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Believe it or not: Exploring the relationship between dogmatism and openness within non-religious
samples

Running head: Exploring the relationship between dogmatism and openness within non-religious
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Abstract

Personality and dogmatic thinking within religious individuals have been examined by previous research, but neglected for non-religious individuals. In this experiment, we distinguish between two types of non-religious groups; those who ascribe themselves to an identity (atheists) and those who do not (no beliefs in particular). A total of 103 non-religious individuals (36% atheists and 64% with no particular beliefs) completed an online questionnaire measuring dogmatism and openness traits, with an additional Christian group ($n = 91$) serving as a control. After confirming a relationship between identity salience and dogmatism, and validating a measure of dogmatism (DOG) in both non-religious groups, we note key personality differences between the two. Those with no beliefs in particular demonstrated a traditional negative correlation between openness and dogmatism (along with Christians) while these variables correlated positively for atheists (in particular, on 'unconventionality'). This study is the first to establish differences between the relationship of dogmatism and openness within non-religious populations and explain these differences through group identity. Thus, identity strength and group belief systems are suggested to be key contributors to observed group differences between non-religious individuals.

Keywords: non-religious, atheism, dogmatism, social identity, openness

Believe it or not: Exploring the relationship between dogmatism and openness within non-religious samples

1. Introduction

Individuals tend to divide their world into social categories and groups they feel they belong to (Tajfel & Turner, 1979). These social categories can range from those such as age, gender, race and ethnicity, but another dominant social identity is that of religion. Much research has examined the different personality traits associated with religious group membership, though study of the same differences amongst non-religious individuals has been neglected. While there are a series of external factors which separate non-religious from religious individuals (Barber, 2011; Ysseldyk, Matheson, & Anisman, 2010) there may also be clear differences in individuals within this non-religious category. Most surveys and population analyses categorise all non-religious people under one umbrella, although studies have already distinguished between several different categories; including 'atheists', 'agnostics', 'unchurched believers' and 'religious nones' (Baker & Smith, 2009; Lim, MacGregor, & Putnam, 2010; Zuckerman, 2012).

The link between atheist belief and social identity has already been highlighted and investigated (e.g. Hunsberger & Altemeyer, 2006; Smith, 2011), though research is yet to explore how atheists differ from those whose non-religious belief is much less a part of their belief system and do not identify with any form of social group. This distinction is an important one to make. When a homogeneous categorisation of non-religious individuals is assumed, crucial information about the behaviour of these populations may be masked. Further, a crucial omission to this area of research is the consideration of how non-religious individuals differ in personality, types of belief and how dogmatically they stick to these non-religious beliefs. In light of this omission, the main purpose of this study is to compare the personalities and belief structure of two types of non-religious groups; those that highly identify with a set of beliefs (atheists) and those that do not (those with no beliefs in

particular). If it could be shown that personality differences exist within non-religious individuals, this would be an important consideration to make when conducting future research in this area.

1.1. Individual differences within non-religious groups

Studies examining the attitude differences within non-religious individuals, although limited in scope, have revealed some crucial findings. Baker and Smith (2009) explored the religious and political views of atheists, agnostics and unchurched believers finding, predictably, that atheists were the most non-religious, followed by agnostics and then unchurched believers. However, more recent studies have highlighted how important strength of belief may be in differentiating between non-religious samples. A study by Vail, Arndt, and Abdollahi (in press) showed that atheists and agnostics react very differently to thoughts of mortality: When confronted with the task of analysing their own death, agnostics showed increases in their level of religiosity, belief in a higher power and faith in God. Conversely, atheists displayed no such reactions when given the same exercise, showing that belief strength may play a pivotal role in dealing with uncomfortable issues. These findings are reinforced by Galen and Kloet (2011a) who showed differences in wellbeing between strongly associated atheists and less consistent non-believers. Specifically, people who were certain that God does not exist exhibited greater emotional stability than people who were unsure (Galen & Kloet, 2011a). It appears that certainty in the lack of belief in God may separate atheists from other non-religious people. This unification of a solid belief may well facilitate a strongly identified social identity.

