative content analysis of this data was conducted following the framework of Krippendorff (2013). Interpretative content analysis allows for a range of coding from 'interpretations that stay very close to the explicit content of the data to others that require much greater contextual inference and specialized knowledge' (Drisko, 2015, 59). Due to the complexity of the semantic content, the data was hand-coded and concepts and codes emerged inductively. Five core concepts emerged with up to three

codes indicating the presence of a concept. Frequency counts of these codes were used to systematically interpret meaningful group differences in prime response. The full prime text used and comprehension questions chosen can be viewed in Appendix B and the content analysis rulebook can be found in Appendix C.

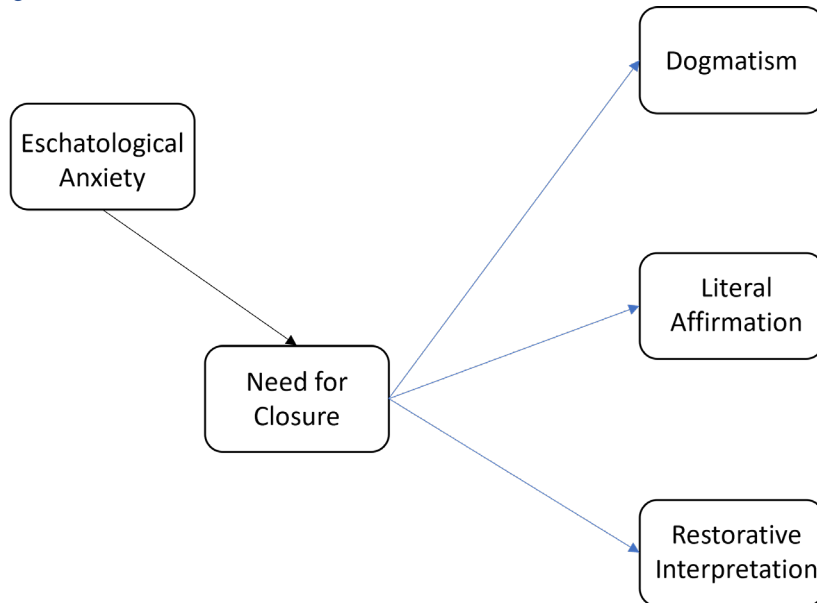
The experiment was set up with participants randomly allocated to three groups. Each group completed a subtly different version of an online survey that measured need for cognitive closure (NFC), eschatological anxiety (EA), dogmatism (DOG), literal affirmation (LA) and restorative interpretation (RI). The first group **[Control]** was the control and completed a simple survey with four of the scales in a randomised order and EA last, to avoid even the completion of the scale itself accidentally priming the other variables. The second group **[Treatment Group 1]** completed the NFC scale first to baseline, were then exposed to the prime, then EA and then the other three scales in a randomised order. This was constructed to examine potential non-unitary effects of the prime amongst high and low dispositional NFC individuals. The third group **[Treatment Group 2]** were exposed to the prime first, then EA, then the four other scales in a randomised order. This was to directly compare the NFC levels between treatment group 2 and the control as direct evidence of EA's effect on NFC.

Using the experimental design above this paper will seek to determine whether the prime was effective, whether the prime has unitary or differential effects, whether EA directly effects NFC, and the potential pathway effects between EA, NFC, DOG, LA and RI.

### **Hypotheses generation**

Combining the theoretical relationship between the variables outlined in the literature review and the specific operationalisation of some of the constructs figure 2 proposes the pathway map that will be analysed in the findings section.

Fig. 2



Based on this mapping and the discussion to this point the following specific hypotheses have been generated:

**H<sub>1</sub>:** *There is a non-zero linear association between EA and NFC in the population of Christians*

**H<sub>2</sub>:** *There is a non-zero linear association between EA and the variables: DOG, LA, RI mediated by NFC in the population of Christians*

**H<sub>3</sub>:** *Differences in the means of the EA, NFC, DOG, LA and RI variables between the treatment and control conditions are associated with the manipulation*

**H<sub>4</sub>:** *The manipulation is associated with a larger difference in mean EA between High NFC baselined participants than the difference in mean EA between Low NFC baselined participants across the treatment and control conditions*

### **Sampling**

The focus of this paper is the cognitive processes of Christians, but unlike other surveys that have recruited from single denominations through convenience sampling (Kossowska & Sekerdej 2015; Duriez et al 2000) it has intentionally targeted a multi-denominational sample. The recruitment was conducted in two phases. Phase one involved snowballing the survey through various multi-denominational trans-national Christian networks that the author was connected with. Phase two involved assessing the demographic spread of phase one participants, noting particularly denominational and political affiliation, and then using purposive sampling through Prolific Academic to intentionally recruit underrepresented demographics.

Using G\* Power the relevant difference of means test with an effect size ( $d = 0.6$ ), significance ( $\alpha = 0.05$ ), power ( $1 - \beta$  err prob = 0.8) produced a minimum group size of 36. Given the necessity to split treatment group 1 and the control into two subsequent groups to test differential prime effects the minimum total sample size was estimated at 180 [72 = control, 72 = treatment group 1, 36 = treatment group 2].

Phase one yielded 207 responses to the survey. Of this only 114 participants finished the survey. This group was dominated by Catholic and Anglican denominations ( $n=66$ ) and left of centre political leaning ( $n=72$ ). Thus it was decided to use the screening properties of Prolific Academic to recruit a further 43 non-Anglican and non-Catholic Christians and another 43 Christians of any denomination who identified as conservative on the political spectrum. Yielding a final total sample size of 200.



## Results

### Descriptive statistics

#### Sample

The final sample size of completed surveys was n = 200. Table 1 is a collection of frequency tables that report the sample breakdown on various identity dimensions described by categorical variables.

Table 1.

Gender	Female	Male
Frequency	110	90

Ethnicity	White	Asian	Black	Hispanic	Other
Frequency	144	22	17	8	9

Denomination	Church of England <sup>1</sup>	Non-Denominational	Catholic	Baptist	Evangelical / Charismatic	Other <sup>2</sup>
Frequency	37	35	29	29	28	42

Nationality	American	British	Dual-National	Asian Country Citizenship <sup>3</sup>	African Country Citizenship <sup>4</sup>	Other
Frequency	99	49	19	11	8	14

Table 2 describes the age, religiosity, socio-economic status and political spectrum continuous variables for the sample.

Table 2.

