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Can I Pay at Purgatory? The Negative Impact of the Purgatory Ethic in Islamic Societies: Theoretical and Empirical Evidence

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Abstract: The psychological and social effects of the doctrine of purgatory (temporary afterlife punishment) have not received sufficient attention from sociologists. Temporary afterlife punishment (TAP) is any kind of ‘temporary’ torment a person believes they will receive after death as a result of one’s sins, before admission into heaven/paradise. Investigating the effects of TAP beliefs can help to understand their social impact on contemporary Islamic societies. Drawing on related research on the Protestant ethic hypothesis, and self-control theory, the present study theorized the negative psychological and social impact of TAP. We argue that the effect of the Predestination doctrine on pro-sociality is best attributed to the Protestant denial of belief in TAP, and that the positive impact of afterlife punishment beliefs on self-control and prosocial behavior decreases with belief in TAP. To test these hypotheses, we first developed the Temporary Afterlife Punishment Expectations (TAPE) scale and examined the relationship between TAPE and self-control, rule-breaking ability, and integrity (as an indicator of prosocial behavior). Data were collected from Muslim youth in two countries (Jordan $N = 605$ and Malaysia $N = 303$). Exploratory and confirmatory factor analyses of the Jordanian data support the construct validity of the TAPE scale. In line with our hypotheses, path analysis results supported the negative effects of TAPE on self-control, rule-breaking ability, and integrity. Replicating the study with the Malaysian sample led to similar results. Future research directions are recommended.

Keywords: afterlife; purgatory; reward; punishment; Islam; self-control; pro-sociality

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1. Introduction

Le Goff (1984) and Ekelund et al. (1992) were mistaken in their claim that Islam does not have its own doctrine of purgatory. Historically, the majority of Sunni and Shiite groups (i.e., majority of Muslims) both acknowledge temporary afterlife punishment (TAP) in Hell as a core doctrine of belief (Hamza 2016). This doctrine states that a Muslim whose evil deeds outweighs his or her good deeds in life might be sent to Hell, where they will remain for a certain period, only to be eventually brought out and admitted into Heaven (Chittick 2008). Despite agreement among Muslim sects on TAP, there is no theological consensus in Islam regarding TAP belief. For example, the historical Mu’tazila sect and two contemporary Islamic sects (i.e., Ibadi-an Islamic minority in Oman, Algeria and some Maghreb countries; and the Zaidiyyah-an Islamic minority in Yemen) reject the idea of TAP. While the details of this dispute are beyond the scope of this research, one can find similarities between the idea of TAP in Islam and purgatory in Christianity. The dispute among the different sects of Islam regarding TAP is similar to the disagreement between Catholics and Protestants about the doctrine of purgatory. The Quran does not explicitly refer to TAP belief. The theological schools that adopted this belief depend mainly on the prophetic hadith literature for their theological support. Opponents of TAP object to the validity of the referenced hadiths or the validity of their interpretation (Hamza 2016).

The current study is based on the proposition that a Muslim who believes in TAP is likely to believe in it as a personal destiny, meaning that he or she may rely on TAP as a way of dealing with the tension caused by the prospect of eternal punishment in the afterlife. The Quran presents human life as a ‘test’ and the afterlife as a ‘test result’ (Shafer 2012). Adopting TAP as a personal destiny frees one from the belief in worldly life as a test. This might occur (intuitively) when, in the face of temptation, one makes a cognitive comparison between the inevitable infinite reward of Heaven that a person will receive for being a Muslim (i.e., belief), with the temporary afterlife punishment for sins committed. Since the value of temporary punishment in Hell devolves to zero when compared with the eternal reward of Heaven, the effect of the punishment on individual behavior dissipates. This personal psychology causes one to be less conscious of their behavior, allowing one to indulge in proscribed behaviors without losing eternal bliss. Adopting TAP as a personal destiny, therefore, mitigates the tension by appropriating it to a future time.

The current study hypothesizes that the doctrine of purgatory is often misunderstood and misinterpreted by believers. We further hypothesize that this misconception may have negative psychological and social effects. Muslim communities may be the ideal subjects to examine the impact of this doctrine due to the high proportion of believers in afterlife punishment and reward. Misunderstanding the doctrine of purgatory may explain the high rates of corruption and the decline of integrity in these societies (Douglas 2007; La Porta et al. 1999; Mensah 2014; North et al. 2013; Paldam 2001). It may also partly explain why Protestants outperform Catholics in prosocial behavior (Saroglou 2013, 2019). This study is divided into two parts; the first part presents theoretical evidence supporting the hypothesis of the negative impact of the belief in TAP, while the second section presents empirical evidence examining our hypotheses.

2. Theoretical Foundations

In the following sections, we present findings from studies on the Protestant ethic hypothesis and self-control theory to provide theoretical support for our hypotheses.

2.1. From Predestination Effect to Purgatory Effect

Studies examining the relationship between Protestant beliefs and economic progress provide support for the existence of a negative effect of TAP belief on prosocial behavior. Most of these studies were based on Max Weber’s Protestant ethic and the spirit of capitalism thesis (Weber 1967). Weber’s original thesis states that Protestant religious beliefs about the afterlife produce high motivation to work hard, save, invest and increase productivity (Weber 1967). In his thesis, Weber focuses on the doctrine of Predestination in guiding the behavior of Calvinists. According to Calvin, God, since time immemorial, has chosen the people of Heaven and the people of Hell. Accordingly, the work of the faithful (which includes their worldly success) serves as a sign (not reason) of their eternal destiny. The current study adopts a modified version of the Weberian thesis, in which we suggest that the rejection of belief in TAP plays a more important role than belief in Predestination.

Studies citing the impact referenced by Weber found it in all Protestant denominations, while most of these denominations, including Calvinist denominations, no longer believe in Predestination as a cornerstone of their faith (Glaeser and Glendon 1998). At the same time, however, they all agree with Calvinism in denying belief in TAP (Griffiths 2008; Wrocawska-Warchala and Warchala 2015). Recent studies suggest that the doctrine of Predestination is a theological doctrine and has never been a popular doctrine (Adair-Totteff 2018). Historical studies indicate that Predestination was one of the first problematic and quick-to-decay religious beliefs among the followers of Calvinism (Slone 2007; Wallace 2004). Furthermore, recent studies found that in relation to (compared to) Augustine’s and even Aquinas’ prior versions of the doctrine of Predestination, Calvin’s doctrine appears as “nothing new under the sun in Christian theology” (Zafirovski 2018).

Certain Weberian texts directly uphold the negative effect of TAP belief. The following text from the “Sociology of Religion” shows that, according to Weber, believing in TAP weakens the effect of afterlife punishment. [Weber \(1965\)](#) writes:

“Intermediate realms of existence, such as those depicted in the teachings of Zoroaster or in the Roman Catholic conception of purgatory, realms encompassing punishments which would only be undergone for limited durations, could weaken the consistency of conceptions of eternal punishment”. (p. 142)

The following citation from Protestant Ethics indicates the existence of only two choices regarding the afterlife: torment or bliss, caused the Calvinists to possess high levels of self-control, unlike Catholics. According to [Weber \(1967\)](#):

“The God of Calvinism demanded of His believers not single good works, but a life of good works combined into a unified system. There was no place for the very human Catholic cycle of sin, repentance, atonement, release, followed by renewed sin. Nor was there any balance of merit for a life as a whole, which could be adjusted by *temporal punishments* or the Churches’ means of grace”. (p. 117)

Therefore, a Calvinist had only two choices: damnation or salvation. However, these two choices were encountered by all followers of Protestant denominations given their denial of the existence of TAP, not as a result of their belief in Predestination. Researchers suggest that the doctrine of TAP motivated hedonistic behaviors among followers of the Catholic community; specifically, when the doctrine evolved into the form of Indulgences ([Ekelund et al. 1992](#); [Le Goff 1984](#)), leading to the perception of “play now and pay later” ([Willis 2008](#)).

