Does training analytical thinking decrease superstitious beliefs? Relationship between analytical thinking, intrinsic religiosity, and superstitious beliefs

Tosyali & Aktas, 2021 | Presented by Saar*

* Who is not an expert in this field
Daghoroscoop Boogschutter 1 Februari 2022

Je maakt een moeilijke periode door, vooral in de werksfeer. Reageer dit niet af op je partner. Je ergert je partner nog meer als je onverschillig reageert dan als je agressief reageert.

Weekhoroscoop Boogschutter Week 05 2022


Maandhoroscoop Boogschutter Februari 2022

De komende tijd kun je ontdekken waar jij je al die tijd al onbewust tegen verzet. Je wordt je eindelijk bewust van al datgene waar je nog nooit naar hebt durven kijken. Al die dingen waar jij je voor schaamt of die je niet zo leuk vindt van jezelf. Dit is de tijd waarin jij eerlijk durft te zijn. Dat is natuurlijk wel een beetje eng maar ook erg bevrijdend. Wees niet verbaasd, het kan echt heel verrassend zijn. Als je er eindelijk aan toegeeft zal er last van je schouders vallen en al vind je het even eng, het zal in je voordeel uitpakken.
How do analytical thinking and superstitious beliefs relate to religion?

• “One rejects certain quasi-experimental claims if they are not consistent with one’s metaphysical assumptions” (e.g., believing in horoscopes), “despite simultaneously holding beliefs that are equally unverifiable from an empirical point of view” (e.g., believing in a god)

• Superstitions: “irrational belief that an object, action, or circumstance that is not logically related to a course of events influences the outcome” ≠ scientific knowledge

• Type I versus type II processing
Study 1

HYPOTHESES

• Analytical thinking would **negatively** predict superstitions
• Analytical thinking would **negatively** predict intrinsic religiosity
• Intrinsic religiosity would **positively** predict superstitions
• Explore: moderating role religiosity

SAMPLE

• Turkish participants: 196 ($N_{female} = 126$; $M_{age} = 26.63$; $SD_{age} = 9.05$; 88% Muslim, the rest believed in God but no religion)
Study 1

• Analytical thinking style:
  • Cognitive Reflection Task (CRT; Frederick, 2005, 3 problems)
    • “If two nurses take 2 minutes to measure the blood pressure of 2 patients, how many minutes will it take 200 nurses to measure the blood pressure of 200 patients?”
  • Base-Rate Conflict (BRC; Pennycook et al, 2012, 3 problems)
    • “One thousand people participated in a study. Participants included five engineers and 995 lawyers. Mehmet was chosen randomly among the participants of this study. Mehmet is 36 years old. He is not married and is somewhat introverted. He enjoys spending his free time reading science fiction and writing computer programs. Which is more likely? A) Mehmet is a lawyer; B) Mehmet is an engineer.”
Study 1

• Superstitions
  • The Paranormal Belief Scale (PBS; Tobayck, 2004 - subset) & Wiseman and Watt (2004), 6 items; 1-7 scale (definitely (dis)agree)
    • “The number “13” is unlucky”
    • “Do you sometimes carry a lucky charm or object?”

• Intrinsic religiosity
  • Intrinsic Religiosity Scale (Hoge, 1972, 8 items; 1-4 scale (definitely (dis)agree))
    • “My whole approach on life is based on my religion”
Results study 1

• Moderated regression analysis (for H1, H3) with:
  • analytical thinking, intrinsic religiosity and interactors as predictors,
  • demographics as covariates (age, gender, education, political ideology),
  • superstitions as outcome

• Hypothesis 1 (AT - S): confirmed \( (B = -0.100, SE = 0.037, 95\% CI [-0.173, -0.028], p = .007) \)

• Hypothesis 2: (AT – R; two-step HR): confirmed (after controlling for the covariates, AT negatively predicted R, \( B = -0.080, SE = 0.027, 95\% CI [-0.133, -0.026], p = .004 \)).

• Hypothesis 3: (R + S): not confirmed. There was, however, an interaction effect of AT and R on S, “the negative relationship between AT and S more pronounced for participants having low-moderate R”
Conclusion study 1

• “People having more analytical thinking tendencies were less likely to be intrinsically religious and believe superstitions.”

• BUT: correlational designs are unable to have cause-effect explanations, which is the reason for the second, experimental study where they manipulate analytical thinking.
Study 2

METHOD

• Experimental group versus control group
  • Experimental group had to solve the same problems, but could also see a passage explaining the correct solution afterwards → activating analytical thinking style. After that, they had solve very similar but numerically moderated versions of the same problems (manipulation check)
    • People who still answered intuitively were deleted from the sample (N = 21)

PARTICIPANTS

• 41 (experimental) vs. 47 (control) (N_{female} = 65; M_{age} = 27.28, SD_{age} = 8.65, all Muslim)
HYPOTHESES (moderated regressions)

• Participants with AT training will have less superstitions
• Religion will moderate the group effect on having superstitions

• Hypothesis 1: confirmed ($B = -0.46$, $SE = 0.21$, 95% CI [-0.86, -0.05], $p = .03$)

• Hypothesis 2: not confirmed → religiosity did not moderate the relationship between having superstitions and attending analytical thinking training
Important conclusions

• “Intuitive thinkers might tend to adopt nonscientific information easily”

• Should we measure how “intuitive” people are for our own research?

• Is analytical thinking numeracy or is it more broad?
  • Limitation often cited: people who are familiar with cognitive tests + it only measures numeracy