	Mean	Standard Deviation	Variance	Skew	Kurtosis
Age	36.5	14.91	222.29	1.024	0.312
Religiosity (1-5)	4.13	0.94	0.89	-0.809	-0.183
Socio-Economic status (1-5) <sup>5</sup>	2.80	0.96	0.92	0.053	-0.452
L-R Political Spectrum (1-10)	5.06	2.07	4.28	0.550	0.070

<sup>1</sup> Excluding those who described themselves as Evangelical members of the Church of England, who were coded under Evangelical / Charismatic

<sup>2</sup> Consisting of: Protestant, Lutheran, Pentecostal, Orthodox, Presbyterian, Methodist, Adventist, United Reform and Mormon self-categorisation

<sup>3</sup> Consisting of: Singapore, Malaysia, Indonesia and Hong Kong

<sup>4</sup> Consisting of: Ghana, Tanzania, Egypt and Uganda

<sup>5</sup> Self-Categorised (1-5) in response to 'When you grew up, compared to your national average was your household: 1. Much worse off economically, 2. Lower than average economically, 3. Average economically, 4. Well off economically, 5. Very well off economically'

## Variables

Table 3 describes the distributions and Cronbach's alpha of the five scale variables of interest throughout the sample: Eschatological Anxiety (EA), Need for Cognitive Closure (NFC), Dogmatism (DOG), Literal Affirmation (LA) and Restorative Interpretation (RI). For each variable 1 signifies low trait levels.

*Table 3.*

	<b>Mean</b>	<b>Standard Deviation</b>	<b>Variance</b>	<b>Skew</b>	<b>Kurtosis</b>	<b>Cronbach's <math>\alpha</math></b>
<b>Eschatological Anxiety (1-5)</b>	2.53	0.957	0.916	0.053	-0.452	0.89
<b>Need for Cognitive Closure (1-6)</b>	3.70	0.693	0.481	0.135	0.174	0.87
<b>Dogmatism (1-5)</b>	2.04	0.456	0.208	0.242	0.042	0.8
<b>Literal Affirmation (1-5)</b>	2.90	0.699	0.488	0.144	0.555	0.78
<b>Restorative Interpretation (1-5)</b>	3.65	0.433	0.188	0.280	0.031	0.4

All scales have good reliability except restorative interpretation, which has very poor reliability. It has been retained in subsequent analysis for concept completeness only.

## Hypothesis testing

### Associational Hypotheses

#### Hypothesis 1

The first hypothesis to be tested was the significant and positive association between eschatological anxiety and need for cognitive closure.

*H<sub>0</sub>: There is no linear association between EA and NFC in the population of Christians*

*H<sub>1</sub>: There is a non-zero linear association between EA and NFC in the population of Christians*

Assuming linearity, variable independence, normality and homoscedasticity an ordinary least squares (OLS) estimation of simple linear regression was carried out between the two variables setting NFC as the dependent and EA as the independent variable.

Table 4.

	Need for Closure (NFC)						
	Estimates std.	Error std.	Beta std.	Error	CI	Standardised CI	p-value
<b>Intercept</b>	3.01	0.14	0.00	0.07	2.73 – 3.29	-0.13 – 0.13	<0.001
<b>Eschatological Anxiety (EA)</b>	0.27	0.05	0.35	0.07	0.17 – 0.38	0.21 – 0.48	<0.001
<b>Observations</b>	200						
<b>R<sup>2</sup>/R<sup>2</sup> adjusted</b>	0.120 / 0.115						

A non-zero slope coefficient of 0.27 is observed with an associated p-value <0.001. This leads to the rejection of the null hypothesis at all conventional levels of significance. There is therefore evidence consistent with the alternative hypothesis that there is a simple linear association between EA and NFC in the population of Christians, and that a one unit increase in EA score is associated with a 0.27 increase in dispositional NFC score. The R<sup>2</sup> is 0.12 suggesting that 12% of the variance of NFC can be accounted for by variance in EA.

### Hypothesis 2

The next hypothesis to be tested was the relationship between eschatological anxiety and the three hermeneutical mode variables: dogmatism (DOG), literal affirmation (LA), restorative interpretation (RI) and the extent to which need for cognitive closure mediates that relationship.

Assuming linearity, variable independence, normality and homoscedasticity a mediation analysis was carried out. Each hermeneutical mode variable (DOG, LA, RI) were set as the dependent variable in a simple linear regression model with EA as the independent variable. A further model for each hermeneutical mode variable was created setting EA as the independent variable and NFC as a control variable. Table 5 is a summary of these six models.

Table 5.

	DOGMATISM (DOG)							
	Model 1				Model 2			
	Est. std	Err. std	CI	p-value	Est. std	Err. std	CI	p-value
<b>INTERCEPT</b>	1.71	0.10	1.53 – 1.90	<0.001	1.10	0.17	0.78 – 1.43	<0.001
<b>ESCHATOLOGICAL ANXIETY (EA)</b>	0.13	0.04	0.06 – 0.20	<b>&lt;0.001</b>	0.07	0.04	0.00 – 0.15	<b>0.044</b>
<b>NEED FOR CLOSURE (NFC)</b>					0.20	0.05	0.11 – 0.29	<b>&lt;0.001</b>
<b>R<sup>2</sup>/R<sup>2</sup> ADJUSTED</b>	0.062 / 0.057				0.146 / 0.137			

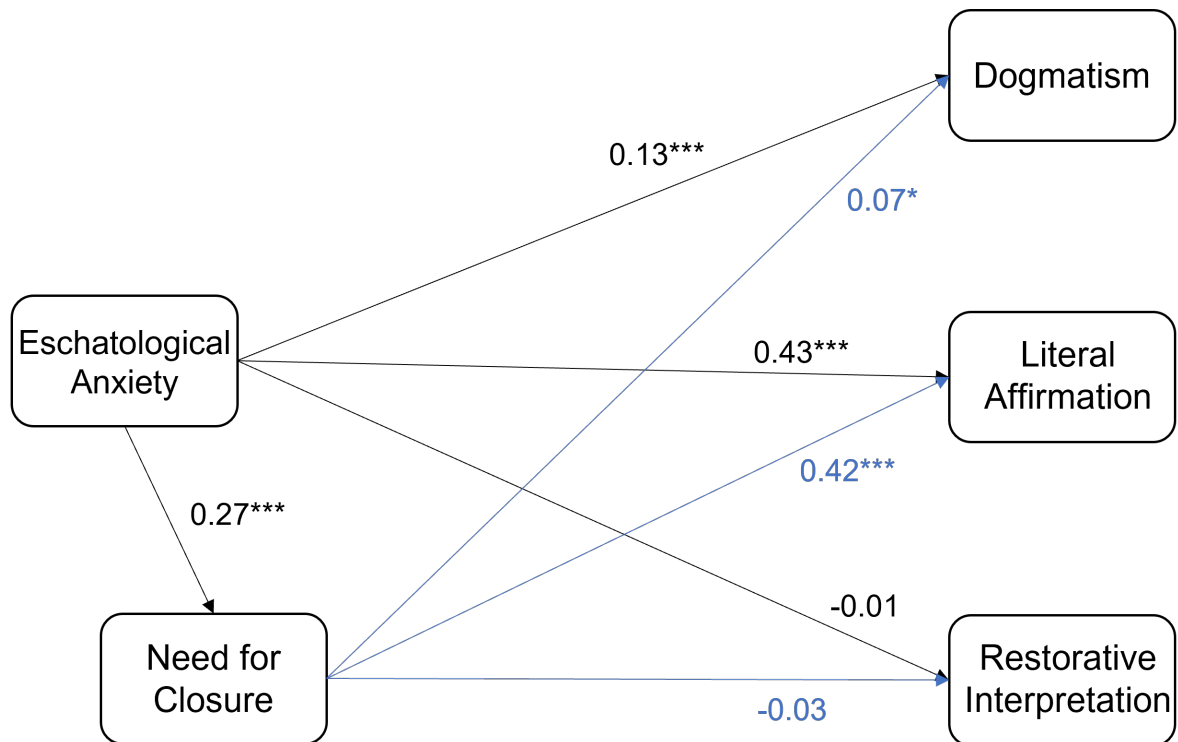
	LITERAL AFFIRMATION (LA)							
	Model 3				Model 4			
	Est. std	Err. std	CI	p-value	Est. std	Err. std	CI	p-value
<b>INTERCEPT</b>	1.82	0.13	1.57 – 2.07	<0.001	1.71	0.23	1.25 – 2.17	<0.001
<b>ESCHATOLOGICAL ANXIETY (EA)</b>	0.43	0.05	0.33 – 0.52	<b>&lt;0.001</b>	0.42	0.05	0.32 – 0.52	<b>&lt;0.001</b>
<b>NEED FOR CLOSURE (NFC)</b>					0.04	0.06	-0.09 – 0.16	0.588
R <sup>2</sup> /R <sup>2</sup> ADJUSTED	0.287 / 0.283				0.288 / 0.280			