In terms of empirical studies, is there evidence of a relationship between belief in TAP and prosocial behavior? [Blum and Dudley \(2001\)](#) attempted to explain the reason for wage increases in European Protestant cities from 1500 to 1750 in comparison to wage declines in Catholic cities over the same period. The researchers developed a new theoretical model based on the idea that the doctrine of Predestination makes repentance more difficult as compared with the Catholic faith (Doctrine of Sacrament of Penance). The researchers suggest that incidence of breach of contract/defection in Protestant areas was lower than in Catholic areas. This was attributed to the fact that the Protestants viewed the cost of breach of contract as very high, i.e., eternal torment in hell. This facilitated the emergence of cooperative networks that contributed to economic development in Protestant cities. The researchers found that the proposed theologically-based model explained the economic data better than most of the known economic models. However, the researchers insist on linking the idea of the difficulty of repentance with the Calvinist doctrine of Predestination, in which other Protestant groups do not believe. We maintain, rather, that it is denial of TAP—a common thread among all Protestant denominations—that makes repentance difficult. Consequently, this (repentance difficulty) led to the restriction of breach of contracts among individuals, leading to an increase in cooperative networks, which in turn resulted in long-term economic improvement.

[Arrunada \(2010\)](#) re-examined the thesis of Weber and highlighted the contradiction in the doctrine of Predestination, which states that believers will be protected by God, and that the good deeds of the faithful do not contribute to such protection. According to Arrunada, even contemporaries of the 16th century found it difficult to be religious, and, at the same time, calling to good deeds makes no contribution to one’s salvation ([Cameron 1991](#) as cited in [Arrunada 2010](#)). Arrunada’s work further makes reference to the possible negative effect of the doctrine of TAP and indulgences. In his study, [Arrunada \(2010\)](#) argued that Protestantism encourages economic growth by motivating social ethic rather than work ethic as proposed by Weber. To test this hypothesis, the author used data collected in 1999 through the International Social Survey Programme (ISSP) with 19,246 researchable observations for both Catholics and Protestants. The analysis showed that Protestants engage in more voluntary work, have less tolerance for tax evasion, less concealment of friends in breach of law, and more trust in strangers as compared to the Catholic sample.

The results of the Arrunada study provide support for the hypothesis of the present study, implying a limited impact of the doctrine of Predestination. It points to a possible role of the adoption of the doctrine of Purgatory in discouraging social ethics, and that the reason for the superiority of Protestants in social ethics is their negation of the doctrine of Purgatory.

Arrunada's study is not the first to conclude that Protestants perform more voluntary work than Catholics. The same conclusion was drawn by several previously conducted studies (Bekkers and Schuyt 2008; Bekkers and Wiepking 2011; Hoge and Yang 1994; Hoge et al. 1998; Zaleski and Zech 1994). Lam's study (2006) show that Protestants are more likely to hold membership in voluntary organizations than Catholics, while Catholic countries overall have lower voluntary organization membership rates than Protestant countries. Surprisingly, this difference increases with increased Catholic religious upbringing. The author proposes to interpret these findings in the name of "the effect of Catholics" instead of "the ethic of Protestants" (Lam 2006). However, the author does not provide an explanation for the concept of the "effect of Catholics" that he proposes. We propose that the findings reflect the impact of TAP on prosocial behavior. The more one believes in the doctrine of purgatory, the less he becomes involved in voluntary work.

In the Islamic context, Sukidi (2006) studied the Muhammadiyah [sic: Muhammadian] Movement in Indonesia as a form of Protestantism in the Islamic renewal/reform movement. The Muhammadiyah is an Indonesian religious movement that originated in the early twentieth century. It succeeded in establishing an economic movement (especially in the batik industry) and improving the conditions of the societies in which it was active. Sukidi listed a number of similar attributes between the Muhammadiyah and the Protestant denomination, such as the importance of returning to sacred scripts to understand religion (2006). Sukidi cited several observations from the writings of the American anthropologist Clifford Geertz, who worked in the activity area of Muhammadiyah, the island of Java, during the 1950s. Geertz concluded that the Muhammadiyah movement was successful in establishing its own brand of capitalism (Geertz 1956, 1963). Sukidi (2006) quoted Ahmed Dahlan, the founder of Muhammadiyah, who stated: "We humans are given as a trust only one life in this world. After you die, will you be saved or be damned?" Sukidi considered Dahlan's text as a reflection of the doctrine of Predestination adopted by the Calvinists. Was the founder of Muhammadiyah—as reflected in the above quote—referencing the doctrine of Predestination or a misinterpretation of TAP doctrine? We suggest that the text, despite its similarity with the Weberian description of Calvinism, denotes a rejection of the TAP doctrine rather than an endorsement of Predestination. According to Sukidi, Ahmad Dahlan was strongly influenced by the ideas of the Egyptian reformer Muhammad Abduh (1849–1905), especially his interpretive commentary of the Holy Quran, called *Tafseer al Manaar* (Rida 1999). In *Tafseer al Manaar*, Abduh adopts a cautious stance regarding belief in TAP, pointing out the seriousness of misinterpreting this doctrine.

In his commentary, Abduh states that the misinterpretation of TAP doctrine has caused many Muslims to believe that they are destined for Paradise/Heaven regardless of whether they lived sinful lives or not. Based on this, it is likely that Dahlan was directly influenced by Abduh's views on TAP and its effect on Muslim behavior. The Quran warns that the former nations (i.e., People of the Book) used TAP beliefs to avoid following certain commands from God (Quran 2: 80, 3: 24). Abduh, in *Al-Manaar* (edited by his disciple Syed Muhammad Rashid Rida 1865–1935) elaborated on the potential negative impact of TAP beliefs, Rida says:

Perhaps the intended meaning of the verse is that they—the Children of Israel—used to believe that if an Israeli is to be punished, the punishment is little, as many Muslims believe today. They say a Muslim sinner may either receive intercession, or be saved by expiation, or be granted pardon and forgiveness from the favor and generosity of Allah. If a Muslim missed all of that, he is to be tortured according to the sin, then exit Hell and enter Heaven... The Quran does not weigh according to a particular religion, but rather attributes salvation from Hell and

achieving Heaven to good deeds, piety, virtuous ethics, faith and abandoning evil deeds, both seen and concealed. The Quran describes faith, signs of believers and their attributes. Forgiveness, in the Quran, is confined to the ones who are not encompassed with sin where their heart and feelings are soaked in that sin, thus satisfying lusts becomes their major passion. Religion has no power over them anymore, and those are the residents of Hell, in which they shall live eternally. This book of wisdom (Quran) condemns the ones who take religion only as a nationality as if being from a particular nation is a way to avoid Hell... They are in illusion, fabricating the words of Allah. (Rida 1999, vol. 3, pp. 23–24)

In addition to the above, the doctrine of Predestination includes the denial of free will. A series of psychological studies found a negative relationship between disbelief in free will and prosocial behavior (Baumeister and Brewer 2012). Baumeister et al. (2010) introduced significant evidence that religion improves social life through calling for and exercising free will. Baumeister et al. (2009) conducted three experiments indicating that disbelief in free will contributes to lower aiding behaviors and increased aggressiveness. The results confirm Vohs and Schooler's (2008) finding that exposing subjects to Predestination concepts encourages deception. A subsequent study by Stillman and Baumeister (2010) concluded that persons who do not believe in free will are less likely to learn moral lessons from their mistakes. This indicates that they are less likely to improve their behavior when they deviate from prescribed religious teachings. Therefore, the results of previous psychological studies support the hypothesis of our study, where it clearly indicates that the negation of free will (an important requirement of the doctrine of Predestination) has a negative impact on social behavior.

