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To cite this article: Justin Thomas, Ian Grey & Salama Al-Romaithi (2017): Macbeth Arabia: moral threat and cleansing-related construct accessibility in Arab women, Mental Health, Religion & Culture, DOI: 10.1080/13674676.2017.1381675

To link to this article: https://doi.org/10.1080/13674676.2017.1381675

Published online: 16 Nov 2017.

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Macbeth Arabia: moral threat and cleansing-related construct accessibility in Arab women

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\textbf{ABSTRACT}

The “Macbeth effect” denotes a relationship between threatened moral integrity (e.g., guilt) and cleansing-related cognition and behaviours. This idea has received empirical support and may have implications for our understanding obsessive-compulsive disorder (OCD). Most previous explorations of the Macbeth effect, however, have been undertaken in Europe or North America. This study aimed to test the effect among Muslim, Arabic-speaking citizens of the United Arab Emirates. Experimental participants (\(N = 112\)) completed a task designed to threaten moral integrity (recalling past misdeeds), followed by a word-fragment completion task, where cleansing and non-cleansing completions were possible. A control-group (\(N = 95\)) completed only the word-fragment completion task. Participants recalling past misdeeds made significantly more cleansing-related word-fragment completions than their control-group counterparts. This study extends evidence of a Macbeth effect to an Arabic-speaking Muslim population and may have implications for our understanding of OCD within this population.

The association between physical cleanliness and spiritual purity is a common theme across several religious traditions. In Christianity for example, the idea that cleanliness is next to godliness is frequently alluded to in the Bible (Leviticus 17:15-16, The New King James Version). Similarly, within Islam, formal prayer (salah) is not acceptable without being in a state of ritual purity (wudu); a state that involves washing, and is likened to the removal of sins (Bukhari, 1999). Ritual washing, a physical act, is commonly used as a symbolic representation of spiritual purity (baptism, mikvah, wudu) and is often a prerequisite for contact with sacred objects (e.g., the Qur’an) or entering sacred places (Preston & Ritter, 2012).

This connection between physical and spiritual purity has been explained with reference to the emotion of disgust. Physical objects deemed unclean (faecal matter, rotting meat and urine) will typically evoke varying degrees of disgust, and so too will acts that break social or moral norms, for example, committing incest, nose picking and spitting in public (Kelly, 2011). This socio-moral disgust can be viewed as is an evolutionary extension of the primary disgust elicited by bad smells and tastes (Eskine, Kacinik, & Prinz, 2011).
Just as washing might be used to remove or reduce unpleasant tastes and smells, it might also be a means of reducing aversive feelings associated with social or moral transgressions. This latter idea is known as the Macbeth effect, named after Lady Macbeth, a character in a Shakespearian play, who compulsively washes her hands in a vain attempt to reduce the aversive emotions she experiences as a consequence of her role in a regicide. The main thrust of this idea is that immoral acts can become psychologically conflated with physical contaminants, and that physical cleansing can become a proxy for moral purification. This idea is resonant with compulsive behaviours in the context of obsessive compulsive disorder (OCD), which commonly includes excessive washing. Such cleansing-related behaviours have been viewed as a means of alleviating feelings of anxiety associated with particular obsessional thoughts revolving around themes of contamination (Starcevic et al., 2011). Epidemiological data supports the idea of a relationship between contamination-related thoughts and compulsive washing in the context of OCD. For example, compulsions involving washing occur more frequently than other compulsions (e.g., checking and counting) when the content of obsessional thoughts is related to contamination (Sheikmoonesi et al., 2014). This preponderance of washing compulsions in the context of contamination obsessions also extends to children (Rettew et al., 1992).

