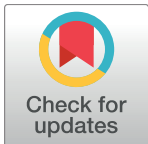


CORRECTION

Correction: Atheists and Agnostics Are More Reflective than Religious Believers: Four Empirical Studies and a Meta-Analysis

Gordon Pennycook, Robert M. Ross, Derek J. Koehler, Jonathan A. Fugelsang

There is an error in one of the correlations (r) between Cognitive Reflection Test (CRT) performance and belief in God in Table 6, Fig 3 and Fig 4. The correct correlation, from Gervais [5], is $-.16$. Please see the corrected [Table 6](#), [Fig 3](#) and [Fig 4](#) below.



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Table 6. Summary of studies reporting a correlation (*r*) between a behavioral measure of analytic thinking and religiosity (variously measured).
Significant correlations are in bold.

Reference	Study	Analytic thinking measure	Religiosity measure	<i>r</i>	<i>N</i>
Shenhav et al. (2012) [13]	1*	CRT (intuitive scoring) w	God	.18[#]	882
			Convinced of God's existence	.15^a	
			Immortal souls	.14	
Pennycook et al. (2012) [4]	2* 1*	CRT Base-rate neglect	God	-.18[#]	321
			Religious belief scale	-.33[#]	
			Religious belief scale	-.19	
Gervais & Norenzayan (2012) [12]	1*	CRT	Religious belief scale	-.29[#]	267
			Religious belief scale	-.31	
			Religious belief scale	-.31	
Pennycook et al. (2013) [20]	1*	CRT	Intrinsic religiosity	-.22	179
			Intuitive religious belief	-.15	
			Supernatural agents	-.18[#]	
Kahan (2013) ^b [27]	1 [§]	CRT	Religious belief scale	-.46	91
			Importance of religion	-.15[#]	
			Prayer frequency	-.12	
Razmyar & Reeve (2013) ^c [21]	1*	CRT	Overall religiosity	-.09	150
			Overall spirituality	-.19	
			Prayer frequency	-.19	
Piazza & Sousa (2014) [35]	3*	CRT (intuitive scoring)	Extrinsic religiosity	-.20	192
			Intrinsic religiosity	-.24	
			Fundamentalism	-.10	
Pennycook et al. (2014a) [7]	1*	CRT	Scriptural acceptance	-.17[#]	505
			Overall religiosity	.28[#]	
			Religious belief scale	-.23[#]	
Pennycook et al. (2014b) [22]	1* 2 [†] 3 [‡]	Base-rate neglect CRT Base-rate neglect (rapid-response)	Religious belief scale	-.28	78
			Religious belief scale	-.26[#]	
			Religious belief scale	-.29	
Browne et al. (2014) ^d [30]	1*	CRT	Religious belief scale	-.15	89
			Strong faith	-.11[#]	
			Spiritual thinking	-.08	
Byrd (2014) ^e [26]	1 [§]	CRT (intuitive scoring)	Theism	.14[#]	412
			Intrinsic religiosity	.04[#]	
			Intrinsic religiosity	.04[#]	
McCutcheon et al. (2014) [36]	1 [†]	CRT	Belief bias syllogisms	-.02	164
			Belief bias syllogisms	-.02	
			Belief bias syllogisms	-.02	
Baron et al. (2015) [37]	4*	CRT/ Belief bias syllogisms (combined)	God determines morality	-.32[#]	96
			God determines morality	-.32[#]	
			God determines morality	-.32[#]	
Gervais ^g (2015) [5]	1* 2*	CRT	God	-.10[#]	787
			God	-.16[#]	
			God	-.16[#]	
Pennycook et al. (2015) [10]	1*	CRT	Religious belief scale	-.21[#]	279
			Heuristics & Biases battery	-.20	
			Heuristics & Biases battery	-.20	
Finley et al. (2015) [24]	2* CRT First*	Heuristics & Biases battery CRT	Religious belief scale	-.34	187
			Religious belief scale	-.34	
			Religious belief scale	-.34	
Finley et al. (2015) [24]	CRT First* Belief First [§]	CRT	Intrinsic religiosity	-.17	410
			Intrinsic religiosity	-.17	
			Intrinsic religiosity	-.17	
Finley et al. (2015) [24]	First* Belief First [§]	CRT	Intuitive religious belief	-.23	410
			Intuitive religious belief	-.23	
			Intuitive religious belief	-.23	
Finley et al. (2015) [24]	First* Belief First [§]	CRT	Supernatural agents	-.19[#]	410
			Supernatural agents	-.19[#]	
			Supernatural agents	-.19[#]	
Finley et al. (2015) [24]	First* Belief First [§]	CRT	Intrinsic religiosity	.04	410
			Intrinsic religiosity	.04	
			Intrinsic religiosity	.04	
Finley et al. (2015) [24]	First* Belief First [§]	CRT	Intuitive religious belief	<.01	410
			Intuitive religious belief	<.01	
			Intuitive religious belief	<.01	
Finley et al. (2015) [24]	First* Belief First [§]	CRT	Supernatural agents	-.03[#]	410
			Supernatural agents	-.03[#]	
			Supernatural agents	-.03[#]	