1.2. Social identity and dogmatism

Individuals naturally categorize themselves into social groups (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) and these categorizations can vary in strength according to the saliency of other group memberships at that time (Schmitt, Branscombe, & Kappen, 2003; Sidanius & Pratto, 1999). Attributing oneself to a social group can have benefits, including increased comfort, security or self esteem (Rubin & Hewstone, 1998) and, as such, group categorizations are upheld more strongly when the in-group is considered privileged in comparison to others (Schmitt, et al., 2003; Sidanius & Pratto, 1999).

Individuals that identify strongly with their group are more likely to hold strong group beliefs (e.g. Obst, White, Mavor, & Baker, 2011; Sherif, Harvey, White, Hood, & Sherif, 1961; Tajfel & Turner, 1979) and subsequently uphold the values of their group more dogmatically. Research reveals that religious individuals who identify strongly with their religious group exhibit high levels of dogmatism (Altemeyer, 2002; Altemeyer & Hunsberger, 2004; Crowson, 2009).

Research studying dogmatism in non-religious individuals have been limited in scope (see Crowson, 2009; Hunsberger & Altemeyer, 2006) and there has been no focus on whether group identity serves as a predictor for dogmatism in non-religious individuals, where social identity strength can vary (Galen & Kloet, 2011a). Rokeach (1960) originally described dogmatism as a 'closed mindedness', which can be prevalent in any sample of people, regardless of religious belief. Despite this observation, there is very little literature exploring the kinds of belief or personality traits that are associated with dogmatism in non-religious samples, such as openness. It could be that different groups of non-religious people exhibit dogmatic beliefs and that these beliefs are heterogeneous in nature.

1.3. Openness in non-religious individuals

Traditionally, openness is negatively correlated to measures such as religious fundamentalism, right-wing political ideology, right-wing authoritarianism, social dominance orientation, prejudice and, to a lesser extent, intrinsic-general religiosity (Ekehammar, Akrami, Gylje, & Zakrisson, 2004; Heaven & Bucci, 2001; Saroglou, 2002; Sibley & Duckitt, 2008; Van Hiel, Kossowska, & Mervielde, 2000). Meta-analytic data has shown that openness is consistently correlated negatively with right wing authoritarianism (Heaven & Bucci, 2001; Saroglou, 2002; Van Hiel, et al., 2000); a trait strongly associated with dogmatism (Altemeyer, 2002).

Differences in other personality traits (such as conscientiousness and agreeableness) between religious and non-religious individuals has been shown to be mediated almost entirely by demographics and group attendance (Galen & Kloet, 2011b). However, research has found openness in religious individuals to vary greatly depending on the strength and nature of their beliefs (Lewis, Ritchie, & Bates, 2011). As openness has also been consistently associated with non-religious belief (Galen & Kloet, 2011b), the relationship between openness and religiosity may uncover similar variability within the sample. As social identity governs the relationship between openness and dogmatism in religious individuals, we should expect to see differences in this relationship according to the identity strength of non-religious individuals. High levels of dogmatism may not always be associated with low levels of openness, and this relationship may vary depending on the beliefs that an individual and their social group identify strongly with.

1.4. The current study

In this study we explore levels of dogmatism and openness to experience (OTE) within two non-religious samples ('atheists' and those with 'no beliefs in particular'), and use a religious group

(Christians) for comparison. Critically, we distinguish between atheists, who can hold views of a similar strength as their religious counterparts, and individuals with no beliefs in particular and no potential link to group membership. This study will investigate how strongly atheists feel that they are part of a social group, what kind of beliefs are associated with their dogmatic thinking and whether this differs to other non-religious people who are less connected to a consistent form of belief.

