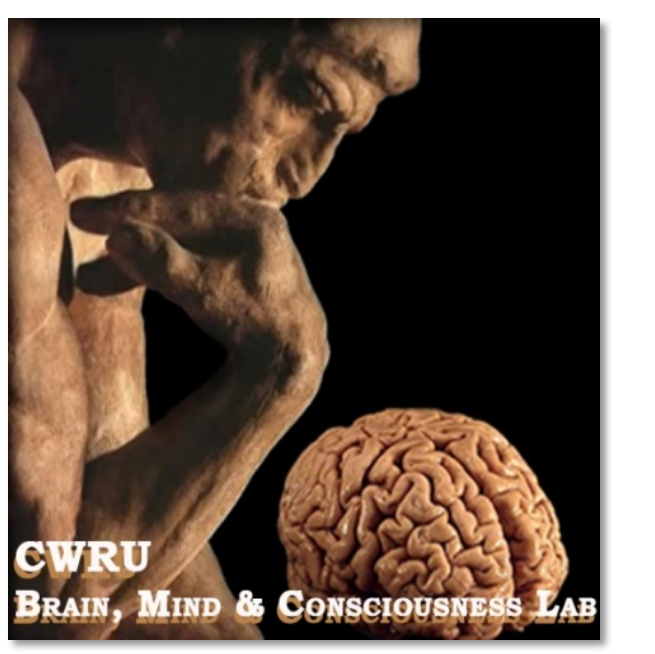


Are you sure you don't believe in God?

Divergent relationships between dogmatism and prosocial sentiments in the religious and non-religious

J.P. Friedman & A.I. Jack

Department of Cognitive Science, Case Western Reserve University



INTRODUCTION

Recent findings indicate that individuals with acquired sociopathy due to ventro-medial prefrontal cortex (vmPFC) brain damage are inclined to greater fundamentalism in their religious beliefs (Asp et al., 2012). However, whereas measures of religious fundamentalism (RF) are specific to individuals espousing religious worldviews, dogmatism captures a closely related but independent construct. Altemeyer (1996, p.201) defines dogmatism as "relatively unchangeable, unjustified certainty" in one's beliefs, independent of ideology or content; accordingly, measures of dogmatism are equally applicable to religious and non-religious individuals alike. Here, we present the results of two studies examining how increasing levels of dogmatism among the religious and non-religious relate to prosocial sentiments. Recent empirical work has largely neglected the possibility of a link between religious belief and prosocial sentiments, including increased empathy, emotional sensitivity, and self-regulation, which in turn promote altruistic and volunteering behavior (Konrath et al., 2011). Instead, many theorists argue that religious belief reflects irrational thinking and susceptibility to cognitive error; this position is supported by data demonstrating that individuals with higher analytic reasoning skills are less likely to believe in God (e.g. Pennycook et al., 2012). Rather than assuming religious belief is a signature of cognitive malfunction, we believe it may be indicative of healthy socio-emotional functioning. Our view is that the tendency to adopt religious worldviews is engendered by a balance between analytic thinking and an enhanced sense of other-oriented, prosocial sentiments (Taylor et al., under review). In light of independent data suggesting that many active non-believers (e.g. those belonging to atheist communities) reject religious worldviews due to a dogmatic allegiance to naturalism (Hunsberger & Altemeyer, 2006), we predicted the presence of a divergent relationship between dogmatism and prosocial sentiments among the religious and non-religious. More specifically, we predicted that increasing levels of dogmatic certainty, and hence greater resistance towards modifying one's currently held worldview, would negatively relate to such sentiments in the non-religious but share a positive relationship in the religious.

METHODS AND DESIGN

Study 1

Seven hundred and four participants from around the world were recruited through Amazon's Mechanical Turk (AMT), where they were linked to a survey hosted by SurveyMonkey. One hundred and seventy-seven people were excluded from the final analyses for failing to correctly answer our catch-questions, leaving a total of 527 participants with complete data (252 male, 275 female; ages 18 to 67, $M = 30.29$, $SD = 10.71$). Participants self-identified as the following: 210 Christian (39.8%), 202 Non-religious (38.3%), 63 Hindu (12.0%), 19 Other (3.6%), 12 Buddhist (2.3%), 11 Jewish (2.1%), and 10 Muslim (1.9%). We combined all religious participants, including those who selected "other", into the religious group ($N = 325$) to compare them against the "non-religious" ($N = 202$). Participants were presented with the following measurements in the following order: Revised Religious Fundamentalism scale RRF; (Altemeyer & Hunsberger, 2004); Cognitive Reflection Test (CRT; Frederick, 2005); Interpersonal Reactivity Index - Empathetic Concern subscale (IRI-EC; Davis, 1980); Dogmatism Scale (DOG; Altemeyer, 1996); Prosocial intentions (Pavey et al., 2011).