Finally, Max Weber (1967) suggested that the psychological mechanism of self-signaling could provide an explanation for the paradox between Calvinist belief in Predestination, on the one hand, and the willingness to be prosocial, on the other hand. Thus, even though one may believe that good deeds have no causal influence on whether one will go to heaven, Protestants may nevertheless perceive these good deeds as a signal that this is the type of behavior one would expect from a person who is saved. In a recent study by Van Elk and colleagues (Van Elk et al. 2017), the researchers used a self-signaling task—measuring the extent to which Calvinist participants acted in a way to obtain positive information about themselves. The findings did not support the theoretical notion that the stronger pro-sociality by Calvinists compared to Catholics may work as a self-signaling function to boost one's self-esteem (i.e., "I am elected or saved"). Contrary to the researchers' hypothesis, the Catholics in the study tended to have a stronger motivation to portray a positive image of themselves than the Protestant subjects.

In sum, the non-engagement of the vast number of Protestant denominations in the doctrine of Predestination, the historical evidence of the decay of this doctrine among Calvinists, and the psychological evidence establishing the link between belief in free will with prosocial behavior, renders attribution of Protestants' prosocial behavior to Predestination doubtful. Rather, the evidence provides support for a negative impact of the doctrine of purgatory on prosocial behavior.

2.2. TAP Effect: Self-Control Theory Perspective

Most religions promote self-control. In Islam, for example, derivatives of the root "*sabr*"—to be patient—are mentioned over a hundred times in the Quran, including dozens of times in the imperative form. The Quran explicitly states that Allah loves those with patience (Quran 3: 146). Some sociologists—theoretically—predicted a positive relationship between religion and self-control as a result of believing in eschatological punishment and reward (Azzi and Ehrenberg 1975). It seems logical that those believing in eschatological punishment for their worldly actions would show greater resistance to temptations (McCullough and Willoughby 2009). Some researchers assert that belief in punishment and reward promotes faith in free will which, in turn, enhances self-control (Baumeister et al. 2010). Studies that considered the relationship between religion and self-control suggest that one

of the mechanisms through which religion promotes self-control is self-monitoring, which is the result of belief in afterlife reward and punishment (McCullough and Willoughby 2009). A number of experimental and longitudinal studies showed a causal positive relationship between religion and self-control (Kim-Spoon et al. 2015; Laurin et al. 2012; Pirutinsky 2014; Rounding et al. 2012). While these studies failed to explain the mechanism by which religion impacts self-control, the authors suggested fear of divine punishment as a possible mechanism.

However, does self-control impact prosocial behavior? De Ridder et al. (2012) conducted a meta-analysis of publications on the impact of self-control on prosocial behavior. The report covered 102 published and unpublished studies conducted in the period between 2004 and 2009, with subjects totaling 32,648. The authors concluded that overall, self-control has a moderate effect on prosocial behavior. In addition, DeWall et al. (2008) found a positive causal relationship between self-control and prosocial behavior. These studies suggest that religion improves prosocial behavior by improving self-control, and that afterlife beliefs may be the most important factor in this relationship.

Studies support the role of afterlife beliefs in promoting prosocial behavior (Johnson 2005). However, these studies show that the impact of afterlife beliefs varies based on belief details as well as God's ability to know (Atkinson and Bourrat 2011; McNamara et al. 2015; Purzycki et al. 2016). The current study suggests that belief in TAP may weaken prosocial behavior by weakening self-control. A person who believes in TAP while being confronted with the temptation to commit wrongdoing may decide to pay the cost of the salvation in the afterlife (purgatory), especially since the decision will not affect his eternal bliss (eventually entering heaven).

Some studies provide support for this hypothesis, for example, in a study on the context of physiological neuroscience, Good et al. (2015) noted that influencing 123 university students (Mormon) with the idea of a loving God reduced their sensitivity to error (tendency to taking alcohol). The researchers measured nerve signals in the brain regions that become active in the event of cognitive conflict (anterior cingulate cortex ACC). They found that these brain regions are less active in the group exposed to the idea of a loving God (Good et al. 2015). This study suggests that the concept of supernatural reward and punishment has a direct impact on self-control mechanisms by affecting the anterior cingulate cortex that is associated with performance monitoring and affective responses to errors. Shariff and Rhemtulla (2012) found a positive relationship between belief in heaven and level of crime. Shariff and Norenzayan (2011) found that those who conceived of God as forgiving were more likely to commit cheating.

Surprisingly, some studies found that even criminals (who usually have low self-control) use a distorted version of afterlife beliefs (type of purgatory) to help them justify their criminal activities. Topalli et al. (2012) studied the religious beliefs of dangerous street criminals. The researchers interviewed 48 criminals and found that distorted eschatological reward and punishment beliefs helped the criminals to deal with their fear of death related to carrying out criminal activities. When the researchers told a criminal accused of murder (33 years) that the punishment for deliberate killing is infinite hell, he replied as follows:

"No, no, no, I do not think this is true. I mean, anything can be forgiven. We live in hell now, and you can do anything [murder] in hell. When this is all over ... we go there [to heaven] and the devil comes here. Only the devil lives in hell forever. God forgives everyone, even if they do not believe in him". (p. 59)

To help better understand this issue, we posed the question, is there a difference in self-control between Catholics (belief in TAP) and Protestants (do not believe in TAP)? Weber stated that: "Self-control-usually accompanied by alertness, equableness, and serenity-was found among Confucians, Puritans, Buddhists and other types of monks, Arab sheiks, and Roman senators, as well as among Jews. However, the basis and significance of self-control were different in each case" (Weber 1965, p. 255). In line with Weber's statement, two recent experiments were conducted to measure the transgression of social norms among Protestants and Catholics. The results suggest that behavior regulation (self-control) is

grounded in an internal source of control for Protestants, and in an external source of control (monitoring by an external authority) for Catholics (Quiamzade et al. 2017).