While we make no predictions of differences in individual dogmatism and OTE across the non-religious samples, the primary hypothesis of our study was that the relationship between these variables will vary according to whether an individual identifies strongly with a non-religious group (atheist) or does not (no beliefs in particular). We predicted that atheists will show a positive correlation between dogmatism and OTE as such qualities (in particular unconventionality and inquisitiveness) are central to their core beliefs (Caldwell-Harris, 2012). In contrast, we believed those with no beliefs will have more conventional negative correlations between dogmatism and OTE (along with Christians).

2. Method

2.1 Participants

A total of 103 non-religious individuals completed an online questionnaire, with 37 identifying themselves as atheist ($M = 29.59$, $SD = 12.50$) and 66 as having 'no beliefs in particular' ($M = 27.92$, $SD = 8.73$). An additional 91 Christians ($M = 31.32$, $SD = 13.17$) also completed the questionnaire and served as a control group for comparison. A small number ($n = 15$) of other religious believers also completed the questionnaire, however this low number deemed any statistical analysis unreliable and these data points were therefore not considered further. The sample consisted mainly of adults in

the UK but the questionnaire was also open to international respondents. As a result, the sample included a wide variety of demographics and professions.

2.2. Measures and Procedure

Participants first completed a 40-item 'Openness to Experience' questionnaire, derived from the IPIP-HEXACO personality questionnaire (Ashton, Lee, & Goldberg, 2007). Four facets of openness were examined; aesthetic appreciation ($\alpha = .83$), inquisitiveness ($\alpha = .78$), creativity ($\alpha = .85$) and unconventionality ($\alpha = .84$). These facets (particularly inquisitiveness and unconventionality) were considered to be most appropriate when examining strength of identity and dogmatism. Participants responded to each item on a 5-point scale (1 = *very inaccurate*, 5 = *very accurate*). Items across the four facets were randomized throughout the questionnaire, with 18 being reversed keyed.

Participants then completed Altemeyer's (2002) Dogmatism (DOG) scale by responding to 22 items (two introductory questions and 20 scored) on a 7-point scale (1 = *very inaccurate* to 7 = *very accurate*). The questions appeared in the original order, with half ($n = 10$) of the scored questions reverse-keyed. To determine that dogmatism was measured reliably in non-religious samples (as well as religious samples), reliability analyses were conducted on the entire sample ($N = 194$), and the subset samples of atheist ($n = 37$), no particular beliefs ($n = 66$) and Christians ($n = 91$) separately. Reliability was excellent for the full sample ($\alpha = .92$), and for atheist ($\alpha = .95$) and no particular beliefs ($\alpha = .91$) subsamples (as well as in Christians, $\alpha = .91$), confirming that dogmatism could be measured reliably in non-religious samples as well as in religious samples.

Following this, participants completed a number of demographic details (age, gender, and ethnicity) before stating their religious identity. This was placed at the end of the questionnaire in order to avoid confirmation bias. The questionnaire offered standard choices for all major religions: The choices (for

religious individuals) comprised 'Christian', 'Muslim', 'Hindu', 'Sikh', 'Jewish', 'Buddhist' and (for non-religious individuals) 'atheist' or 'no beliefs in particular'. If participants selected any of the religious choices, or 'atheist', the questionnaire automatically generated a further 5-item questionnaire measuring scale of group identification (these questions were excluded for those with 'no particular beliefs' as they were deemed to have no prescribed group to refer to). The questionnaire, developed from Brown, Condor, Mathews, Wade, & Williams (1986), consisted of items such as: "*Would you say that you are a person who identified with [your choice]?*" Items were again scored on a 5-point scale (1 = *never*, 5 = *always*) and were all positively keyed. Reliability analysis confirmed excellent reliability for atheists ($\alpha = .90$), as it did for Christians ($\alpha = .95$).

3. Results

The results initially examine how dogmatism is associated with group identity strength in those who identify with a belief system (atheist or Christian). The main analysis then focuses on openness to experience (OTE) profiles between the two non-religious samples (in comparison to Christians) and examines differences in how these scores interact with levels of dogmatism across the two groups.