Study 2

Six hundred participants from the United States were recruited through Amazon's Mechanical Turk, where they were linked to a survey hosted by SurveyMonkey. One hundred and ninety-five people were excluded from the final analyses for failing to answer our catch-questions correctly, leaving a total of 405 participants with complete data (280 females, 69.1% females; average age 34.12, $SD = 12.87$). Participants self identified as the following: 209 Christian (51.6%), 153 Non-religious (37.8%), 24 Other (5.9%), 9 Jewish (2.2%), 5 Buddhist (1.2%), 4 Hindu (1.0%), and 1 Muslim (0.2%). We combined all religious participants, including those who selected "other", into the religious group ($N=252$) to compare them against the "non-religious" ($N=153$). Participants were presented with the following measurements in the following order: DOG Scale; Self-Report Psychopathy - Callous Affect subscale (SRP-CA; Paulhus et al., in press); CRT; Prosocial intentions

RESULTS

Study 1

Of particular significance is the large difference in correlation coefficients between DOG and RF scores amongst the religious and non-religious (Table 1). This result supports our decision to use the DOG Scale as a proxy for fundamentalist beliefs amongst the religious and as a domain neutral measure of fundamentalist type beliefs among the non-religious. This approach is further validated by our findings that non-religious participants' DOG scores negatively correlated with IRI-EC (Table 2) and, moreover, no such relationship was found between their RF scores and IRI-EC ($r = .00$, $p = .93$). We suggest this is because measures of RF assess belief conviction in particular beliefs which, by definition, have already been renounced by those identifying as non-religious. Table 2 presents the correlation coefficients (bivariate and partial) for the relationship that IRI-EC, prosocial intentions, and CRT share with DOG scores. Only religious participants' DOG scores were positively related to prosocial intentions and IRI-EC. Notably, analytic reasoning skills (CRT) failed to significantly correlate with DOG Scores in both the religious and non-religious.

Correlation with DOG Score		
Variable	Religious	Non-religious
RF	.74**	.25**

Table 1: Bivariate correlation coefficients between DOG and RF scores in the religious and non-religious ** $p < .01$

Variable	Bivariate		Partial (gender, age, edu)	
	Religious	Non-religious	Religious	Non-religious
IRI-EC	.10	-.16*	.13*	-.15*
Prosocial	.19**	-.06	.21**	-.04
CRT	.02	-.10	.01	-.11

Table 2 (above): Bivariate and partial correlation coefficients with DOG scores from Study 1
Table 3 (below): Bivariate and partial correlation coefficients with DOG scores from Study 2
 $p < .05$, * $p < .01$ **

Variable	Bivariate		Partial (gender, age, edu)	
	Religious	Non-religious	Religious	Non-religious
IRI-EC	.08	-.32**	.09	-.32**
Prosocial	.16*	-.06	.16**	-.04
CRT	-.10	-.13	-.11	-.14
SRP-CA	-.05	.22**	-.07	.21**

RESULTS

Study 2

Having established the validity of using the DOG Scale for both the religious and non-religious in Study 1, we dropped the measure of RF from Study 2. We extended the results of Study 1 by including a measure of callous affect (SRP-CA), the signature diagnostic criteria of psychopathy, which was found to share a positive relationship with DOG scores in the non-religious only. Table 3 presents the correlation coefficients (bivariate and partial) for the relationship that IRI-EC, prosocial intentions, SRP-CA, and CRT shared with DOG Scores. Consistent with Study 1, we found that DOG scores were positively related to prosocial sentiments among the religious only (Table 3); negatively related to empathy in the non-religious only (Table 3; Figure 1); and did not share a significant relationship with analytic reasoning skills in either group. (Table 3).