	RESTORATIVE INTERPRETATION (RI)							
	Model 5				Model 6			
	Est. std	Err. std	CI	p-value	Est. std	Err. std	CI	p-value
<b>INTERCEPT</b>	3.68	0.09	3.50 – 3.87	<0.001	3.54	0.17	3.20 – 3.87	<0.001
<b>ESCHATOLOGICAL ANXIETY (EA)</b>	-0.01	0.04	-0.08 – 0.05	0.684	-0.03	0.04	-0.10 – 0.05	0.464
<b>NEED FOR CLOSURE (NFC)</b>					0.05	0.05	-0.05 – 0.14	0.312
R <sup>2</sup> /R <sup>2</sup> ADJUSTED	0.001 / -0.004				0.006 / -0.004			

Using the six models a pathway map (Fig. 3) has been created to visualise the data more clearly.

Fig. 3.



*H<sub>0</sub>: There is no linear association between EA and the variables: DOG, LA, RI mediated by NFC in the population of Christians*

*H<sub>2</sub>: There is a non-zero linear association between EA and the variables: DOG, LA, RI mediated by NFC in the population of Christians*

The data show that there is a moderate to small positive association between eschatological anxiety and dogmatism, where a scale point increase in EA corresponds with a 0.13 scale point increase in DOG significant at the 0.1% level. When NFC is controlled for, this partial-association coefficient reduces to 0.07 and is significant at the 5% level. We can therefore reject the null hypothesis for the DOG variable and conclude that EA is positively associated with DOG mediated by NFC in the populations of Christians. It should also be noted that the partial-association between NFC and DOG ( $\beta = 0.2, p < 0.001$ ) is more than twice that of EA and DOG in the model with a greater level of significance.

The data show that there is a substantial positive association between eschatological anxiety and literal affirmation, where a scale point increase in EA corresponds with a 0.43 scale point increase in LA significant at the 0.1% level. When NFC is controlled for there is negligible change in the association between EA and LA as the partial-association between NFC and LA is non-significant. Given the non-significance of the partial association between NFC and LA, the criteria for mediation are not met. We therefore fail to reject the null hypothesis for the LA variable. However, there is still evidence to suggest that there is a strong positive association between EA and LA in the population of Christians.

The data show that there is a very small negative association between eschatological anxiety and restorative interpretation but it is not significant at any conventional levels. We therefore fail to reject the null hypothesis for the RI variable.

### **Manipulation Hypotheses**

#### **Hypothesis 3**

The next hypothesis to be tested was the experimental element of the research design, where participants were split into combined treatment and control conditions through exposure to a textual prime intended to heighten a state of eschatological anxiety. Five two-tailed t-tests were carried out comparing variable scores between the combined treatment and control conditions. The research design meets the necessary assumptions of random allocation, normality and sample size.

Equal variance between the groups was met in all cases with no single variance more than twice that of its comparable group.

*H<sub>0</sub>: Differences in the means of the EA, NFC, DOG, LA and RI variables between the treatment and control conditions can be attributed to random distribution*

*H<sub>3</sub>: Differences in the means of the EA, NFC, DOG, LA and RI variables between the treatment and control conditions are associated with the manipulation*

The results of the five two-tailed t-tests are summarised in table 6.

Table 6.

	ESCHATOLOGICAL ANXIETY	NEED FOR CLOSURE	DOGMATISM	LITERAL AFFIRMATION	RESTORATIVE INTERPRETATION
TREATMENT GROUP MEAN (N=112) <sup>6</sup>	2.60	3.86	2.06	2.94	3.64
CONTROL GROUP MEAN (N=88)	2.45	3.58	2.02	2.84	3.65
T-STAT	2.52	4.56	1.27	1.43	0.20
P-VALUE (TWO-TAIL)	<b>0.012</b>	<b>&lt;0.001</b>	0.206	0.153	0.839

The p-values associated with the dogmatism, literal affirmation and restorative interpretation t-tests are non-significant. We thus fail to reject the null hypothesis that differences in these means can be attributed to random distribution and consequently have no evidence for manipulation effects in these variables.

The p-values associated with eschatological anxiety (0.012) and need for closure (<0.001) are significant at the 5% and 0.01% levels respectively. We can thus reject the null hypothesis for both of these variables and have a good degree of confidence that the differences in means can be attributed to the manipulation, providing evidence consistent with a theoretical causal relationship between the two variables.

#### Hypothesis 4

The final hypothesis to be tested was whether the manipulation induced non-unitary rises in eschatological anxiety dependent on one's baselined NFC levels. Using the midpoint of the NFC scale

<sup>6</sup> Treatment group for NFC (n=39), this is because NFC was baselined pre-manipulation in the second treatment group in order to test non-unitary prime effects for H4.

(3.5) participants were baselined and split into four groups. (I) High-NFC-Control (n=49), (II) High-NFC-Treatment (n=49), (III) Low-NFC-Control (n=39), (IV) Low-NFC-Treatment (n=24).