3.1. Identity strength and dogmatism

Dogmatism levels between all groups were considered. Atheists scored slightly higher ($M = 55.05$, $SD = 22.52$) than those with no particular beliefs ($M = 52.62$, $SD = 16.46$). The Christian group were also considered for comparison ($M = 63.54$, $SD = 20.05$) and a one way analysis of variance (ANOVA) revealed a significant difference in DOG scores between the three groups overall, $F(2, 191) = 6.61$, $p = .002$, $\eta^2 = .06$. Pair-wise comparisons revealed that those with no particular beliefs differed significantly from Christians, $p = .002$, $d = -0.58$, but atheists did not, $p = .08$, $d = -0.41$. The extent to which identity strength was associated with dogmatism was then considered. An initial test revealed

that atheists ($M = 18.57, SD = 5.33$) displayed very similar mean identity scores as Christians ($M = 18.76, SD = 4.86$) with an independent sample t-test reporting no significant differences between the two, $t(126) = 0.20, p = .85, d = -0.04$. The similarity between these groups implied an underlying relationship between dogmatism and identity salience, and this was confirmed in a highly significant relationship, $r(126) = .41, p < .001$.

While a relationship between dogmatism and identity salience appears to exist, it was predicted that there would be differences in the way in which dogmatism is expressed between the two non-religious groups, rather than differences in the degree of dogmatism displayed. To examine this, the openness to experience profile of each group was considered to determine how this was related to dogmatism.

3.2 Openness to experience

Openness to experience (OTE) scores were considered for the two non-religious groups (with the Christian group again included for comparison) across four facets (aesthetic appreciation, inquisitiveness, creativity and unconventionality). The groups displayed similar mean openness to experience scores (see table 1) and a one-way ANOVA found no significant differences between the belief groups; $F(2, 191) = 2.20, p = .11, \eta^2 = .02$. Facet scores for OTE were then examined between the groups by a MANOVA analysis which revealed an overall significant difference in facet scores between each belief group, $F(8, 376) = 3.01, p = .003, \text{Wilks } \lambda = .88, \eta^2 = .06, \text{Observed power} = .96$.

Insert Table 1 about here

The univariate statistics for each facet were then examined. For aesthetic appreciation, there were no significant differences between the three belief groups; $F(2, 191) = 0.09, p = .92, \eta^2 < .01$. For inquisitiveness, atheists displayed a higher score than those with no particular beliefs (and Christians). A significant difference was found between the groups; $F(2, 191) = 3.75, p = .03, \eta^2 = .04$, though pair-wise comparisons showed a significant difference only between the atheist and Christian groups, $p = .02, d = 0.54$, and not between the two non-religious groups. No significant differences were found in creativity scores between the groups; $F(2, 191) = 0.35, p = .70, \eta^2 < .01$. Finally, for unconventionality, the atheist group displayed a higher mean score than those with no particular beliefs (and Christians). This difference was found to be significant overall; $F(2, 191) = 6.23, p = .002, \eta^2 = .06$, though pair-wise comparisons revealed these differences lay between the atheist and Christian groups, $p = .003, d = 0.65$, with the difference between no particular beliefs and Christians only approaching significance; $p = .09, d = 0.37$. These findings suggest little differences in openness to experience profiles between the two non-religious groups, but that atheists in particular differ when compared to those with religious beliefs.

To examine how OTE profiles interacted with dogmatism, a series of Pearson correlations was performed. For this analysis, the OTE variables (total and facet scores) and DOG scores were considered individually for each group. Table 2 displays the pattern of correlations from this analysis. The correlation matrices suggest that there is a considerable difference in the pattern of correlations between the OTE (total and facet) scores and DOG scores between the two non-religious groups.

Insert Table 2 about here

Atheists displayed several significant positive correlations between DOG score and OTE attributes; including correlations between DOG score and OTE total, inquisitiveness and unconventionality, as well as a near significant relationship with creativity. In contrast, this pattern was reversed for those with no particular beliefs who were found to exhibit a series of significant negative correlations between DOG score and OTE attributes; including aesthetic appreciation, inquisitiveness and unconventionality. This more traditional correlation was also observed for Christians, who displayed a significant negative correlation with inquisitiveness scores. Exploring the data for the atheist group more closely, identity strength was only significantly positively correlated with inquisitiveness in the atheist group, although its relationship with OTE total also approached significance.