Paglieri et al. (2013) looked into the impact of religious beliefs on self-control (delay of gratification). The study was conducted on university students, who were classified into four groups: Calvinist Dutch, Catholic Italian, atheist Italian and atheist Dutch. Level of self-control was measured through a temporal discounting method. Subjects could select between immediate small or deferred large financial awards. Researchers assumed that Predestination, which is adopted by the Calvinist Dutch, would make them the most patient among the four groups, as their beliefs would make them more cautious about punishment. Meanwhile, the researchers hypothesized that the guilt-confession-forgiveness beliefs adopted by the Catholic Italians would make them the least patient, given that their faith allows adherents an “escape” from punishment. The findings confirmed the assumptions made by the researchers. Dutch Calvinists were more willing to wait for monetary prizes than both Italian Catholics and Dutch atheists. Astonishingly, Italian Catholics were less tolerant of delay than the Italian atheists. We suggest that these findings can be interpreted from the perspective of the TAP hypothesis. It further indicates that limiting options between damnation and salvation increases the effectiveness of afterlife punishment on self-control in the face of temptation, which results in more prosocial behavior.

Falk et al. (2018) studied the global variation in patience (How willing are you to give up something that is beneficial for you today in order to benefit more from that in the future?) using an experimentally validated survey data set of 80,000 people from 76 countries. The study found that patience is positively correlated with pro-sociality and is strongly correlated with Protestantism. Middle Eastern and North African populations have in common relatively low levels of patience.

In summary, research findings show that religion impacts self-control and that the nature of afterlife beliefs determines the how and power of this impact. These studies provide support for our hypothesis that belief in TAP may weaken self-control and, subsequently, prosocial behavior.

2.3. The Current Study

In light of the results of previous studies, the current study assumes that TAP has a negative impact on self-control and prosocial behavior. Although this belief increases the expectation of being punished in the afterlife, it weakens the effect of this punishment and increases confidence in obtaining the reward in the Hereafter despite wrong behaviors, leading to reduced self-control and positive social behavior. We first developed a scale to measure individuals' Temporary Afterlife Punishment Expectations (TAPE) and examined its psychometric properties. We then examined its relationship with afterlife punishment expectation, self-control, rule-breaking ability, and integrity as indicators of pro-sociality. We predicted that:

1. TAPE is positively associated with afterlife punishment expectation, because most of the Muslims' fears about eschatological punishment are related to this type of punishment.
2. TAPE is negatively associated with self-control.
3. Self-control is negatively associated with rule-breaking ability.
4. Self-control is positively associated with integrity.
5. TAPE is negatively associated with integrity, directly and indirectly through self-control.
6. TAPE is positively associated with rule-breaking ability, directly and indirectly through self-control.

The second part of this study examined these hypotheses empirically. We tested the previous hypotheses with two samples, one from Jordan and the other from Malaysia. Figure 1 summarizes the hypotheses that the study examined.

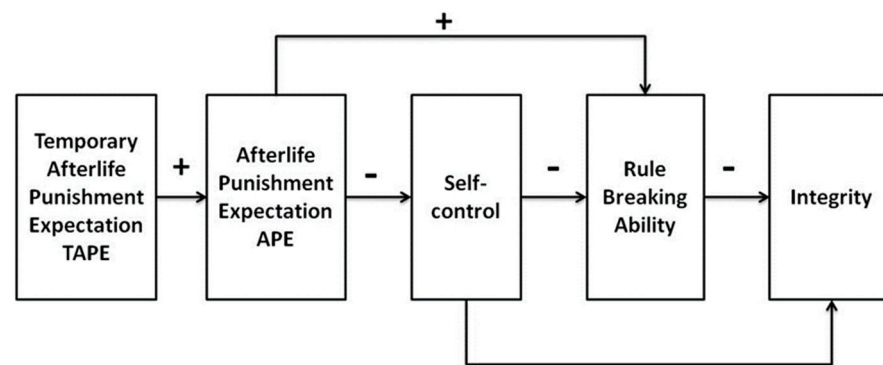


Figure 1. Hypothesized Model of TAPE Effect.

3. Results

This section presents the findings of the study. The materials and methodology used in data collection and analysis are described in Section 5.

3.1. Study 1: TAPE among Jordanian Muslim Youth

3.1.1. Exploratory Factor Analysis

EFA was conducted using the principal component analysis (PCA) method. Items correlated at least 0.20 with other items, suggesting reasonable factorability. The diagonals of the anti-image correlation matrix were all over 0.5, supporting the inclusion of each item in the factor analysis. The communalities were all above 0.3. Visual inspection of the scree plot indicated one to two factors. One component had an eigenvalue over the criterion of one (eigenvalue = 2.03) and explained 50.7% of the variance. Each of the 4 items loaded high on a single component, ranging from 0.55 to 0.84 (Table 1). Further, the Kaiser–Mayer–Olkin test verified the sampling adequacy for the analysis (KMO = 0.67); and Bartlett’s test of sphericity indicated that the correlations between items were sufficiently large for PCA ($\chi^2(6) = 200.01$; $p < 0.001$) (Table 1).

Table 1. Principal component analysis: Temporary Afterlife Punishment Expectation Scale ($N = 302$).

Item	Component Loading
1. Frankly, I am sure I’ll enter Hell then I will get out of it and be admitted to Paradise	0.55
2. I will enter Hell then I will get out of it and be admitted to Paradise	0.84
3. I am sure that my sins outweigh my good deeds	0.69
4. My punishment period in Hell is short in comparison to the everlasting bliss I will have in Paradise	0.72
The Factor explained 50.74% of the total variation of the items in the factor eigenvalues = 2.03; KMO = 0.669; Bartlett’s test = 200.012; $p < 0.000$.	

3.1.2. Confirmatory Factor Analysis

CFA was conducted on sample 2 ($N = 303$). Factorial validity was tested using maximum likelihood estimation. The model showed excellent fit to the data, $\chi^2 = 1.006$ ($df = 2$, $p = 0.605$); CMIN/DF = 0.50, GFI = 0.99; AGFI = 0.99, CFI = 1.00, TLI = 1.02, NFI = 0.99; RMSEA = 0.00 (90% CI: 0.00–0.09), PCLOSE = 0.78. There was no modification indices needed to improve the model. The standardized regression coefficients were significant and ranged from 0.43 to 0.70 (Figure 2).

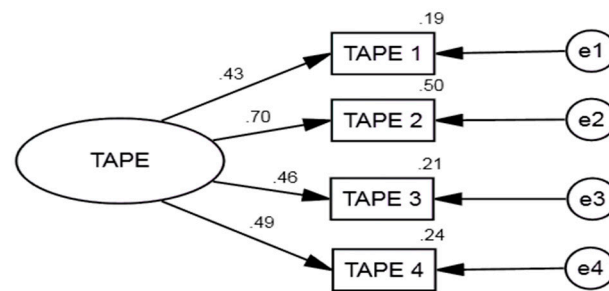


Figure 2. CFA Model of TAPE (Study 1).

The Cronbach alpha for TAPE was 0.63, indicating accepted reliability for a small scale. Hill (2013) suggested above the minimal 0.60 for religion scales. Visual inspection and values of skewness (0.042) and kurtosis (−0.25) indicated TAPE was normally distributed ($M = 2.80$) and ($SD = 0.81$) (Table 2). The results indicated that there was no significant difference in TAPE between males and females, $t(603) = 1.33$, $p = 0.18$. There was no significant correlation between TAPE and IR, $r = -0.068$, $n = 605$, $p = 0.093$, ORA, $r = -0.066$, $n = 605$, $p = 0.102$, and there is small negative significant correlation with NORA, $r = -0.100$, $n = 605$, $p = 0.014$.