This idea of a connection between threatened contamination, moral purity and cleansing-related cognition and behaviour is central to several contemporary conceptualisations of OCD. The cognitive account of OCD, for instance, suggests that this psychological complaint is associated a tendency to evaluate thoughts as morally equivalent to actions or as being likely to increase the probability of negative events occurring (e.g., Thinking about hitting a child is just as bad as hitting a child, or thinking about cancer might cause cancer). This cognitive bias has been termed “magical thinking” or, more technically, thought-action fusion, TAF (Shafran & Rachman, 2004). This particular cognitive bias is viewed as increasing the likelihood that an individual will feel a need to control the occurrence of those cognitions (thought suppression), which consequently leads to a rebound-effect and possibly the development of clinically significant obsessions. Interestingly, this tendency to feel morally accountable for one’s thoughts is also correlated with religiosity. Rassin and Koster (2003), for example, reported that increases in self-reported religiosity were moderately correlated with a greater propensity towards viewing thoughts as morally equivalent to actions. In an extension of this work, Inozu et al. (2012) also reported that both highly religious Muslim and Christian participants experienced higher levels of obsessional symptoms than their less religious counterparts. Furthermore, this relationship between religiosity and obsessional symptoms was mediated by TAF, that is, the extent to which individuals felt responsible for their thoughts.

One source of evidence for the connection between threatened contamination, moral purity and cleansing-related cognition and behaviour comes from research exploring automatic or implicit cognition. In a study by Zhong and Liljenquist (2006) the link between threatened moral purity and cleansing-related cognition was explored using an implicit priming methodology. In this study participants were asked to recall either an ethical or unethical deed from their pasts. They were then tasked with completing a number of word fragments; three of which could be completed as cleansing-related concepts (W_ _H, SH _ _ ER, and S_ _ P). The target completions were, correspondingly, Wash, Shower and Soap. These word fragments could also be completed with non-cleansing-related concepts such as Wish, Shaker or Slap. Those participants who had been asked
to recall an unethical act were significantly more likely to make cleansing-related word completions, compared to the control group who had been asked instead to recall an ethical deed (Zhong & Liljenquist, 2006). In short, recalling past misdeeds (threat to moral integrity) made it more likely that target words would be given cleansing-related completions (e.g., more WASH and less WISH). This study lends support to the idea of a cognitive bias in operation, a bias that tends to link threats to moral integrity with cleansing.

There have been numerous successful conceptual replications of the Macbeth effect, for example, one study explored the effects of playing violent video games on subsequent cleansing-related gift selections. Playing violent games, which involved killing humans, was viewed as representing a threat to the moral self. Those participants playing the violent game did subsequently make more cleansing-related gift selections. This effect was particularly pronounced for novice players. One interpretation of this finding is that regular players had habituated to the moral threat, while novice players experience heightened moral distress (Gollwitzer & Melzer, 2012). In another conceptual replication, looking at the association between morality and cleanliness in a slightly different way, Preston and Ritter (2012) examined whether the activation of religious concepts would also increase the accessibility of cleansing-related constructs. Using a word-fragment completion task, similar to that used by Zhong and Liljenquist, they found that participants in the religious prime condition generated more cleansing-related words (e.g., Wash), compared to their unprimed counterparts.

However, despite several conceptual replications, the universality of the Macbeth effect has been called into question. A study, among participants from India, UK and USA, looking at moral threat (recalling past misdeeds) and subsequent cleansing product evaluation and selection (e.g., toothbrush, bar of soap etc.) failed to find evidence of a Macbeth effect (Earp, Everett, Madva, & Hamlin, 2014). This study however, did not focus on the cognitive dimension of the Macbeth effect, that is, the cleansing-related construct accessibility component. Outside of Europe and North America we can find no attempts to further explore the cognitive (cleansing-related construct accessibility) aspects of the Macbeth effect.