4. Discussion

4.1. Summary of findings in relation to previous research

Previous research appears to have suggested that religious individuals are closed minded, dogmatic and differ greatly on aspects of personality when compared to non-religious individuals (Galen & Kloet, 2011b; Kirkpatrick, Sutker, & Sutker, 1970). However, a strong criticism of this research is the assumption that religious group categories comprise a homogeneous set of individuals who hold the same views and characteristics. Whilst there has been an attempt to explore different factors within religious groups there has been a distinct lack in the same approach to non-religious individuals. Just as differences can be observed between religious and non-religious individuals we argued the same can be true within non-religious groups themselves. In this study, we made a distinction between individuals who defined themselves as atheist and those with no beliefs in particular. We aimed to explore levels of dogmatism and OTE between these two non-religious groups using Christians as a comparison. We hypothesized that the relationship between dogmatism and OTE would differ

between non-religious groups and that the differences between religious and non-religious individuals could partly be attributed to having a strong social group identity.

Our results show similar levels of dogmatism and OTE total scores amongst atheists and those with no particular beliefs. However, the interaction between these two measures differed substantially, with a positive correlation between unconventionality, inquisitiveness, total OTE and dogmatism for atheists. Additionally, we found negative correlations between dogmatism and nearly all of the measures of openness to experience (other than creativity) and on the total scale for those with no beliefs in particular. This demonstrates the differences which can be observed within non-religious groups indicating that they are not as homogenous as once thought. Importantly, this finding echoes previous work showing negative correlations in non-religious samples between openness and similar traits such as right wing authoritarianism and social dominance (Heaven & Bucci, 2001).

Nevertheless, this is the first study to show this relationship between openness and dogmatism in a non-religious sample.

So far our findings have been explained in terms of the underlying beliefs and values associated with being a member of a particular group. Further emphasizing this point, our analysis revealed that identity strength was associated with dogmatism for all those who identified with a belief group (atheists and Christians). Supporting our hypothesis, and the theoretical framework of social identity theory, these results suggest that identity strength may serve as a predictor for dogmatism regardless of religious or non-religious belief. Whilst previous research has found evidence for dogmatism amongst differing groups, such as Rokeach's (1960) study of conservatives and communists, little research has focused on the impact of identity strength between religious and non-religious individuals specifically. Our finding further supports the importance of group membership when distinguishing between types of non-religious individuals. It could be argued that differences in dogmatism between or within religious and non-religious samples is a function of the strength of their group membership rather than particular characteristics associated with a belief or non-belief system.

4.2. Implications and suggestions for future research

It is evident that the relationship between non-religious belief, openness to experience, dogmatism and strength of group membership identity is a complicated one. Nevertheless, we argue that it is necessary to consider. Firstly, we have shown that non-religious individuals are not a homogenous group sharing the same personality and characteristics. Secondly, we have shown that two groups with similar levels of dogmatism and identity strength can differ considerably on how their personality interacts with these factors. This demonstrates that simply being dogmatic does not automatically lead to other beliefs and traits (e.g. authoritarianism, lack of openness). In order to understand traits and personality we suggest that it is important to assess how strongly an individual identifies with their group and what the core values of that group are. It is only through considering these factors that we can truly examine the differences between types of religious and non-religious belief. In addition, our study is the first to report high validation of the DOG scale specifically within two non-religious groups, suggesting that it can be used in these populations which has not been a priority of research to date (Altemeyer, 2002; Duckitt, 2009).