Table 2. Descriptive Statistics and Reliability of Scales ($N = 605$).

Variable	Items No.	Rang	<i>M</i>	<i>SD</i>	Skew.	Kurt.	α	ω	glb
Integrity	18	1–5	3.64	0.45	−0.06	0.21	0.70	0.69	0.80
TAPE	4	1–5	2.80	0.81	0.04	−0.25	0.63	0.65	0.70
APE	6	1–5	2.23	0.76	0.54	0.17	0.81	0.81	0.82
Self-control	3	1–5	3.16	0.85	−0.06	−0.60	0.51	0.53	0.54
RBA	3	1–5	2.43	0.90	0.19	−0.32	0.68	0.68	0.67
IR	3	1–5	4.31	0.75	−1.73	3.77	0.79	0.81	0.81
ORA	1	1–6	3.54	1.61	0.05	−1.08	-	-	-
NORA	1	1–6	3.72	1.71	−0.17	−1.36	-	-	-

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability; IR = intrinsic religiosity; ORA = organizational religious activity; NORA = non-organizational religious activity.

3.1.3. Path Analysis

Results of correlation analyses showed that all the correlations between independent and dependent variables are significant and in the predicted direction (Table 3). Religiosity (IR and NORA) was significantly and positively related to integrity. Accordingly, religiosity (IR, NORA, and ORA) was controlled in the path analysis model we tested.

The path analysis model showed good fit to the data $\chi^2 = 9.362$ ($df = 4$, $p = 0.053$); CMIN/DF = 2.34, GFI = 0.99; AGFI = 0.96, CFI = 0.99; TLI = 0.93; NFI = 0.98, RMSEA = 0.04 (90% CI: 0.00–0.08), PCLOSE = 0.48. Modification (TAPE → RBA) was suggested by modification indices to improve the model. After modification the path analysis model showed optimal fit to the data $\chi^2 = 2.873$ ($df = 3$, $p = 0.412$); CMIN/DF = 0.958, GFI = 0.99; AGFI = 0.98, CFI = 1.00; TLI = 1.00; NFI = 0.99, RMSEA = 0.00 (90% CI: 0.00–0.06), PCLOSE = 0.83. The model explained 27% of APE variance $R^2 = 95\%$ BC CI [0.202; 0.328], $p = 0.001$, 03% of self-control variance $R^2 = 95\%$ BC CI [0.007; 0.056], $p = 0.005$, 15% of RBA variance $R^2 = 95\%$ BC CI [0.094; 0.198], $p = 0.003$, and 11% of integrity variance $R^2 = 95\%$ BC CI [0.063; 0.155], $p = 0.003$.

Table 3. Pearson correlation coefficients ($N = 605$).

	Variable	1	2	3	4	5	6	7
1	TAPE							
2	APE	0.47 **						
3	Integrity	−0.08 *	−0.12 *					
4	RBA	0.19 **	0.20 **	−0.27 **				
5	Self-control	−0.08 *	−0.08 *	0.14 **	−0.30 **			
6	IR	−0.06	−0.18 **	0.15 **	−0.15 **	0.11 **		
7	ORA	−0.06	−0.06	−0.02	−0.10 **	0.05	0.21 **	
8	NORA	−0.10 *	−0.21 **	0.18 **	−0.19 **	0.15 **	0.38 **	0.33 **

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability; IR = intrinsic religiosity; ORA = organizational religious activity; NORA = non-organizational religious activity. * Correlation is significant at the 0.05 level (two tailed). ** Correlation is significant at the 0.01 level (two tailed).

All the standardized path coefficients shown in Table 4 were significant except: APE → self-control, and self-control → Integrity. Table 5 shows there is significant indirect effect between self-control and Integrity. This indicates that the effect of self-control in Integrity was totally mediated through RBA. There is significant indirect effect between TAPE, APE and Integrity totally mediated through RBA.

Table 4. Standardized Direct Effects ($N = 605$).

Direct Effects	β	95% BC CI *		p
		Lower	Upper	
TAPE → APE	0.460	0.391	0.529	0.000
APE → Self-control	−0.049	−0.137	0.033	0.254
Self-control → RBA	−0.266	−0.340	−0.187	0.000
APE → RBA	0.099	0.008	0.186	0.035
TAPE → RBA	0.109	0.022	0.204	0.020
RBA → Integrity	−0.226	−0.313	−0.139	0.000
Self-control → Integrity	0.052	−0.031	0.129	0.211

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability. * Bias-corrected confidence interval.

Table 5. Standardized Indirect Effects ($N = 605$).

Indirect Effects	Estimate	SE	95% BC CI *	p Value
TAPE → RBA → Integrity	−0.037	0.012	[−0.066; −0.018]	0.000
APE → RBA → Integrity	−0.028	0.013	[−0.057; −0.006]	0.015
Self-control → RBA → Integrity	0.060	0.014	[0.035; 0.092]	0.000

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability. * Bias-corrected confidence interval.

3.1.4. Study 1 Conclusions

Factor analysis indicates that the new scale has good validity and reliability. Pearson correlation analysis indicates a strong relationship between TAPE and APE, and a moderate to weak relationship between TAPE with integrity, self-control, and rule-breaking ability. APE has a similar effect to that of TAPE. The path analysis model showed a strong fit of the data. It also showed a direct effect of both TAPE and APE on rule-breaking ability and an indirect effect on integrity through rule-breaking ability. The lack of an effect of TAPE and

APE on self-control may be due to the poor reliability of the self-control scale. This was avoided in the second study.

3.2. Study 2: TAPE among Malaysian Muslim Youth

3.2.1. Confirmatory Factor Analysis

Factorial validity was tested using maximum likelihood estimation. First, we examined the Jordanian model. The model showed excellent fit to the data (Table 6). However, the standardized regression coefficient for item 4 was small 0.19. We removed item 4 and replaced it with two items accordingly: item 4 “Before entering heaven, I will enter Hell”, and Item 5 “I will spend some time in Hell before entering Paradise”. The model showed acceptable fit to the data (Table 6). Standardized regression coefficients were significant and ranged from 0.47 to 0.91. Finally, we removed item 1 because modification indices suggested correlating error terms ($e1 \leftrightarrow e2$: 0.31). The model showed optimal fit to the data (Table 6).

Table 6. Goodness-of-Fit Indices for Temporary Afterlife Punishment Expectation (TAPE) in Study 2 ($N = 303$).

Model	χ^2	df	p	CMIN/DF	GFI	AGFI	CFI	TLI	NFI	RMSEA	PCLOSE
1	3.16	2	0.206	1.58	0.99	0.97	0.99	0.97	0.97	0.04 [0.00–0.13] *	0.42
2	33.44	5	0.000	6.68	0.95	0.87	0.95	0.91	0.95	0.13 [0.09–0.18]	0.001
3	2.05	2	0.357	1.02	0.99	0.98	1.00	1.00	0.99	0.01 [0.00–0.11]	0.58

Note. χ^2 = Chi Square, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, CFI = comparative fit index, TLI = Tucker–Lewis Index, NFI = normal fit index, and RMSEA = root-mean-square error of approximation. * 90% CI.