*H<sub>0</sub>: The manipulation is associated with no difference in the mean EA between those participants differentiated by baselined NFC*

*H<sub>4</sub>: The manipulation is associated with a larger difference in mean EA between High NFC baselined participants than the difference in mean EA between Low NFC baselined participants across the treatment and control conditions*

Table 7 reports the point estimate and 95% confidence intervals for eschatological anxiety in the four groups.

*Table 7.*

		<b>Eschatological Anxiety</b>	
		Point Estimate (Mean)	95% Confidence Interval
<b>(I)</b>	<b>High NFC, Control</b>	2.59	2.469 - 2.711
<b>(II)</b>	<b>High NFC, Treatment</b>	2.71	2.586 - 2.834
<b>(III)</b>	<b>Low NFC, Control</b>	2.26	2.131 - 2.389
<b>(IV)</b>	<b>Low NFC, Treatment</b>	2.18	2.010 - 2.350

The mean difference between (I) and (II) is +0.12 but as the confidence intervals overlap it is not significant at conventional levels. The mean difference between (III) and (IV) is -0.08 but as the confidence intervals overlap it is not significant at conventional levels. As neither difference is significant we cannot reject the null hypothesis with a high degree of confidence. However, the sign change between the differences is interesting. And though it is perfectly possible for reverse relationships to exist within the bounds of the confidence intervals e.g. (I) > (II) and (IV) > (III) the sample does provide weak evidence consistent with H<sub>4</sub>.

### **Post-hoc analysis**

Having relied on psychometric scales from the literature, the author was interested in investigating whether denominational labels based on self-categorisation further illuminated the potential relationship between the variables in question.

A single one-way ANOVA was carried out using the five major denominational categories<sup>7</sup> for each variable. A summary of this analysis can be found in tables 8 and 9.

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<sup>7</sup> Where category n>25

Table 8.

MEANS (RANK IN BRACKETS)					
	Need for Closure	Eschatological Anxiety	Dogmatism	Literal Affirmation	Restorative Interpretation
CHURCH OF ENGLAND	3.48 (5)	2.11 (5)	1.94 (=4)	2.56 (5)	3.68 (2)
CATHOLIC	3.51 (4)	2.49 (4)	1.95 (=4)	2.67 (4)	3.82 (1)
EVANGELICAL / CHARISMATIC	3.71 (3)	2.60 (2)	2.04 (3)	3.20 (1)	3.53 (=4)
BAPTIST	3.91 (=1)	2.69 (1)	2.28 (1)	3.09 (2)	3.53 (=4)
NON-DENOMINATIONAL	3.91 (=1)	2.52 (3)	2.11 (2)	3.01 (3)	3.62 (3)

Table 9.

	DF	F-STAT	P-VALUE
NEED FOR COGNITIVE CLOSURE	157	3.154	<b>0.016</b>
ESCHATOLOGICAL ANXIETY	156	2.628	<b>0.037</b>
DOGMATISM	157	3.113	<b>0.017</b>
LITERAL AFFIRMATION	157	4.993	<b>&lt;0.001</b>
RESTORATIVE INTERPRETATION	157	2.26	0.0644

The data show differences in means between denominational class for all variables. The F-test shows that at least one denominational class differs from the others in need for cognitive closure, eschatological anxiety and dogmatism significant at the 5% level, and in literal affirmation at the 0.1% level. We have evidence to reject the null hypothesis that there is no association between denomination class and group mean variable score and can conclude that denominational label is associated with group mean differences in four of these classes in the population of Christians.

The Tukey procedure was used to evaluate pairwise contrasts. Table 10 reports all contrasts with  $p_{adj.} < 0.1$ .



Table 10.

	DIFF	P ADJ.
	<b>Need for Closure</b>	
<b>CHURCH OF ENGLAND – BAPTIST</b>	-0.432	0.079
<b>NON DENOMINATIONAL – CHURCH OF ENGLAND</b>	0.435	0.054
	<b>Eschatological Anxiety</b>	
<b>CHURCH OF ENGLAND - BAPTIST</b>	-0.578	0.036
	<b>Dogmatism</b>	
<b>CATHOLIC – BAPTIST</b>	-0.326	0.040
<b>CHURCH OF ENGLAND - BAPTIST</b>	-0.340	0.017
	<b>Literal Affirmation</b>	
<b>CHURCH OF ENGLAND – BAPTIST</b>	-0.529	0.023
<b>EVANGELICAL – CATHOLIC</b>	0.528	0.040
<b>EVANGELICAL – CHURCH OF ENGLAND</b>	0.643	0.003
	<b>Restorative Interpretation</b>	
<b>CATHOLIC – BAPTIST</b>	0.284	0.091
<b>EVANGELICAL – CATHOLIC</b>	-0.292	0.082

The data provide further evidence that denominational label is associated with group mean differences in the five variables in the population of Christians.

### **Content Analysis of Qualitative data**

As part of the research design qualitative comprehension questions were used to stimulate greater engagement with the prime text itself. A total of 112 individuals were exposed to the prime. Of these 81 were adherents of the five major denominational categories coded: Church of England, Catholic, Evangelical / Charismatic, Baptist and Non-Denominational.

An interpretative content analysis was conducted on these 81 responses in the form of conceptual analysis. Results were hand coded. Concept categories were allowed to emerge throughout the coding process. Five core concepts emerged: judgement or care passage emphasis, Hell's existence and nature, interpretative justification, emotional response to stimulus, and personal salvation. Only frequency tables are shown and no chi-squared tests have been carried out as cells exist in each where the expected frequency <5. The full content analysis rulebook can be found in Appendix C.

Judgement or care passage emphasis

Judgement or care passage emphasis was coded at the word sense and phrase levels and was a frequency count of all cases of usage to assess comparative emphasis between the two modes of interpretation. Most individuals referenced both judgement and the duty to care as the main lessons from the passage, but emphasised them to different degrees.

Table 11.

	Number in class	Hell ref. Frq.	Av Hell ref. per person	Duty to care ref. frq.	Av. Duty to care ref. per person
<b>Church of England</b>	16	15	0.938	20	1.25
<b>Catholic</b>	14	21	1.5	23	1.64
<b>Baptist</b>	18	30	1.67	25	1.39
<b>Evangelical / Charismatic</b>	12	15	1.25	14	1.17
<b>Non-Denominational</b>	21	24	1.14	16	0.76

The data show that the average Church of England and Catholic participants tended to emphasise the duty to care above the judgement reading of the passage, whereas Baptist, Evangelical / Charismatic and Non-Denominational participants tended to emphasis the judgment reading above the duty to care.

Hell's existence and nature

Hell's existence and nature was coded at the phrase level and was a single count for the existence of one of three codes: Hell affirmation, Hell rejection, Hell unsure. Where it was unclear as to the participant's position at all they were left uncoded.

Table 12.