By moving beyond simple comparisons of religious and non-religious groups and considering the extra dimension of group membership we have advanced research in this area. We successfully made a distinction between non-religious groups in our study; though, owing to the quasi-experimental nature of this study, had a limited sample size of those who self-identified as atheist compared to those with no beliefs in particular (and the Christian control group). This may however accurately reflect the fact that the majority of non-religious individuals in our sample did not associate themselves with the social identity of atheist and are thus a representative sample. One category that may be considered missing from our provided options is 'agnostics'. We opted to omit this category on the basis that this group identification may have confounded findings and distracted from the clear distinction of self-identifying with a non-religious identity (atheist) or not (no beliefs in particular) which was the focus of this study. These limitations could however be considered in further research.

We also focused solely on openness to experience, although previous research suggests differences may be observed on other personality factors, such as agreeableness and conscientiousness (Galen & Kloet, 2011b). Future studies should aim to examine other facets more closely in a similar sample and consider their interaction with dogmatism and identity strength.

4.3. Conclusions

Our findings demonstrate that dogmatism is evident amongst non-religious groups and show that the relationship between openness to experience and dogmatism is dependent on the individual's particular belief system as well their identification with their group. Being dogmatic and holding strong beliefs however does not predict personality in a linear fashion. People who are not religious can hold very strong views and stick to these opinions avidly. Atheists have emerged as a social group that displays a unique type of dogmatism with a non-traditional relationship with openness; a distinction which can be explained in terms of social identity. Understanding the core values and social identity of a group who share similar beliefs is fundamental in addressing how social, political and racial groups function and in illuminating their core attributes.

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Table 1: The descriptive statistics for the openness to experience total and facet scores in each belief group.

OTE variable	Belief group	<i>M</i>	<i>SD</i>
OTE (total)	Atheist	37.55	5.69
	No particular beliefs	36.45	5.05
	Christian	35.56	4.55
Aesthetic appreciation	Atheist	36.70	7.82
	No particular beliefs	36.29	7.41
	Christian	36.73	5.94
Inquisitiveness	Atheist	40.46	7.01
	No particular beliefs	37.86	6.43
	Christian	37.13	5.80
Creativity	Atheist	37.49	6.06
	No particular beliefs	38.20	5.33
	Christian	37.49	5.45
Unconventionality	Atheist	35.54	7.89
	No particular beliefs	33.44	7.05
	Christian	30.90	6.81

Note: OTE = Openness to experience.

Table 2: The correlation matrices between the openness to experience total and facet scores and DOG and identity salience scores in each belief group.

	DOG	ID salience	OTE total	AA	Inq	Cre	Unc
Atheists							
DOG	1.00						
ID salience	.31 [†]	1.00					
OTE total	.33*	.31 [†]	1.00				
AA	-.05	.23	.75***	1.00			
Inquisitiveness	.39*	.33*	.85***	.54**	1.00		
Creativity	.32 [†]	.24	.79***	.49**	.56***	1.00	
Unconventionality	.41*	.21	.78***	.31 [†]	.60***	.53**	1.00
No particular beliefs							
DOG	1.00						
ID salience	N/A	1.00					
OTE total	-.34**	N/A	1.00				
AA	-.40**	N/A	.82***	1.00			
Inquisitiveness	-.35**	N/A	.80***	.63***	1.00		
Creativity	.01	N/A	.60***	.23 [†]	.34**	1.00	
Unconventionality	-.25*	N/A	.81***	.54***	.48***	.44***	1.00
Christians							
DOG	1.00						
ID salience	.47***	1.00					
OTE total	-.13	.06	1.00				
AA	-.07	.09	.70***	1.00			
Inquisitiveness	-.24*	.08	.80***	.43***	1.00		
Creativity	-.01	.12	.78***	.40***	.56***	1.00	
Unconventionality	-.08	-.09	.76***	.32**	.46***	.45***	1.00

Note: DOG = Dogmatism score. ID = Identity. OTE = Openness to experience. AA = Aesthetic appreciation. Inq = Inquisitiveness. Cre = Creativity. Unc = Unconventionality.

[†] = $p < .10$ (approached significance) * = $p < .05$ ** = $p < .01$ *** = $p < .001$ (all two-tailed).