Regression coefficients were significant and ranged from 0.53 to 0.92 (Figure 3). The Cronbach alpha for TAPE was 0.83, indicating very good reliability for a small scale. Visual inspection and values of skewness (−0.15) and kurtosis (−0.38) indicated TAPE was normally distributed (Table 7). The results indicated that there was no significant difference in TAPE between males and females, $t(301) = -0.511$, $p = 0.60$. There was no significant correlation between TAPE and IR, $r = 0.022$, $p = 0.704$, ORA, $r = -0.040$, $p = 0.493$, and NORA, $r = -0.056$, $p = 0.328$.

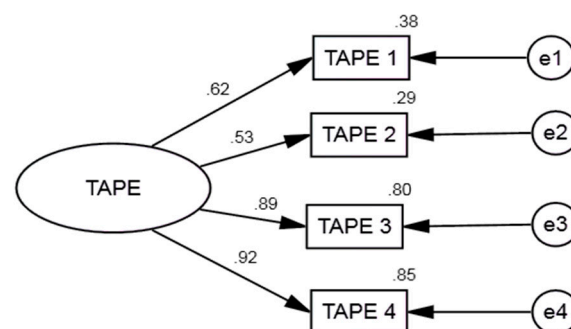


Figure 3. CFA Model of TAPE (Study 2).

Table 7. Descriptive Statistics and Reliability of Scales ($N = 303$).

Variable	Items No.	Rang	M	SD	Skew.	Kurt.	α	ω	glb
Integrity	18	1–5	3.45	0.37	0.56	2.63	0.53	0.51	0.73
TAPE	4	1–5	3.46	0.83	−0.15	−0.38	0.83	0.85	0.89
APE	6	1–5	2.97	0.86	0.16	−0.15	0.84	0.84	0.84
Self-control	24	1–5	3.29	0.40	0.06	−0.22	0.78	0.78	0.89
RBA	5	1–5	2.06	0.74	0.40	−0.31	0.84	0.84	0.90
IR	3	1–5	4.39	0.59	−0.85	0.20	0.76	-	-
ORA	1	1–6	3.83	1.14	0.34	−0.39	-	-	-
NORA	1	1–6	4.62	1.45	−1.06	0.15	-	-	-

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability; IR = intrinsic religiosity; ORA = organizational religious activity; NORA = non-organizational religious activity.

3.2.2. Path Analysis

Results of correlation analyses showed that all the correlations between independent and dependent variables are significant and in the predicted direction (Table 8). Religiosity (IR, ORA, and NORA) was significantly and positively related to integrity (Table 8). Accordingly, religiosity was controlled in the path analysis model we tested.

Table 8. Pearson correlation coefficients ($N = 303$).

Variable	1	2	3	4	5	6	7
1 TAPE							
2 APE	0.61 **						
3 Integrity	−0.01	−0.05					
4 RBA	0.01	0.15 **	−0.23 **				
5 Self-control	−0.12 *	−0.19 **	0.25 **	−0.29 **			
6 IR	0.02	−0.04	0.23 **	−0.35 **	0.20 **		
7 ORA	−0.04	−0.09	0.17 **	−0.04	0.15 **	0.06	
8 NORA	−0.05	−0.14 *	0.24 **	−0.16	0.08	0.17 **	0.26 **

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability; IR = intrinsic religiosity; ORA = organizational religious activity; NORA = non-organizational religious activity. * Correlation is significant at the 0.05 level (two tailed). ** Correlation is significant at the 0.01 level (two tailed).

The path analysis model showed optimal fit to the data $\chi^2 = 2.851$ ($df = 4$, $p = 0.583$); CMIN/DF = 0.71, GFI = 0.99; AGFI = 0.97, CFI = 1.00; TLI = 1.02; NFI = 0.99, RMSEA = 0.00 (90% CI: 0.00–0.07), PCLOSE = 0.83. There were no modification indices needed to improve the model. The model explained 39% of APE variance $R^2 = 95\%$ BC CI [0.229; 0.483], $p = 0.001$, 0.09% of self-control variance $R^2 = 95\%$ BC CI [0.028; 0.157], $p = 0.003$, 19% of RBA variance $R^2 = 95\%$ BC CI [0.114; 0.266], $p = 0.004$, and 15% of integrity variance $R^2 = 95\%$ BC CI [0.074; 0.224], $p = 0.005$.

All the standardized path coefficients shown in Table 9 were significant except: APE → RBA, and RBA → Integrity. Table 10 shows there was a significant indirect effect between APE and RBA. This indicates that the effect of APE in RBA was fully mediated through self-control. There was a significant indirect effect between TAPE, APE and Integrity mediated through self-control.

Table 9. Standardized Direct Effects ($N = 303$).

Direct Effects	β	95% BC CI *		p
		Lower	Upper	
TAPE \rightarrow APE	0.613	0.521	0.685	0.001
APE \rightarrow Self-control	−0.175	−0.287	−0.055	0.003
Self-control \rightarrow RBA	−0.222	−0.327	−0.122	0.000
APE \rightarrow RBA	0.085	−0.027	0.198	0.131
RBA \rightarrow Integrity	−0.111	−0.227	0.014	0.080
Self-control \rightarrow Integrity	0.171	0.031	0.299	0.017

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability. * Bias-corrected confidence interval.

Table 10. Standardized Indirect Effects ($N = 303$).

Indirect Effects	Estimate	SE	95% BC CI *	p Value
TAPE \rightarrow APE \rightarrow Self-control	−0.107	0.037	[−0.181; −0.036]	0.003
TAPE \rightarrow APE \rightarrow Self-control \rightarrow RBA	0.076	0.035	[0.009; 0.147]	0.028
TAPE \rightarrow APE \rightarrow Self-control \rightarrow Integrity	−0.027	0.011	[−0.055; −0.010]	0.000
APE \rightarrow Self-control \rightarrow RBA	0.039	0.016	[0.013; 0.078]	0.001
APE \rightarrow Self-control \rightarrow Integrity	−0.044	0.017	[−0.086; −0.016]	0.001
Self-control \rightarrow RBA \rightarrow Integrity	0.025	0.016	[0.000; 0.062]	0.050

Note. TAPE = Temporary Afterlife Punishment Expectation; APE = Afterlife Punishment Expectation; RBA = rule-breaking ability. * Bias-corrected confidence interval.

3.2.3. Study 2 Conclusions

Factor analysis indicates that the new scale has good validity and reliability. Pearson correlation analysis indicates a positive relationship between TAPE and APE, and a negative relationship between TAPE with self-control, APE has negative effect on self-control and rule-breaking ability. The path analysis model showed a high fitting of the data and direct positive effect of TAPE on APE. It also showed a direct negative effect of APE on self-control. TAPE had indirect negative effect on self-control, rule-breaking ability and integrity.

4. General Discussion and Directions for Future Research

The aim of this study was to understand the psychological and social impact of TAP belief. Because few previous studies have addressed TAP beliefs directly, especially in the context of Islam and Muslims, the study initially provided a theoretical foundation to help understand the impact of this belief. Through our review of the research literature in regard to two theories—Protestant ethics, and self-control—we hypothesized a negative association between TAP and positive social behavior through attenuated self-control, which increases individuals' susceptibility to rule-breaking behaviors. We tested this by first developing a scale to measure TAP belief. The results showed that the scale has good validity and reliability in two country contexts. Mediation test results were consistent with the theoretical hypotheses about the negative impact of TAP belief. TAPE negatively predicted self-control and integrity and positively predicted rule-breaking ability. Results of Path analysis indicate that TAPE decreasing integrity and increasing rule-breaking ability through decreasing self-control. This is the first known study to empirically examine the effect of TAP belief on social behavior among Muslims.