Because of its potential implications for understanding OCD it is important to explore this effect in other cultures and language groups (Earp et al., 2014; Fayard, Bassi, Bernstein, & Roberts, 2009; Gámez, Díaz, & Marrero, 2011). The present study aims to extend the exploration of the Macbeth effect to the Arabic language among an Arab, Muslim population. Specifically, the present study explored cleansing-related construct accessibility after encouraging participants to think about and quantify the frequency of previous unethical acts. The present study used an Arabic version of the word-fragment completion task, similar to that employed in Zhong and Liljenquist’s. The present study also asked participants to quantify the frequency of previous unethical acts, to explore if frequency of violation was correlated with cleansing-related completions. It was hypothesised that participants encouraged to reflect on past misdeeds would make more cleansing-related completions than their unprimed counterparts. Also, based on the idea of habituation to moral threat previously reported in the context of violent video games (Gollwitzer & Melzer, 2012), it was hypothesised that there would be a negative relationship between the reported frequency of unethical acts and cleansing-related fragment completions.
Method

Participants

Participants \((N = 207)\) were volunteers recruited from among undergraduate college students at an all female university campus in Abu Dhabi, the United Arab Emirates (UAE). They were responding to in-class announcements requesting participation in a study of language competency. All participants were citizens of the UAE, Muslims and spoke Arabic as their first language; ages ranged from 18 to 38 \((M = 22.12, SD = 2.96)\)

Measures

G-Scale

The Guilt-Scale (G-Scale) was ostensibly designed as a questionnaire, however its primary purpose was to get participants to focus on their previous unethical deeds. Only half the participants received this scale and it acted as an independent/grouping variable (primed versus unprimed). The G-Scale did however also yield a score of how frequently participants engaged in such acts. The G-Scale was presented as a four-item questionnaire, concerned with the frequency of performing unethical acts \((1 = \text{“lying to parents”}, 2 = \text{“cheating on exams”}, 3 = \text{“missing obligatory Islamic prayers”})\). Item number four allowed participants to write in their own unethical act and quantify the frequency of occurrence: Never = 0, Sometimes = 1, Often = 2, Always = 3.

Word-fragment completion task

The fragment completion task was presented as nine Arabic word fragments, one of which had possible cleansing-related completion (presented here in transliterated form). The target fragment Gh _ la, could be completed, for example, Gh za la (Spin) or could yield a cleansing-related completion: Gh sa la (Wash). For the original Arabic presentation see Figure 1.

![Figure 1](image_url)

Figure 1. These are the Arabic word fragments used in the study. The target word, with a possible cleansing-related completion is marked here with an asterisk.
Procedure

The study received prospective ethical approval through the university’s ethics procedures. All data collection was anonymous; participants were not required to give any identifying information. Data collection took place in classrooms at the end of classes and students were encouraged to leave if they had another class. This removed any psychological pressure to participate, giving students an easy and face-saving opt-out. Participants were drawn from six classes (approximately 30 students per class). Three of the classes completed only the word-fragment completion task, while the other three classes completed the G-Scale (reporting previous unethical acts) followed by the word-fragment completion task. All participants were instructed to work individually, and standard written instructions were provided in English and Arabic: “As quickly as possible, fill the blank letter to make an existing Arabic word”. Those participants who completed the G-Scale were also instructed: “Think about your behaviour over the past six months, and answer the following questions as honestly as possible”. All tasks were completed on paper. Upon completing the tasks, participants were debriefed as to the nature of the study. All data were analysed using SPSS version 22.

Results

Participants who reported on past unethical behaviours, those completing the G-Scale, (N = 112) did not differ from the control group (N = 95) in terms of age (M = 22.42, SD = 3.18; M = 21.76, SD = 2.64). The two groups did however differ in terms of the frequency with which they made the cleansing-related fragment completion. As hypothesised, participants who reported past unethical acts made significantly more cleansing-related completions (M = .63, SD = .47) than their control counterparts (M = .37, SD = .48). These differences were statistically significant, t (207) = 3.92, p < .001, d = .54

The G-Scale scores ranged from 1 to 8, with a mean of 4.44 (SD = 1.53). This means that all participants reported at least one unethical act. A bivariate correlation (Pearson’s product moment) with a one-tailed hypothesis, failed to find a significant relationship between the scores on the G-Scale (self-reported frequency of engaging in unethical acts) and the frequency of cleansing-related fragment completion (r [204] = −.04, p > .05).