(Continued)

Table 6. (Continued)

Reference	Study	Analytic thinking measure	Religiosity measure	<i>r</i>	<i>N</i>
Lindeman & Lipsanen (2016) [28]	1 [§]	CRT	Religious belief scale	-.22[#]	3044
Jack et al. (in press) [29]	1 [§]	CRT	God	-.15[#]	236
	2 [§]	CRT	God	-.25[#]	233
	3 [*]	CRT	God	-.22[#]	159
	4 [§]	CRT	God	-.24[#]	527
	5 [†]	CRT	God	-.23[#]	69
	6 [*]	CRT	God	-.16[#]	459
	8 [*]	CRT	God	-.17[#]	371
	Current study	1 [†]	CRT	Religious belief scale	-.26[#]
		Base-rate neglect		-.23	
	2 [†]	CRT	Religious belief scale	-.21[#]	148
		Base-rate neglect		-.25	149
	3 [†]	CRT	Religious belief scale	-.17[#]	277
		Heuristics/biases		-.16	
	4 [†]	CRT	Religious belief scale	-.23[#]	267
		Heuristics/biases		-.21	

^a Value is a point biserial correlation coefficient (dichotomous variable).

^b These values were computed by the present authors using Kahan's (2013) [27] data, which were available online through the Society of Judgment and Decision Making website (<http://journal.sjdm.org/vol8.4.html>).

^c Some of these measures of religiosity relate to aspects of religious practice and commitment and not religious belief (see [11]).

^d The CRT was administered via phone interview in this study and performance was exceptionally low. This may explain the attenuated correlations.

^e This analysis excludes participants who had previous knowledge of the CRT. Around half of the sample includes philosophers either with a PhD or who were in a PhD program at the time of the study. Participants in this study were given the CRT before the theism measure, but with a personality task in-between.

^f The measures were completed in a paper-and-pencil study and the order of the pages was varied (no order analyses were reported).

^g These values were computed by the present authors using Gervais' (2015) [5] data, which were available online through the author's website (<http://willgervais.com/journal-articles/>). Participants with missing data for any CRT item were removed from analysis.

* Indicates that the religious belief measure was administered after the analytic thinking measure.