The importance of the results of this study comes from the fact that Islamic societies are considered to be among the strongest in their beliefs in the afterlife, heaven and hell. For example, the percentage of believers in Hell in Egypt, the largest Arab country in terms of population, reaches 99.5 percent, while it reaches 96.8 in Jordan and 87.7 in Malaysia

(Haerpfer et al. 2020). At the same time, these societies suffer from low levels of integrity and high levels of corruption (Douglas 2007; La Porta et al. 1999; Mensah 2014; North et al. 2013; Paldam 2001), as well as low levels of self-control (Falk et al. 2018). Misunderstanding the doctrine of purgatory may partially explain the high rates of corruption and the decline of self-control and integrity in these societies. More research is needed to address these propositions.

The results suggest a new understanding of Weber's thesis on Protestant ethics. The findings are consistent with studies that indicate that the superiority of Protestants in social ethics is due to theological reasons about afterlife beliefs (Arruñada and Krapf 2019; Arrunada 2010; Blum and Dudley 2001). The findings also support past studies showing that the ability of religion to stimulate cooperative behavior depends on the type of punishment that God imposes (Atkinson and Bourrat 2011; McNamara et al. 2015; Purzycki et al. 2016). In addition, the results support the few studies that found that some afterlife beliefs may reduce self-control (Good et al. 2015; Paglieri et al. 2013; Quiamzade et al. 2017) and increase negative social behavior (Shariff and Norenzayan 2011; Shariff and Rhemtulla 2012; Topalli et al. 2012). It would be useful for future studies to focus on the potential for misunderstanding of some religious doctrines and their effects, for example, the Catholic doctrine of confession. Misunderstanding of forgiveness through confession may play a role in attenuating the effect of belief in afterlife punishment, however, this has yet to be examined empirically. While no known studies have directly examined the effects of confession, a study indicated that reading or writing about a forgiving God increases theft and cheating (DeBono et al. 2017). In Islam, the concept of confession is not found in official theology. The Qur'an itself warns of the danger of committing sins based on the idea of forgiveness (Quran 7: 169).

The doctrine of TAP in its various forms requires a broader study within both the Abrahamic and non-Abrahamic religious traditions. For example, some Christian Orthodox groups reject the doctrine of purgatory but believe in the existence of an intermediate realm between death and the afterlife (Bathrellos 2014). In Islam, Muslims believe that there are two intermediate realms, one between death and Judgment Day, and another after Judgment Day (Chittick 2008). Future studies should empirically examine the relationship between the doctrine of TAP and social behavior. There is a need for qualitative studies for a deeper and more nuanced understanding of how believers interpret or understand the TAP doctrine. There is also a need to design and develop a valid scale for measuring this doctrine. Experimental studies that follow the priming technique may be promising in this context; where it is possible to test the effect of this belief through priming the doctrine of TAP and its opposite and comparing the outcome with a controlled sample.

Although the design of our study does not enable us to infer a causal relationship between the variables, we have noticed that the model gives us similar results when the direction of the relationships is reversed. This may refer that people who have low level of integrity, self-control, and greater tendency to break the law find in this belief justification for their actions. It should be noted that most of the reform movements—whether in Christianity or Islam—adopted a position opposed to the purgatory doctrine. In Christianity, pre-Reformation thinkers as Peter Waldo (1140–1205), John Wycliffe (1320–1384), and Jan Hus (1369–1415), and Reformation thinkers as John Calvin (1509–1564), Huldrych Zwingli (1484–1531), and Martin Luther (1483–1546) rejected the purgatory doctrine. In Islam also, Zaidiyyah, Ibadhi and Mu'tazila rejected the concept of purgatory. Future studies may shed light on this phenomenon.

How and when the misunderstanding of temporary afterlife punishment belief appears is a topic that needs further study. One of the obstacles that hinders a deeper understanding of this phenomenon is the lack of empirical studies that examine how Muslims perceive afterlife beliefs (Al-Issa et al. 2021a). A recent study by Al-Issa and his colleagues (Al-Issa et al. 2021b) suggests that this misunderstanding may arise as a result of cognitive bias, as researchers have found that some Muslims believe that it is imperative that one enters Hell to be cleansed of her/his sins before entering Paradise, even if their

good deeds outweigh their bad ones. This belief contradicts the official theological doctrine of all orthodox Islamic theological sects. The answer to this question also requires a study of how the concepts of the afterlife are presented in school curricula, given that most Islamic countries offer religious education in their schools. It also requires information about the changes that have occurred in religious education with the emergence of the modern state and modern educational institutions.

In conclusion, this study provides preliminary evidence that there is a negative impact of the doctrine of TAP on the social behavior of individuals and societies that adopt it. It seems that the doctrine of TAP is easy to be misunderstood by its adherents. Investigating the existence of this misunderstanding and its negative impact will sensitize decision-makers in religious, educational and media institutions to avoid these negative effects.

5. Materials and Methods

5.1. Study 1: TAPE among Jordanian Muslim Youth

5.1.1. Participants and Procedures

IRB approval for the study was obtained from the sponsoring university's institutional review board. The Jordanian Ministry of Higher Education sent a letter to all public and private universities asking them to cooperate with the researchers. Contacts were made with the deans of colleges, who facilitated our communication with some of the lecturers to allow us to collect data from their classes. Participants were recruited from five government and private Jordanian universities ($N = 605$). As the population density in Jordan concentrates in the central part of the country (near the capital Amman), we randomly selected one university from the south, one university from the north, and two universities from the central region. From each university, three colleges were chosen randomly, resulting in a total sample of 450 participants. We then contacted a colleague from a fifth university (located in the central region) who facilitated access to an additional 168 participants. The sample was diverse in terms of college major: 18% Arts, 8% Applied Medical Sciences, 11% Engineering, 9% Veterinary, 9% Agriculture, 11% Sharia, 6% Sciences, 7% Economics, 10% IT and 10% Pharmacy. Participants were aged between 17 and 26 years ($M = 21.57$, $SD = 1.77$), and 48% were female. Questionnaires were administered in a classroom setting, and the participants were provided with a brief oral and written explanation of the study aims and rationale. Participation was voluntary and informed consent was obtained from all participants. The surveys were administered by the first author.