	Hell affirmation frq.	Hell rejection frq.	Hell unsure frq.	Uncoded	Total
<b>Church of England</b>	3 (18.75%)	5 (31.25%)	5 (31.25%)	3 (18.75%)	16
<b>Catholic</b>	8 (57.14%)	0 (0%)	3 (21.43%)	3 (21.43%)	14
<b>Baptist</b>	14 (77.78%)	1 (5.56%)	1 (5.56%)	2 (11.1%)	18
<b>Evangelical / Charismatic</b>	8 (66.67%)	1 (8.33%)	2 (16.67%)	1 (8.33%)	12
<b>Non-Denominational</b>	17 (80.96%)	1 (4.76%)	2 (9.52%)	1 (4.76%)	21
<b>Total</b>	50 (61.73%)	8 (9.88%)	13 (16.05%)	10 (12.34%)	81

The data show that Church of England participants were much more hesitant concerning the concept of Hell and its nature than the other four denominations.

Interpretative justification

Interpretative justification was coded at the phrase level and was a single count for one of two codes: literal-simplistic, and symbolic-complex. Where the participant used no explicit or implicit language to justify their passage interpretation they were left uncoded.

Table 13.

	<b>Literal-simplistic justification frq.</b>	<b>Symbolic-complex justification frq.</b>	<b>Uncoded</b>	<b>Total</b>
<b>Church of England</b>	0 (0%)	10 (62.5%)	6 (37.5%)	16
<b>Catholic</b>	3 (21.43%)	2 (14.29%)	9 (64.28%)	14
<b>Baptist</b>	5 (27.78%)	2 (11.11%)	11 (61.11%)	18
<b>Evangelical / Charismatic</b>	3 (25%)	2 (16.67%)	7 (58.33%)	12
<b>Non-Denominational</b>	7 (33.33%)	3 (14.29%)	11 (52.38%)	21
<b>Total</b>	18 (22.22%)	19 (23.46%)	44 (54.32%)	81

The data show that Church of England participants used symbolic-complex justifications considerably more than the other denominations.

Emotional response to stimulus

Emotional response to stimulus was coded at the word sense level and was a single count for one of three codes: positive, negative, mixed. Where the participant used both positive and negative emotional language they were coded as mixed. Where the participant's emotional response was unclear they were left uncoded.

Table 14.

	<b>Positive Feelings frq.</b>	<b>Negative Feelings frq.</b>	<b>Mixed Feelings frq.</b>	<b>Uncoded</b>	<b>Total</b>
<b>Church of England</b>	2 (12.5%)	3 (18.75%)	7 (34.75%)	4 (25%)	16
<b>Catholic</b>	0 (0%)	3 (21.43%)	7 (50%)	4 (28.57%)	14
<b>Baptist</b>	3 (16.67%)	6 (33.33%)	6 (33.33%)	3 (16.67%)	18

<b>Evangelical / Charismatic</b>	4 (33.33%)	4 (33.33%)	2 (16.67%)	2 (16.67%)	12
<b>Non-Denominational</b>	5 (23.81%)	4 (19.05%)	7 (33.33%)	5 (23.81%)	21
<b>Total</b>	14 (17.28%)	20 (24.70%)	29 (35.80%)	18 (22.22%)	81

Surprisingly, given the stimulus was meant to evoke eschatological anxiety a significant number of participants expressed positive feelings towards the passage. This was often in some form an affirmation of God’s glory and justice that inspired them to be more accountable for their actions. This emotional response was particularly notable amongst Evangelical / Charismatic and Non-Denominational participants, potentially related to their own certainty of salvation. Catholic respondents had substantively negative and mixed emotional responses to the passage.

Personal salvation

Personal salvation was coded at the word and sentence levels and was a single count for one of three codes: identify as sheep, identify as goat, unsure. Participants who identified as sheep were assumed to be more confident in their personal salvation and less anxious about judgement, those who identified as goats were assumed to be unconfident in their salvation and more anxious of judgement, and those who were unsure were assumed to be more ambivalent towards judgement. Where identification was unclear participants were left uncoded.

Table 15.

	<b>Identification (Sheep) frq.</b>	<b>Identification (Goat) frq.</b>	<b>Identification (Unsure) frq.</b>	<b>Uncoded</b>	<b>Total</b>
<b>Church of England</b>	5 (31.25%)	2 (12.5%)	8 (50%)	1 (6.25%)	16
<b>Catholic</b>	2 (14.29%)	0 (0%)	11 (78.57%)	1 (7.14%)	14
<b>Baptist</b>	16 (88.89%)	0 (0%)	2 (11.11%)	0 (0%)	18
<b>Evangelical / Charismatic</b>	11 (91.67%)	0 (0%)	1 (8.33%)	0 (0%)	12
<b>Non-Denominational</b>	18 (85.72%)	1 (4.76%)	1 (4.76%)	1 (4.76%)	21
<b>Total</b>	52 (64.19%)	3 (3.71%)	23 (28.39%)	3 (3.71%)	81

The data show that Baptist, Evangelical / Charismatic and Non-Denominational participants claimed to be much more assured of their own personal salvation compared with Church of England and Catholic participants. This is an interesting finding given these three groups reported higher group

means on the eschatological anxiety scale in the ANOVA analysis. This might perhaps be evidence for anxiety management, explicitly affirming the opposite of one's fear in order to contain it, and perhaps need for cognitive closure may be a useful instrument in this process.

## Discussion

Returning to the original research question posed 'does eschatological anxiety drive need for cognitive closure and indirectly influence literal and dogmatic hermeneutical modes in Christians?' the results permit a range of conclusions.

The first part of the research question connotes a hypothesised causal relationship between eschatological anxiety and need for cognitive closure. For this to be satisfied the variables must be significantly associated and the manipulation should be significantly associated with mean differences across the treatment and control groups.

The results confirmed  $H_1$  and reported a linear association ( $\beta = 0.27$ ) between eschatological anxiety and need for cognitive closure significant at all conventional levels with an  $R^2$  of 0.12. An inter-scale association of this kind on Likert scales with 5-6 point ranges is a moderate but notable effect size. The results confirmed  $H_3$  for the eschatological anxiety and need for cognitive closure variables. The group mean for eschatological anxiety was 0.15 scale points higher ( $p = 0.012$ ) and for need for cognitive closure 0.28 scale points higher ( $p < 0.001$ ) in the treatment condition compared with the control. These moderate size scale differences at significant levels provide a high degree of confidence that mean differences are attributable to the manipulation and evidence consistent with the hypothesised causal relationship. The results did not produce strong evidence that this manipulation had non-unitary effects, however the sign change evident in the group mean differences between baselined groups does provide weak evidence consistent with  $H_4$ .

The results permit a conclusion that eschatological anxiety and need for cognitive closure are moderately associated in the wider population of Christians and that this relationship can justifiably be hypothesised to be directly attributable. This is a very important finding as it offers further empirical evidence to support the wider body of literature linking mortal anxiety and worldview defence proposed by Terror Management Theory (Pyszczynski et al, 2015). Specifically for the field of Lay Epistemics (Roets et al, 2015) it provides empirical evidence for a new proposition linking the differing focuses of research on the NFC construct between its state and trait properties.