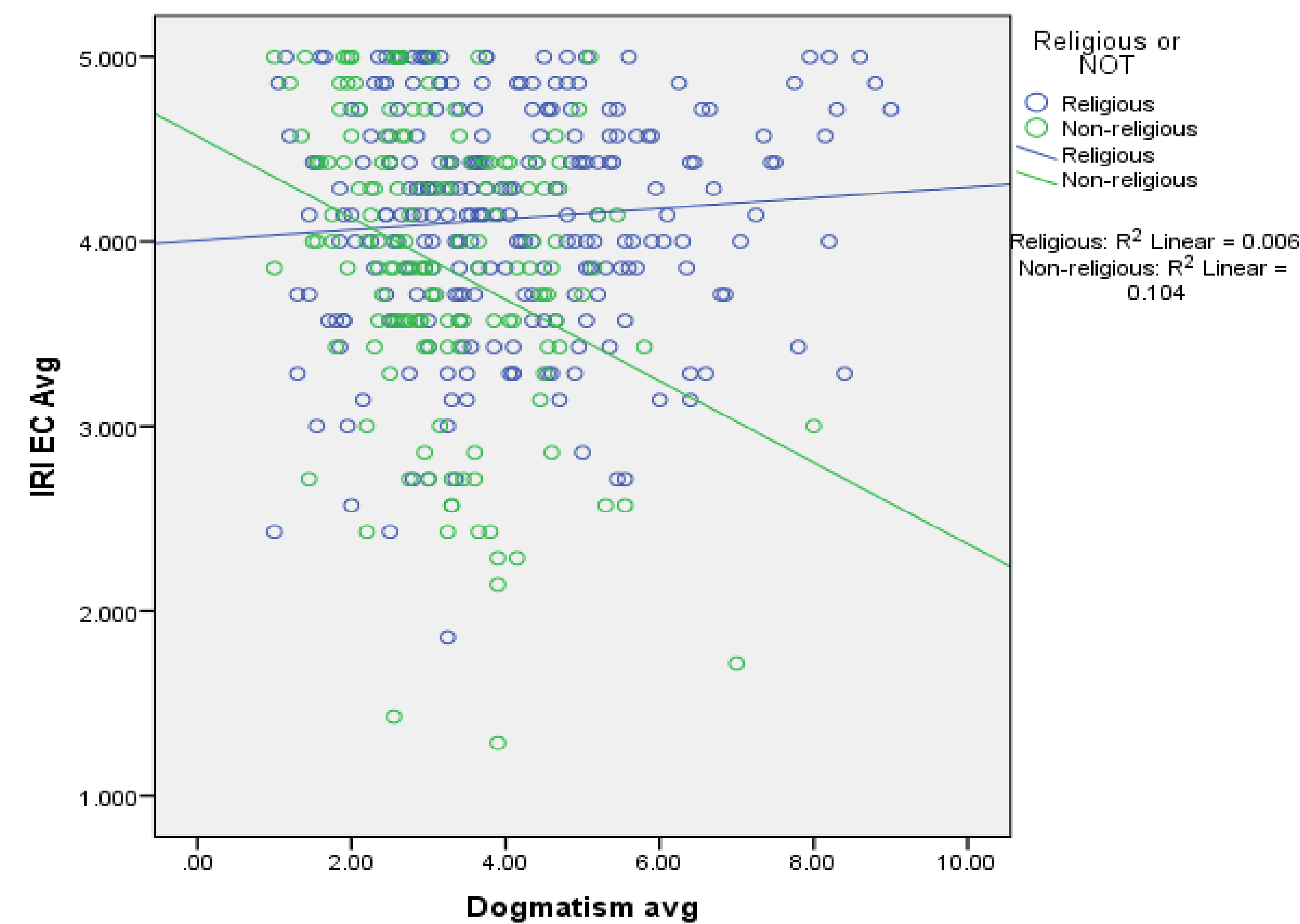


Figure 1 (above): Correlations between dogmatism and IRI-EC among the religious and non-religious, Study 2.

Meta-analysis of Study 1 & Study 2

In order to obtain a clearer picture of the relationship that empathy, prosocial intentions, and analytic reasoning share with dogmatism, we pooled together all participants from Study 1 & Study 2 (religious participants, $n = 577$; non-religious participants $n = 350$). This analysis further demonstrated the divergent effects of dogmatism on prosocial sentiments in the religious and non-religious. Table 3 shows that increased levels of dogmatism related to decreased empathetic concern in the non-religious only; conversely, in the religious, dogmatism was positively related to empathetic concern and prosocial intentions. Dogmatism was unrelated to prosocial intentions in the non-religious (see Figure 2, Table 3)