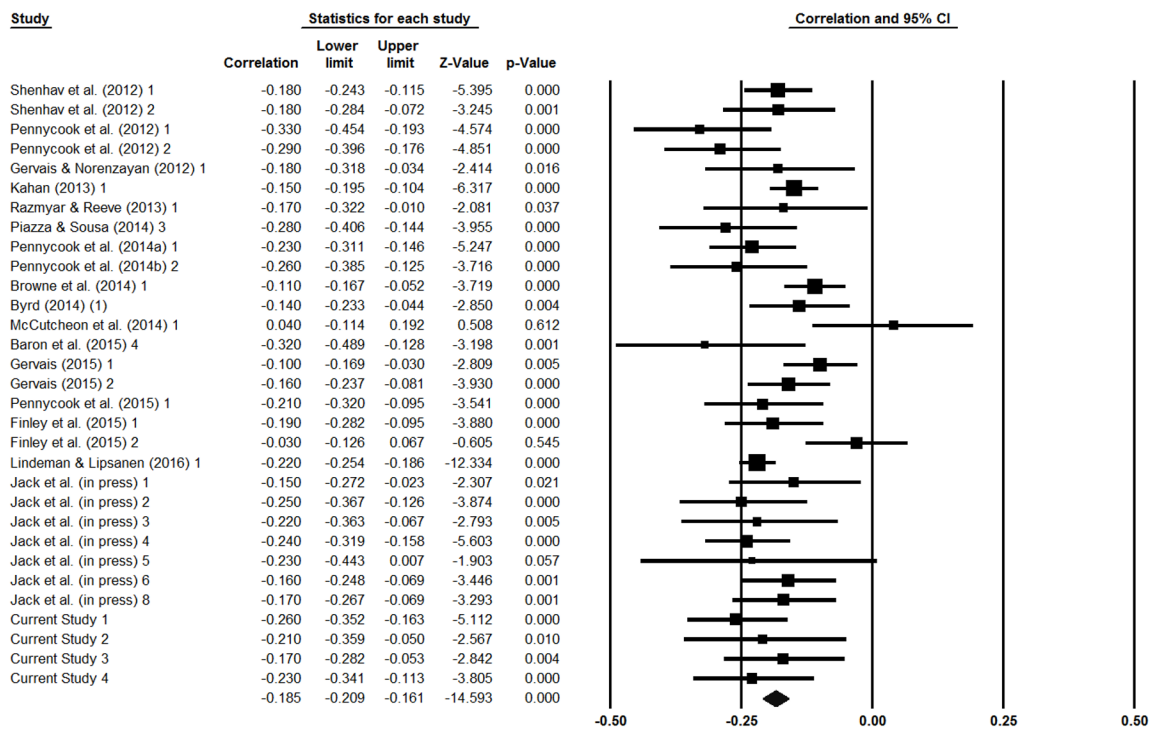
§ Indicates that the religious belief measure was administered before the analytic thinking measure.

† Indicates that the religious belief measure was administered in a separate session as the analytic thinking measure.

Indicates that the correlation was included in the meta-analysis.

Note: This table does not include correlations between religious belief and self-report measures of analytic thinking disposition (e.g., [38]).

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Meta Analysis

Fig 3. Forest plot of random effect meta-analysis showing effect sizes (r) for the association between religious belief scales and performance on the CRT.

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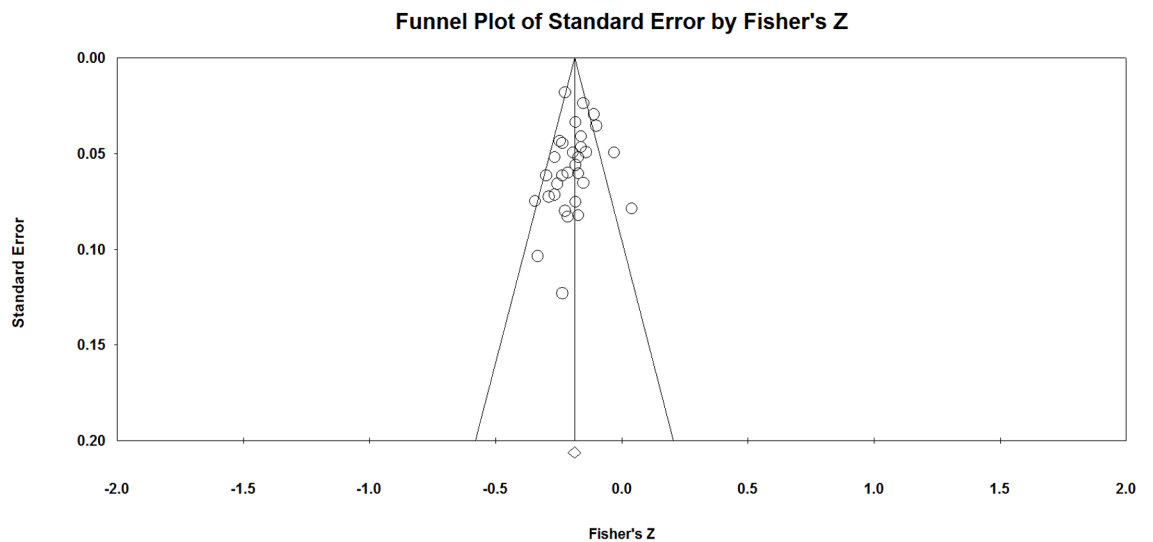


Fig 4. Funnel plot of standard error by Fisher's Z.

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Reference

1. Pennycook G, Ross RM, Koehler DJ, Fugelsang JA (2016) Atheists and Agnostics Are More Reflective than Religious Believers: Four Empirical Studies and a Meta-Analysis. PLoS ONE 11(4): e0153039. <https://doi.org/10.1371/journal.pone.0153039> PMID: 27054566