Dispositional NFC, rather than being thought of as a fixed trait, might be better understood as an extended state of being with conditional parameters constructed by a worldview extending over and

even beyond life-horizons. Changes in dispositional NFC are thus entirely possible if and when a worldview alters. This opens up new possibilities for theories that isolate aspects of group cultures and worldviews and begin to account for group level variance in the NFC construct.

At the more concrete level this paper has isolated what appears to be an important aspect of Christian cognition that informs the wider understanding of group level differences in need for cognitive closure within this population. However, the moderate magnitude of the relationship between eschatological anxiety and need for cognitive closure suggests more dimensions need to be theorised and measured to further account for these differences.

The second part of the research question hypothesised the potential relationship between eschatological anxiety and the hermeneutical mode of Christians mediated by need for cognitive closure. The data provided a much more complicated picture. In the previous sections this paper deconstructed hermeneutical mode into dogmatism (how many interpretations) and a literal-symbolic dimension (interpretative frame).

First, the unreliability of the restorative interpretation sub-scale of the post-critical beliefs scale ( $\alpha = 0.4$ ) greatly reduced the analytical capability of the literal-symbolic dimension. This finding of unreliability poses a significant question for the validity of the post-critical beliefs scale, particularly on the literal-symbolic dimension, potentially explaining Kossowska and Sekerdej (2015)'s surprising finding of no association between NFC and the literal-symbolic dimension. Given it was validated through a factor analysis on a sample of Catholics (Duriez et al 2000), at the very least this paper demonstrates this scale is inappropriate for use across multiple denominations. But at a more fundamental level, the items themselves operationalised as belief statements fail to capture symbolic language and intent. A reflection of the author when carrying out the content analysis was that multiple individuals explicitly used the language of 'metaphor', 'parable' and 'symbolic' yet scored low on the RI scale. It would appear that the PCB scale is not capturing Wulff's (1997) literal-symbolic dimension as intended, and future researchers should exercise significant caution when using this measure, or attempt a new operationalisation of Wulff's dimensions focusing more on interpretive frame and associated language preferably with a multi-denominational sample.

That being said, the mediation analysis produced interesting results for the more reliable dogmatism and literal affirmation scales. A small ( $\beta = 0.07$ ) but significant ( $p = 0.044$ ) indirect relationship between eschatological anxiety and dogmatism mediated by NFC was found. A strong ( $\beta = 0.43$ ) and highly significant ( $p < 0.001$ ) but unmediated relationship was found between eschatological anxiety and literal affirmation. The magnitude of the relationship between eschatological anxiety and dogmatism was surprisingly low, and the magnitude of the relationship between eschatological

anxiety and literal affirmation was surprisingly high. This might be reflective of the decision to use a general measure of dogmatism with no domain specific content and the fact that many of the items<sup>8</sup> on the literal affirmation scale acted as domain specific religiously dogmatic statements. The fact that need for cognitive closure had a negligible effect on the partial-association between eschatological anxiety and literal affirmation was highly surprising, and suggests that the relationship between eschatological anxiety, need for cognitive closure and hermeneutical mode is far more complex than the linear pathway hypothesised. Future insights might be improved by cluster analysis with further variables rather than linear modelling.

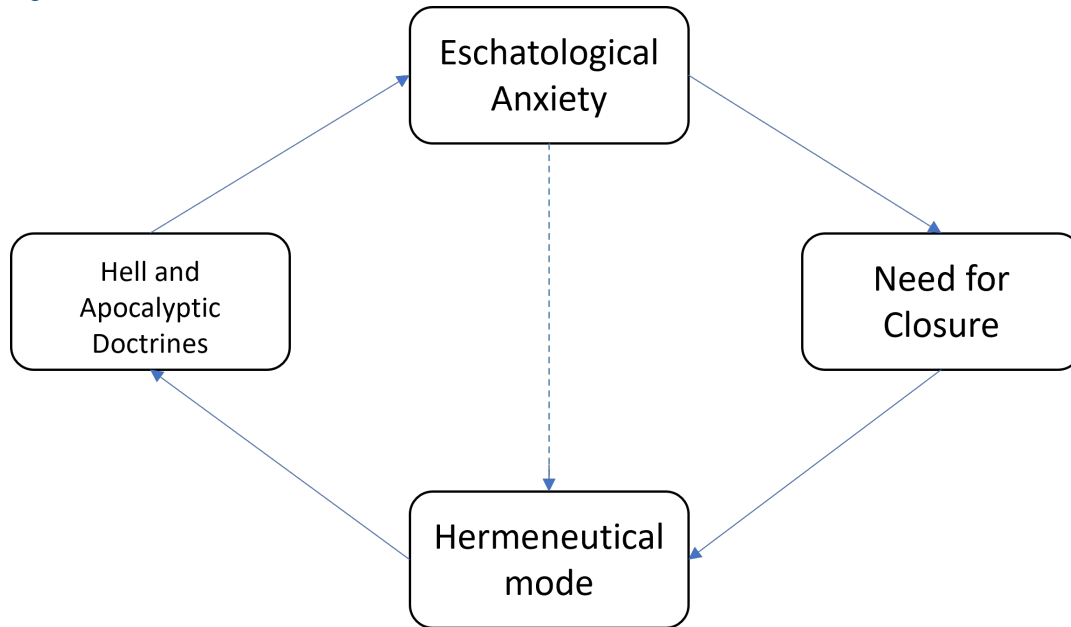
The research design and data sets allowed for further exploration of the relationship between eschatological anxiety, need for cognitive closure, and hermeneutical mode. Denominational label is a useful proxy for hermeneutical mode as denominations self-classify based on doctrines derived from differing modes of textual interpretation. The results of the ANOVA analysis clearly demonstrated group level differences amongst denominations. In particular, the consistency of rankings in table 8 helps to illustrate the positive relationship between the eschatological anxiety, need for cognitive closure, dogmatism and literal affirmation variables. The content analysis further illuminated this relationship. Lower Catholic and Church of England eschatological anxiety can be linked with lower emphasis of judgement in the passage and greater uncertainty about the existence and nature of Hell. Higher Non-Denominational and Baptist explicit literal justification can be linked with their higher need for cognitive closure and literal affirmation group means. All of this is to say that Wulff's (1997) literal-symbolic dimension is not without merit or empirical evidence, and remains a critically useful lens in the understanding of religious cognition.