Variable	Bivariate		Partial (gender, age, edu)	
	Religious	Non-religious	Religious	Non-religious
IRI-EC	.07	-.24**	.10*	-.22**
Prosocial	.19**	-.05	.20**	-.03
CRT	.08*	-.10	-.10*	-.15**

Table 3 (above): Bivariate and partial correlation coefficients with DOG scores from Study 2. $p < .05$, * $p < .01$ **

Figure 2 (below): Correlations between dogmatism and prosocial intentions among the religious and non-religious, after pooling together participants from both Study 1 and Study 2

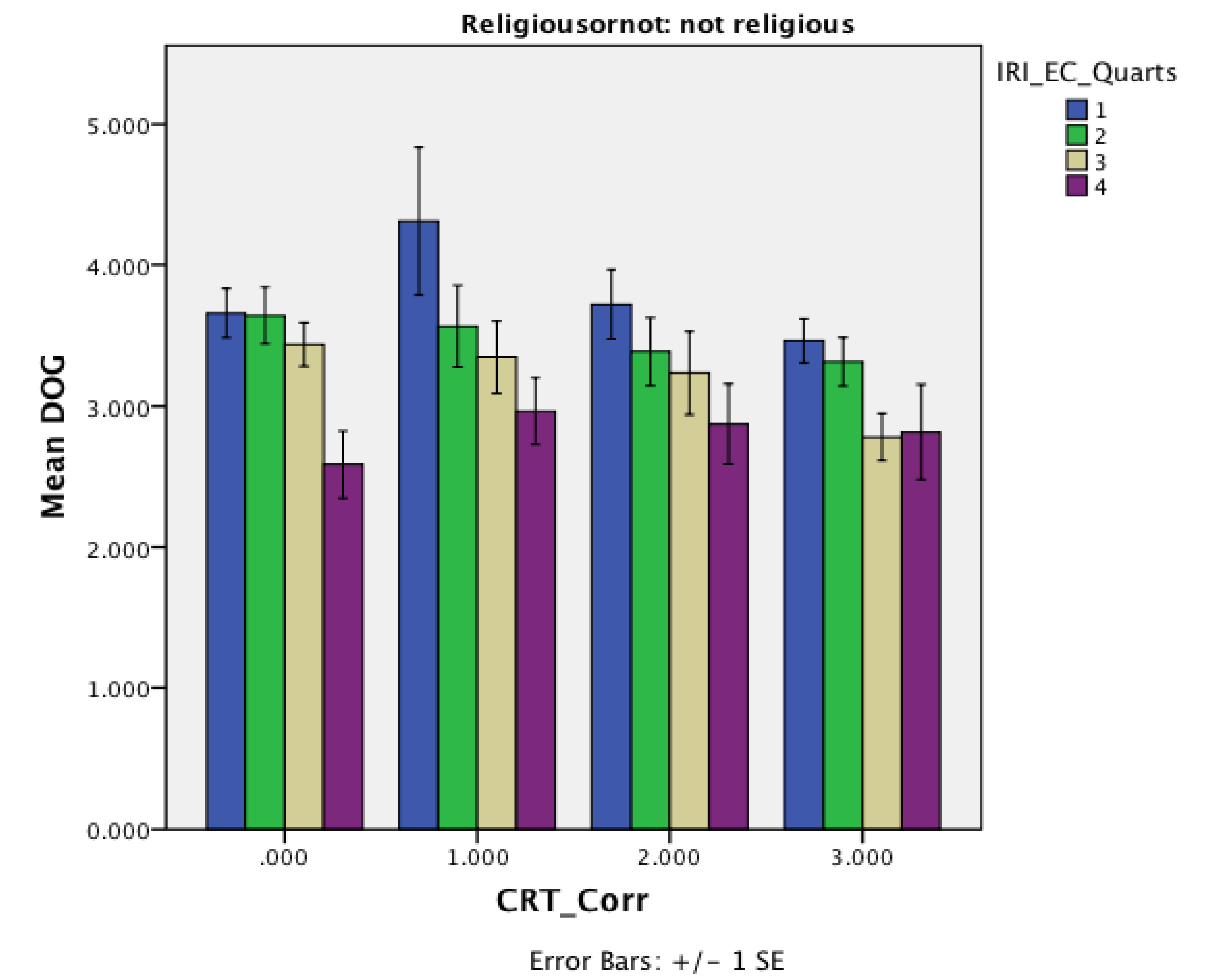
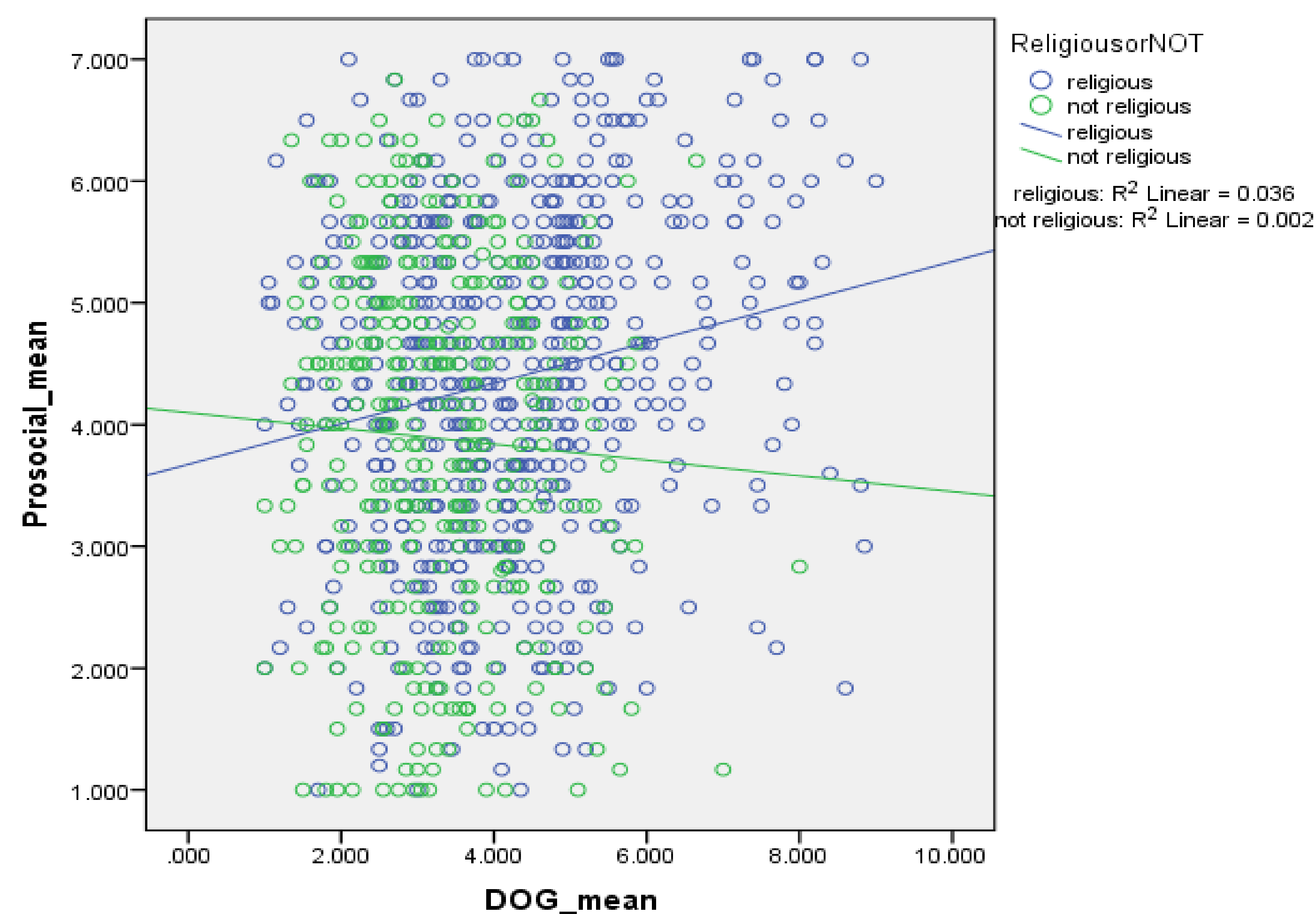


Figure 3: Pooling all non-religious participants together from Study 1 & 2 ($n=355$) demonstrates that at every level of analytic reasoning, increased empathetic concern is associated with diminished dogmatism.

