Dopamine and Utilitarian Moral Judgment

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BACKGROUND

Dopamine's Relationship with Moral Judgment

- Dopamine levels in humans are associated with trait aggression, an aversion to inflicting pain on others rather than themselves and intensity of selfishness, motivation, reward, etc. (Crockett et al., 2015).
- Utilitarian moral judgment is when an action depends on the outcome rather than its consistency with moral norms.
- As dopamine levels increase, so does the favoring of more utilitarian choices (Pellegrini et al., 2017).

Religiosity and Moral Judgment

- The priming of religion increased prosocial behavior (Joni et al., 2013).

HYPOTHESES

- **Individuals with high levels of dopamine and/or low levels of religiosity will make the most utilitarian judgments.**

METHODS

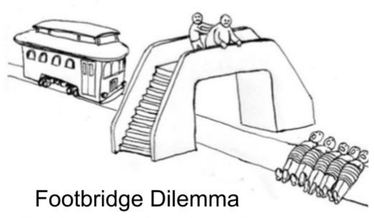
Participants

- N=96 (10 excluded as outliers)

Primary Materials

1. **The Centrality of Religiosity Scale (CRS)**
2. **Utilitarian Moral Judgment Scenarios** Koenigs et al. (2007)
- **Electrooculogram (EOG) using BioPac System**

EXAMPLE MORAL JUDGMENT SCENARIOS

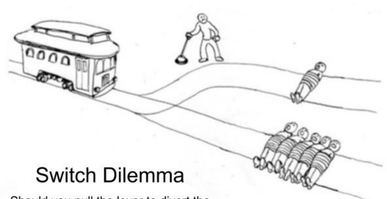


Footbridge Dilemma

Should you push the fat man to stop the runaway trolley before it kills the five people?

Personal High-Conflict

https://images.app.goo.gl/VVb6KhCw53ty9YAd9



Switch Dilemma

Should you pull the lever to divert the runaway trolley onto the side track?

Impersonal

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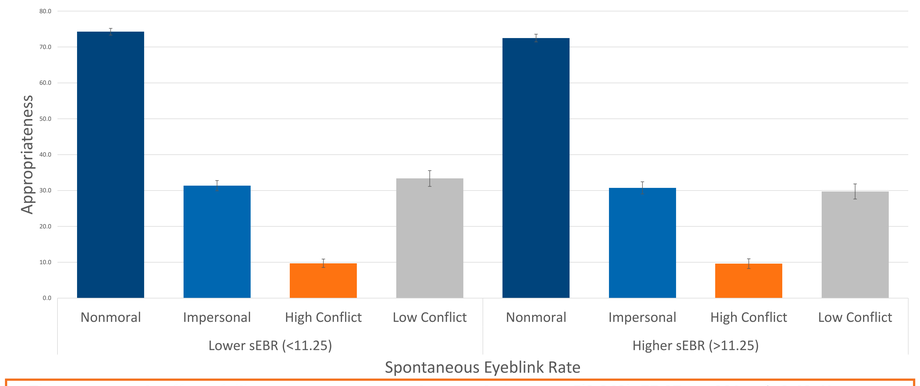
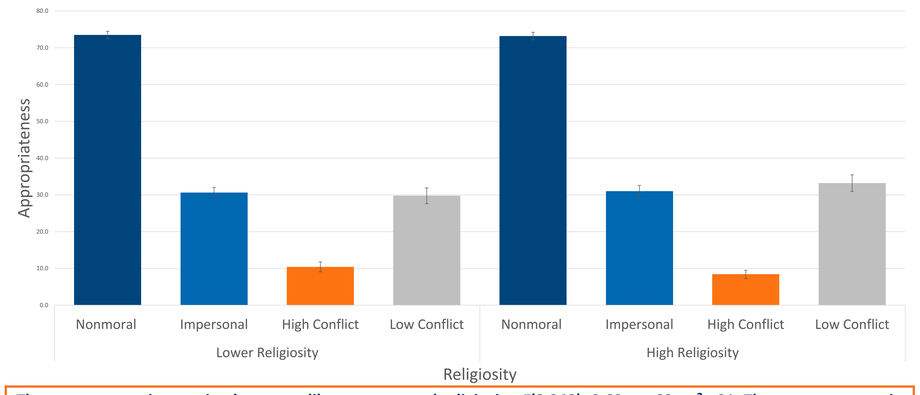
EYEBLINK RATE AND DILEMMA TYPE



There was a main effect of dilemma type on appropriateness judgments, $F(3,243)=77.97$, $p<.001$, $\eta_p^2=0.49$. However, there was not an interaction between dilemma type and spontaneous eyeblink rate, $F(3,243)=0.85$, $p=.43$, $\eta_p^2=0.1$. There was a small, but nonsignificant, effect of spontaneous eyeblink rate on appropriateness judgments, $F(1, 81)=3.82$, $p=.054$, $\eta_p^2=0.05$.