However, the directionality of these interrelationships are very uncertain. Though we have evidence consistent with a directional link between eschatological anxiety and need for cognitive closure it is far less clear whether these combined variables have a directional effect on the hermeneutical mode variables. This is because the doctrine of Hell and its prevalence in a community is clearly a driving force of eschatological anxiety amongst its membership. However, the doctrine itself is often justified through a more literal interpretation of scriptural texts, such as that of the prime in this study. A potential explanation is one of cyclical directionality generating a ratchet effect within denominational classes and future research may well want to explore and interrogate this complex proposition more thoroughly.

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<sup>8</sup> See items 1, 5, 6, 7 in Appendix A

Fig. 4



#### A concluding remark

Why is it important to understand the relationship between these factors more fully? It extends far beyond that of a niche curiosity. It has real world consequences. For religious individuals, making up more than 84% of the world's population (Pew Research Centre, 2017), the religious social imaginaries that emerge from hermeneutical modalities inform critical aspects of their beliefs and attitudes that affect intergroup dynamics. The literature body demonstrates a significant link between need for cognitive closure and various psychological constructs associated with belief, attitude and behaviour patterns that derogate out groups, subsequently driving conflict and potentially violence. Understanding variables that impact need for cognitive closure is the beginning of a complex psychological mapping process necessary to design positive interventions that might reduce intergroup conflict. This paper has shown that eschatological anxiety may be one such variable relevant to religious groups and individuals worthy of further exploration.



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## Appendices

### Appendix A

Item	<b>Eschatological Anxiety Scale (1 = Strongly Disagree, 5 = Strongly Agree)</b>					
1	I feel an intense fear of Hell when I do something I'm not supposed to	1	2	3	4	5
2	Sometimes I worry that my beliefs are not enough to keep me from Hell	1	2	3	4	5
3	I am confident that there will be a final day of judgement that separates the saved from the damned	1	2	3	4	5
4	I am often concerned that I might be deceived and end up in Hell	1	2	3	4	5
5	The possibility of going to Hell is often in the back of my mind	1	2	3	4	5
6	Sometimes it's difficult to control my worry about Hell	1	2	3	4	5
7	I wonder if those I love are on the pathway to Hell	1	2	3	4	5
8	I feel heavy about the possibility that those I love may end up in Hell	1	2	3	4	5
9	Sometimes it's difficult to control my worry about the salvation of others	1	2	3	4	5

Item	<b>Need for Cognitive Closure Scale (1 = Strongly Disagree, 6 = Strongly Agree)</b>						
1	I don't like situations that are uncertain	1	2	3	4	5	6
2	I dislike questions which could be answered in many ways	1	2	3	4	5	6
3	I find that a well-ordered life with regular hours suits my temperament	1	2	3	4	5	6
4	I feel uncomfortable when I don't understand the reason why an event occurred	1	2	3	4	5	6
5	I feel irritated when one person disagrees with what everyone else in the group believes	1	2	3	4	5	6
6	I don't like to go into a situation without knowing what I can expect from it	1	2	3	4	5	6
7	When I have made a decision, I feel relieved	1	2	3	4	5	6
8	When I am confronted with a problem, I'm dying to reach a solution very quickly	1	2	3	4	5	6
9	I would quickly become impatient and irritated if I could not find a solution to a problem immediately	1	2	3	4	5	6
10	I don't like to be with people who are capable of unexpected actions	1	2	3	4	5	6
11	I dislike it when a person's statement could mean many different things	1	2	3	4	5	6
12	I find that establishing a consistent routine enables me to enjoy life more	1	2	3	4	5	6
13	I enjoy having a clear and structured mode of life	1	2	3	4	5	6
14	I do not usually consult many different opinions before forming my own view	1	2	3	4	5	6
15	I dislike unpredictable situations	1	2	3	4	5	6

Item	<b>Dogmatism Scale (1 = Strongly Disagree, 5 = Strongly Agree)</b>					
1	People who disagree with me are usually wrong	1	2	3	4	5
2	Having multiple perspectives on an issue is usually desirable*	1	2	3	4	5
3	There is a single correct way to do most things	1	2	3	4	5
4	Diversity of opinion and background is valuable in any group or organisation*	1	2	3	4	5
5	It is important to be open to different points of view*	1	2	3	4	5
6	I am a 'my way or the highway' type of person	1	2	3	4	5
7	There are often many different acceptable ways to solve a problem*	1	2	3	4	5
8	I consider myself to be very open-minded*	1	2	3	4	5
9	Different points of view should be encouraged*	1	2	3	4	5
10	People who are very different from us can be dangerous	1	2	3	4	5
11	I am 'set in my ways'	1	2	3	4	5
*Items are reverse coded						

Item	<b>Literal Affirmation Scale (1 = Strongly Disagree, 5 = Strongly Agree)</b>					
1	God has been defined once and for all and is therefore immutable	1	2	3	4	5
2	Even though this goes against modern rationality, I believe Mary truly was a virgin when she gave birth to Jesus	1	2	3	4	5
3	Only the major religious traditions guarantee admittance to God	1	2	3	4	5
4	Religion is the one thing that gives meaning to life in all its aspects	1	2	3	4	5
5	Ultimately there is only one correct answer to each religious question	1	2	3	4	5
6	Only a priest can give an answer to important religious questions	1	2	3	4	5
7	I think that the Bible stories should be taken literally, as they are written	1	2	3	4	5
8	You can only live a meaningful live if you believe	1	2	3	4	5

Item	<b>Restorative Interpretation Scale (1 = Strongly Disagree, 5 = Strongly Agree)</b>					
1	The Bible holds a deeper truth which can only be revealed by personal reflection	1	2	3	4	5
2	The Bible is a guide, full of signs in the search for God, and not an historical account	1	2	3	4	5
3	Despite the fact that the Bible was written in a completely different historical context from ours, it retains a basic message	1	2	3	4	5
4	If you want to understand the meaning of the miracle stories from the Bible, you should always place them in their historical context	1	2	3	4	5
5	Because Jesus is mainly a guiding principle for me, my faith in him would not be affected, if it would appear that he never actually existed as a historical individual	1	2	3	4	5
6	The historical accuracy of the stories from the Bible, is irrelevant for my faith in God	1	2	3	4	5
7	Despite the high number of injustices Christianity has caused people, the original message of Christ is still valuable to me	1	2	3	4	5
8	I still call myself a Christian, even though a lot of things that I cannot agree with have happened in the past in the name of Christianity	1	2	3	4	5

## Appendix B

Please read the following section of text slowly and carefully, and then answer the questions below.

Matthew 25:31-46 NIV translation (The Sheep and the Goats)

<sup>31</sup> “When the Son of Man comes in his glory, and all the angels with him, he will sit on his glorious throne. <sup>32</sup> All the nations will be gathered before him, and he will separate the people one from another as a shepherd separates the sheep from the goats. <sup>33</sup> He will put the sheep on his right and the goats on his left.