DISCUSSION

Across two studies – one globally (Study 1) and one nationally (Study 2) representative – we found that, only for the non-religious, increasing levels of dogmatic belief were related to lower levels of empathetic concern. Furthermore, only among the non-religious, increasing levels of dogmatism were positively related to prosocial intentions and empathetic concern. These results provide initial evidence for a divergent relationship between dogmatism and prosocial sentiments across these two groups. Notably, Study 1 and Study 2 showed that dogmatism was unrelated to analytic reasoning abilities in both the religious and non-religious. Only the meta-analysis revealed a negative correlation between dogmatism and analytic thinking among the non-religious, though this effect was weaker than that observed between dogmatism and empathetic concern. These findings support our view that, especially among the non-religious, dogmatism has little to do with analytic thinking ability and instead shows a robust relationship with empathetic concern (e.g. Taylor et al., under review). To illustrate this point, we pooled all non-religious participants together from both experiments ($n=355$). Figure 3 demonstrates that less empathetic, non-religious individuals are more dogmatic in their beliefs, an effect which is seen at every level of analytic thinking ability. Given the current data, this effect is especially noteworthy for two reasons. First, compared to the religious, non-religious participants reported significantly lower and higher levels of dogmatism and analytic thinking, respectively. Second, preliminary analyses (e.g. when ignoring participants' identification as religious or non-religious) failed to reveal a relationship between dogmatism and empathy (as measured by both IRI-EC & SRP-CA).

Conclusion

The presence of such divergent effects of dogmatism in neurotypical participants identifying as religious and non-religious challenges Asp et al.'s (2012) claim that fundamentalist type beliefs are "not attributable to a general cognitive or executive functioning deficit[s] per se." (p.419). If this were the case, one would not expect the striking differences presented here. Ventromedial prefrontal damage has been linked with a host of cognitive defects, including impaired autonomic arousal, emotional dysregulation, aberrant decision making, and deficits in empathy, guilt, insight, and self-control. Our results rule out the possibility that diminished empathy (e.g. sociopathic tendencies) is driving the acceptance of fundamentalist type beliefs. Further research and a more accurate functional characterization of vmPFC might explain Asp et al.'s (2012) findings. Our results further challenge Asp et al.'s (2012) claim that resistance to fundamentalist type beliefs can be explained by the ability to exercise skepticism and doubt, as we show that IRI-EC accounted for more variance in DOG Scores than did analytic reasoning skills, especially among the analytically inclined non-religious participants (Figure 3). The current findings support our previously asserted view that non-believers who are increasingly dismissive of religious belief are increasingly dismissive because they lack the emotional insight that allows one to recognize the intimate coupling between compassion and religious belief. When prosocial sentiments are compromised, so is the ability to intuit this link; the greater the difficulty in intuiting this link, the greater one dogmatically resists worldviews that endorse such a link. In other words, we believe that higher levels of other-oriented, prosocial sentiments reflect an openness to the possibility of integrating religious and supernatural concepts into one's worldview.

References

- Altemeyer, B. (1996). *The authoritarian specter*. Cambridge, MA: Harvard University Press
- Pennycook, G., Cheyne, J.A., Seli, P., Koehler, D.J., & Fugelsang, J.A. (2012). Analytic cognitive style predicts religious and paranormal belief. *Cognition*, 123, 335-346.
- Authoritarianism, religious fundamentalism, and the human prefrontal cortex. (2012). *Neuropsychology*, 26(4), 414-421.
- Konrath, S. H., O'Brien, E. H., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: a meta-analysis. *Personality and Social Psychology Review*, 15, 180-198.
- Taylor, S. N., Boyatzis, R. E., Friedman, J. P., & Jack, A. I. Religious belief reflects a balance between moral/empathetic concern and analytic reasoning. (under review).
- Hunsberger, B., & Altemeyer, B. (2006). *Atheists: A groundbreaking study of America's nonbelievers*. Amherst, NY: Prometheus Books.
- Altemeyer, B., & Hunsberger, B. (2004). A revised religious fundamentalism scale: The short and sweet of it. *The International Journal for the Psychology of Religion*, 14(1), 47-54.
- Frederick, S. (2005). Cognitive reflection and decision making. *Journal of Economic Perspectives*, 19(4), 25-42.
- Davis, M. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, 10(4), 85.
- Pavey, L., Greitemeyer, T., & Sparks, P. (2011). Highlighting relatedness promotes prosocial motives and behavior. *Personality and Social Psychology Bulletin*, 37(7), 905-917.
- Paulhus, D.L., Neumann, C.S., & Hare, R.D. (in press). *Manual for the Self-Report Psychopathy Scale, 4th Edition*. Toronto, Canada: Multi-Health Systems.