Discussion

In line with Zhong and Liljenquist (2006), participants in the present study made more cleansing-related fragment completions when encouraged to think about past unethical acts. It is worth noting however, that this effect was unrelated to the frequency of reported past misdeeds. This would suggest that the posited relationship between moral threat and cleansing-related construct accessibility is uninfluenced by the frequency of engagement in unethical acts. This finding diverges from that of Gollwitzer and Melzer (2012), where habituation (repeated experience) was viewed as potentially playing a moderating role in the Macbeth effect. However, real-life transgressions and those committed in violent video games are likely to differ greatly in the amount of moral threat they generate.
This study provides support for the construct accessibility aspect of the Macbeth effect in an Arabic-speaking population. It suggests that thoughts of misdeeds or socio-cultural transgressions increase the construct accessibility of cleansing-related constructs.

The results obtained in the current study may have particular relevance for the cognitive theory of OCD (Shafran & Rachman, 2004). It is proposed that perceived moral equivalency between thoughts and actions (TAF) may predispose an individual to develop clinically significant obsessions as a means to control and/or negate associated aversive emotions. Participants in the current study related two classes of stimuli (unethical acts and cleansing acts) as indicated by results on the word-fragment completion task. This suggests that the automatic response or thought to the presence of cognitions surrounding misdeeds was one of cleansing which may then result in overt behavioural acts of cleansing. Given the prominent role played by negative reinforcement in the generation and maintenance of compulsive behaviours (i.e., behaviours reduce distressing emotions associated with particular cognitions), individuals may quickly learn to engage in acts of distress alleviating cleansing.

The present study used a priming task, which is considered an implicit assessment. Implicit assessment methodologies can represent an attempt to access an individual’s prior learning history. One factor important in shaping that history is religion. A number of studies point to a relationship between religion and the prevalence of OCD symptoms. Collectively, this body of work suggests two themes. Firstly, it appears that Muslims experience higher rates of OCD symptoms in comparison to other religious groups. For example, Jaisoorya et al. (2015) report that in comparison to both Christians and Hindus, Muslim participants reported a higher level of obsessional symptoms. Secondly, whilst greater religiosity does appear to be associated with increasing prevalence of symptoms, it appears this effect is mediated to an extent by the degree of personal responsibility that individuals experience in response to taboo cognitions (Inozu, 2012).

One limitation of the present study is that it was conducted among an all female student population. However, there is no reason to suspect that there should be any significant gender differences for the Macbeth effect as previous studies do not report any gender differences (Gollwitzer & Melzer, 2012; Zhong & Liljenquist, 2006). In respect of future research, several interesting avenues are possible. Firstly, there are existing measures, which provide an index regarding the extent to which an individual may be predisposed towards viewing particular thoughts as morally equivalent to their behavioural counterparts, such as the Thought-Action Fusion Scale (Shafran et al., 1996). The inclusion of such a measure in future studies would help determine whether performance on implicit fragment completion tasks was moderated or mediated by TAF. It might also prove informative to include an explicit measure of religiosity to further explore the relationship between TAF, religiosity, moral threat and cleansing-related cognition. Finally, the Arab world has traditionally been viewed as collectivist culture (Hofstede, 2001) and much previous research has drawn attention to differences in terms of the way moral emotions such as shame and guilt are experienced across cultures (Wong & Tsai, 2007). Future studies might also look more closely at the moral emotion (guilt versus shame) assumed to be elicited by the priming task.

In conclusion, the present study clearly demonstrated the Macbeth effect in an Arabic-speaking Muslim population. Further research on cognitive biases and their relationship with OCD in Muslim populations is required. The present study however, extends the
basic cleansing-related construct accessibility ideas to an Arabic-speaking Muslim population.

**Disclosure statement**

No potential conflict of interest was reported by the authors.

**References**