5.1.2. Measures

- Temporary Afterlife Punishment Expectation TAPE. This scale is composed of 4 items measuring individual expectations about temporary punishment on the Day of Judgment (Table 1). Sample items include, "I will enter Hell then I will get out of it and be admitted to Paradise," and "My punishment period in Hell is short in comparison to the everlasting bliss I will have in Paradise". The scale measures the frequency of expectations. Items were measured with a five-point Likert scale (1 = Never expect; 5 = Always expect), and the score was computed as the mean of the items answered so that higher scores represent a greater degree of temporary afterlife punishment expectations.
- Integrity was measured with Schlenker's (2008) eighteen-item scale. Sample items include, "Regardless of concerns about principles, in today's world you have to be practical, adapt to opportunities, and do what is most advantageous for you," and "If done for the right reasons, even lying or cheating are ok". Items were measured with a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree), and scores were computed as the mean of the items answered with higher scores representing a greater degree of integrity. The scale has been shown to exhibit little social desirability bias (Schlenker 2008).
- Afterlife Punishment Expectation APE. The afterlife fear expectation scale was used to measure afterlife punishment expectation this scale is composed of 6 items measuring

individual expectations about punishment on the Day of Judgment (Al-Issa et al. 2020). Sample items include, “I will be tormented in Hell,” and “I will be sent to Hell because I may have committed a great sin”. The scale measures the frequency of expectations. Items were measured with a five-point Likert scale (1 = Never expect; 5 = Always expect), and the score was computed as the mean of the items answered so that higher scores represent a greater degree of afterlife punishment expectation.

- Rule-breaking ability. A modified short version of the Rule Orientation Scale was used to measure RBA (Fine et al. 2016). Three items measured the extent to which individuals perceive conditions acceptable for breaking the law. The items were modified by adding the word “sharia”. Participants responded to the items, “It is acceptable to break a legal/sharia rule, if obeying this legal/sharia rule is very expensive for you”; “It is acceptable to break a legal/sharia rule, if most of your direct colleagues and/or friends also break this legal/sharia rule”; “It is acceptable to break a legal/sharia rule, if you are in one way or another unable to do what this legal/sharia rule asks of you”. Items were measured with a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). RBA was calculated as the mean score of the 3 items; with higher scores indicating more RBA (the individual accepts fewer justifications for violating laws).
- Self-control. The short version of Grasmick et al.’s (1993) low self-control scale was used to measure self-control. This version of the self-control scale comprises 3 items: ‘I often do whatever brings me pleasure here and now, even at the cost of a distant goal’; ‘Sometimes I will take a risk just for the fun of it’; ‘I sometimes find it exciting to do things for which I might get in trouble’. Items were measured with a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). Score for the scale was computed as the mean of the items answered, and then scores were inverted so that higher scores represented a higher level of self-control.
- Muslim Religiosity. Self-reports of religiosity were measured using a modified version of the Duke University Religion Index [DUREL] (Koenig and Büssing 2010). This is a five-item scale with three subscales: organization religious activities (ORA) were assessed as, ‘How often do you attend Mosque or religious meetings?’, scored 1 (Never) to 6 (more than once a week); non-organizational religious activities (NORA) were assessed as, ‘How often do you spend time with private religious activities such as prayer or Quran reading?’, (1 = rarely or never, 6 = more than once a day), and three questions on intrinsic religiosity (IR): ‘In my life I experience the presence of God’; ‘My religious beliefs are what is behind my whole approach to life’; and ‘I try hard to carry my religion over into all other dealings in life’. These statements were scored 1 = ‘Strongly Disagree’, to 5 = ‘Strongly Agree’. The score for IR was computed as the mean of the items answered; a high score indicated a higher level of religiosity. Descriptive statistics and reliability for the study measures are displayed in Table 2.

5.1.3. Translation Procedure

All English versions of the instruments were translated to Arabic using back-translation technique (Brislin 1970). First, a bilingual professional translator translated the instruments from English to Arabic. Then, another bilingual professional translator translated the translated version back into English. The two translators worked separately. Secondly, another bilingual professional translator examined the original English version and the back translated scale to evaluate the cultural and the linguistic equivalence of each item. The results of this task were reviewed by the researchers and refined accordingly.

5.1.4. Analytic Approach

SPSS 21.0 and AMOS 17.0 were used to manage and analyze all data. Data were analyzed by the first author. Descriptive exploration of the data revealed low missing data levels ranging from 3.5 to 5.5 percent. Missing data were handled by using the multiple imputations method. To evaluate factor structure of TAPE scale, data from the

total sample were randomly split into two subsamples. The first subsample, composed of 302 participants (subsample 1), was used to conduct exploratory factor analysis (EFA). The second subsample, obtained from the remaining 303 participants (subsample 2), was used to perform confirmatory factor analysis (CFA) using structural equation modelling (SEM). According to Mundfrom et al. (2005), in the condition of a single factor with four indicators, even if the size of the communalities is low, 300 participants is sufficient to conduct factor analysis.

To estimate the hypothesized relations between the variables in the study, we used path analysis with maximum-likelihood (ML) estimation method. Resampling techniques with 5000 bootstrap samples were used to estimate the 95% bias-corrected confidence intervals (BC CIs) for estimates of total, direct, and indirect effects. We can determine whether a given effect is significantly different from zero ($p < 0.05$, two tailed) if zero is not between the lower and upper bound of the 95% BC CI. The following criteria were used to determine if path model fit to the data: Chi Square (χ^2) $p \geq 0.05$, the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the comparative fit index (CFI) and the Tucker–Lewis Index (TLI) ≥ 0.95 , and root mean square error of approximation (RMSEA) ≤ 0.06 (Hu and Bentler 1999). Reliability estimations (Cronbach alpha, McDonald omega and Greatest Lower Bound) were generated in R ver. 3.3.0 (The R Foundation for Statistical Computing, Vienna, Austria; <https://www.r-project.org/> accessed on 22 January 2019) using the ‘userfriendlyscience’ package ver. 0.4-1 (<http://userfriendlyscience.com> accessed on 22 January 2019).

5.2. Study 2: TAPE among Malaysian Muslim Youth

5.2.1. Participants and Procedures

Participants were recruited from different faculties at one major public university ($N = 303$). Lecturers were contacted to allow access to collect data from their classes. Students were purposively selected from diverse academic backgrounds: 25% from Human Ecology, 26% from the Medical Sciences, 18% from Education, 4% from Modern Languages, 5% from Science and 22% from Economics. Participants were aged between 16 and 28 years ($M = 21.86$, $SD = 1.53$), and 80% were female, consistent with the demographic composition of most Malaysian public universities (Wan 2018). Data collection procedures mirrored those of the Jordanian study. We offered small tokens of appreciation (coupons to a local restaurant) to participants upon completion of the surveys.

5.2.2. Measures

We used the same measures that were used in the first study, and made adjustments to increase reliability. We used the full version of the self-control Scale (Grasmick et al. 1993), which comprises 24 items. In order to increase the reliability of the RBA scale, we added two items from the rule orientation scale (Fine et al. 2016), in addition to modifying them by adding the word “sharia”. The two items are: “It is acceptable to break a legal/sharia rule, if this legal/sharia rule makes unreasonable demands of you”; “It is acceptable to break a legal/sharia rule, if most of your direct colleagues and/or friends think breaking the legal/sharia rule is justified”. All English and Arabic versions of the instruments were translated to Malay using back-translation technique (Brislin 1970). Descriptive statistics and reliability for the study measures are displayed in Table 7.

5.2.3. Analytic Approach

SPSS 21.0 and AMOS 17.0 were used to manage and analyze all data. Descriptive exploration of the data revealed low missing data levels ranging from 0.3 to 1.2 percent. Missing data were handled by using the multiple imputations method. To evaluate factor structure of the Malay version of TAPE scale we performed confirmatory factor analysis (CFA) using structural equation modelling (SEM). To estimate the hypothesized relations between the variables in the study, we used path analysis as the first study.

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