RELIGIOSITY AND DILEMMA TYPE



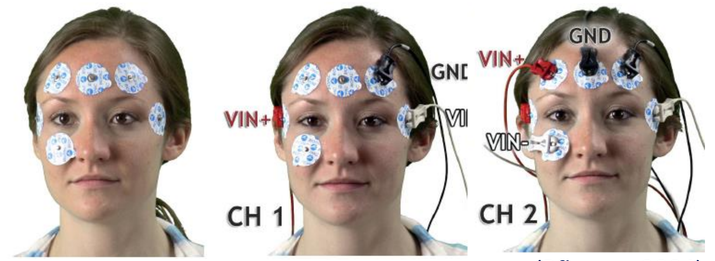
There was not an interaction between dilemma type and religiosity, $F(3,243)=0.62$, $p=.60$, $\eta_p^2=.01$. There was not a main effect of religiosity on appropriateness judgments, $F(1, 81)=0.72$, $p=.40$, $\eta_p^2=0.01$.

CORRELATIONS

	Average sEBR	Nonmoral	Impersonal	Personal Low-Conflict	Personal High-Conflict
Religiosity	0.12	-0.16	-0.08	-0.16	0.01
Average sEBR		-0.19	-0.11	-0.11	-0.17
Nonmoral			0.08	-0.12	-0.13
Impersonal				0.53**	0.59**
Personal Low-Conflict					0.54**

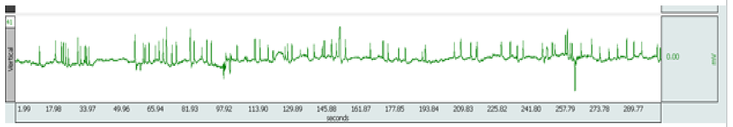
***Correlation is significant at the 0.01 level (2-tailed).*

EXAMPLE EOG ELECTRODE SET UP

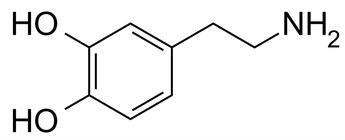


(Pflanzer, 2004)

EXAMPLE EOG RESULTS

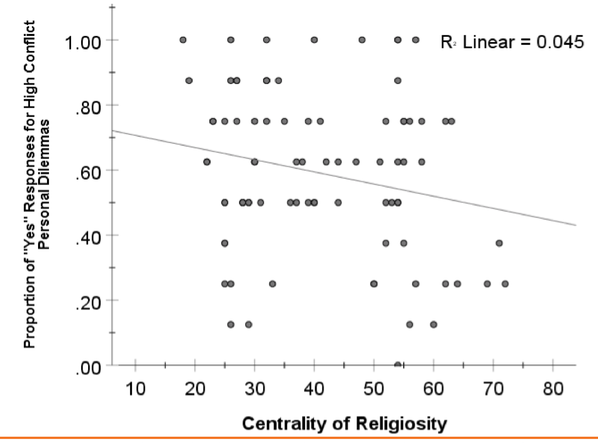


Eyeblinks are indicated by the upward protrusion. Higher spontaneous eyeblink rate indicates greater dopaminergic transmission (Chermahini & Hommel, 2010).



$C_8H_{11}NO_2$

RELIGIOSITY AND UTILITARIAN JUDGMENTS



There was a negative relationship between religiosity and the proportion of yes judgments participants made in the high conflict personal dilemmas, $r(84)=-.21$, $p=.05$. The higher proportion of yes judgments indicates more utilitarian responses.

SIGNIFICANCE

- **Understanding the moral values of a group or society is important for other industry use such as the programming of autonomous vehicles. Different moral values of a society desire a different moral basis of programming.**
- **Understanding the moral values of a society will also help dictate the use of harm reduction interventions.**

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