<sup>34</sup> Then the King will say to those on his right, ‘Come, you who are blessed by my Father; take your inheritance, the kingdom prepared for you since the creation of the world. <sup>35</sup> For I was hungry and you gave me something to eat, I was thirsty and you gave me something to drink, I was a stranger and you invited me in, <sup>36</sup> I needed clothes and you clothed me, I was sick and you looked after me, I was in prison and you came to visit me.’

<sup>37</sup> Then the righteous will answer him, ‘Lord, when did we see you hungry and feed you, or thirsty and give you something to drink? <sup>38</sup> When did we see you a stranger and invite you in, or needing clothes and clothe you? <sup>39</sup> When did we see you sick or in prison and go to visit you?’

<sup>40</sup> The King will reply, ‘Truly I tell you, whatever you did for one of the least of these brothers and sisters of mine, you did for me.’

<sup>41</sup> Then he will say to those on his left, ‘Depart from me, you who are cursed, into the eternal fire prepared for the devil and his angels. <sup>42</sup> For I was hungry and you gave me nothing to eat, I was thirsty and you gave me nothing to drink, <sup>43</sup> I was a stranger and you did not invite me in, I needed clothes and you did not clothe me, I was sick and in prison and you did not look after me.’

<sup>44</sup> They also will answer, ‘Lord, when did we see you hungry or thirsty or a stranger or needing clothes or sick or in prison, and did not help you?’

<sup>45</sup> He will reply, ‘Truly I tell you, whatever you did not do for one of the least of these, you did not do for me.’

<sup>46</sup> Then they will go away to eternal punishment, but the righteous to eternal life”

What is your understanding / interpretation of this passage? (30-60 words)

Please outline how you support / justify your interpretation of this passage (30-60 words)

In a couple of sentences, how does reading this passage make you feel?

What do you understand specifically by the phrase in verse 41 ‘eternal fire prepared for the devil and his angels’?

Do you consider yourself to be a sheep or a goat? Why?

Are there people that you know and love that you worry may be more goat than sheep? Why?



Appendix C

Content Analysis Rulebook				
Concept	Code	Level	Rules	Examples
Judgement or Care Passage Emphasis	Hell	Word sense	<ol style="list-style-type: none"> <li>Count any mention of the word 'hell'</li> <li>Count any mention of words or phrases that elude to hell, fire, eternal damnation etc</li> </ol>	<p>"hell"</p> <p>"eternal punishment"</p> <p>"hellfire"</p>
	Duty to Care	Phrase	<ol style="list-style-type: none"> <li>Count any distinct phrase that emphasises a 'duty to care'</li> <li>If multiple emphasis in same sentence count once.</li> <li>If repeated emphasis occurs in new sentence count</li> </ol>	<p>"one of the primary duties of a Christian is to take care of those who are needy"</p> <p>"take care of the least"</p> <p>"in caring for others you care for Christ"</p>
Hell's existence and nature	Hell Affirmation	Phrase	<ol style="list-style-type: none"> <li>Code for existence of a phrase that affirms the existence of hell and its qualities</li> <li>If the phrase is very simple and implies self-evident concept existence code e.g. 'It means hell'</li> </ol>	<p>"There will be eternal, never-ending suffering in hell"</p> <p>"I don't see any way to interpret that other than hell"</p> <p>"into Hell where Satan and his cohort lie"</p>
	Hell Rejection	Phrase	<ol style="list-style-type: none"> <li>Code for existence of a phrase that explicitly rejects the existence of hell</li> </ol>	<p>"A reference to the doctrine of hell, my personal view is that this is not a literal place or image"</p> <p>"personally I've always liked a more metaphorical Hell"</p> <p>"I don't take readily to the view that there is hell with an eternal fire"</p>
	Hell Unsure	Phrase	<ol style="list-style-type: none"> <li>Code for existence of a phrase that questions whether or not hell does or should exist</li> <li>If question mark or 'unsure' present – then code</li> </ol>	<p>"I would lean towards some kind of Hell, although I am neither entirely sure about this nor entirely comfortable"</p> <p>"Hell?"</p>
Interpretive Justification	Literal-simplistic	Phrase	<ol style="list-style-type: none"> <li>Code for existence of language that implies direct or self-evident meaning</li> <li>If justification relies on multiple bible-quotations, unless metaphor or parable explicitly mentioned, code</li> </ol>	<p>"The text states '...'"</p> <p>"Scripture is its own best interpreter"</p> <p>"I think the literal interpretation of scripture needs to take primacy"</p> <p>"does not leave much up to interpretation"</p>

	Symbolic-complex	Phrase	<ol style="list-style-type: none"> <li>Code for existence of language that implies complicated or symbolic meaning</li> <li>If 'metaphor' or 'symbol' or 'parable' or words with similar meaning used, code</li> </ol>	<p>"This seems to be a metaphor..."</p> <p>"Matthew 25 is a collection of three parables"</p> <p>"I don't take each narrative at face-value"</p>
Emotional Response to stimulus	Negative	Word sense	<ol style="list-style-type: none"> <li>Code for negative feelings including: anxiety, fear, sadness, discomfort, awkwardness</li> <li>If positive feelings also explicit do not code</li> </ol>	<p>"happy"</p> <p>"it makes me feel inspired"</p> <p>"Encouraged"</p> <p>"this passage causes me to feel relief"</p>
	Positive	Word sense	<ol style="list-style-type: none"> <li>Code for positive feelings including: excitement, happy, comforted etc</li> <li>If negative feelings also explicit do not code</li> </ol>	<p>"sobering"</p> <p>"Challenged"</p> <p>"Inadequate"</p> <p>"Anxious"</p>
	Mixed	Word sense	<ol style="list-style-type: none"> <li>If both positive or negative feelings explicit code</li> <li>If phrase indicates a feeling of accountability and need to improve, code</li> </ol>	<p>"I feel very powerful and also am ashamed"</p> <p>"It puts me on my toes. It also makes me know that I shall be rewarded."</p> <p>"don't really know"</p> <p>"afraid but encouraged"</p>
Personal Salvation	Sheep Identification	Word	<ol style="list-style-type: none"> <li>If sheep used in personal identification question with no caveats then code</li> </ol>	<p>"I feel that I am a sheep"</p> <p>"Sheep, I am a follower of Christ and saved by Him"</p>
	Goat Identification	Word	<ol style="list-style-type: none"> <li>If goat used in personal identification question with no caveats then code</li> </ol>	<p>"I have been a goat, but I'm willing to change"</p> <p>"Goat, because I don't always treat everyone great"</p>
	Unsure	Sentence	<ol style="list-style-type: none"> <li>If both sheep and goat use to describe self, then code</li> <li>If refusal to identify with either and no other explicit reference to personal salvation, then code</li> </ol>	<p>"A sheep because the Lord is my shepherd. A goat at times when I am being stubborn"</p> <p>"I consider myself to be both"</p> <p>"I'm going to be honest I'm somewhere in the middle and that's alright by me"</p>