



Religion and Psychological Well-Being: Does Islam Offer Protection Against Suicide?

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Religion and Psychological Well-Being: Does Islam Offer Protection Against Suicide?

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A Thesis in the Field of Psychology

for the Degree of Master of Liberal Arts in Extension Studies

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Abstract

This study aims to investigate the relationship between religion and suicide. Its first goal is to investigate whether religion is a protective factor against suicide ideation. It compares suicidality by religion in order to identify potential differences between suicide acceptability scores in the different religious groups. Its second goal is to find mediators between religion and suicide, specifically for Islam. According to the World Health Organization's (WHO), statistics from 2015, Muslim countries have significantly lower suicide rates. Thus, I hypothesize that Islam is a protective factor against suicide acceptability. The second goal of this research is to identify the mediators between religion, particularly Islam, and suicide risk. A literature review has shown that the core tenets of Islam are Gratitude, Optimism, Mindfulness, Emotion Regulation, Self-Reflection, Patience, and fear of God. Participants ($n=452$) were given questionnaires that measured a total score for each of these variables, in the hypothesis of finding a mediation relationship between those core tenets of Islam and suicidality. Results indicated that 1) individuals who practice Islam were less likely to view suicide as acceptable, 2) all religious groups scored significantly higher than non religious group (atheist) on gratitude, optimism, mindfulness, emotion-regulation, self-reflection and patience, but also, 3) none of those variables, besides Gratitude, were found to be mediators in the relationship between religion and suicide acceptability.

Dedication and Acknowledgement

I dedicate this thesis to my parents, Idrissi Aziza, Ejjennane Mohamed and to my brother Ejjennane Ahmed, for their unconditional love, support and encouragements. Thank you for trusting me and believing in me, I love you endlessly. I also would like to express my deepest gratitude to my thesis director Evan Kleiman, and research advisor Dante Spetter for their advices, guidance and support that helped my thesis become what it is right now. Finally, I would like to thank all my professors at Harvard, for inspiring me, teaching me, guiding me, and making me the person that I am today. Thank you professor Carson, professor Peabody, professor Leeds, professor Giles, professor Gutbezahl, professor Schwartz, professor Parker, professor Sechrest and professor Martin.

Table of Content

Abstract	3
Dedication and Acknowledgement	4
Chapter I	6
Introduction	6
Definition of terms	7
Literature Review	7
Chapter II	16
Research Method	16
Procedures	16
Participants	17
Method Design	17
Measures	19
Data Analysis	20
Chapter III	20
Results	20
1. Descriptive Statistics	21
1.1 Mean Scores	21
1.2 Frequencies	22
2. Chi-Square Analysis	25
2.1 Follow up Chi square tests	26
2.2 Difference between Christianity and Atheism	27
2.3 Difference between Islam and Buddhism on Suicidality	28
2.4 Difference between Islam and Atheism on Suicidality	29
2.5 Difference between Hinduism and Atheism on Suicidality	30
3- Anovas	32
3.1 Difference between Religions Based on Gratitude	32
3.2 Difference between Religions Based on Optimism	34
3.4 Difference between Religions Based on ERQ_Reappraisal scores	37
3.5 Difference between Religions Based on Suppression scores	39
3.6 Difference between Religions Based on Engagement in Self-Reflection	41
3.7 Difference between Religions Based on Need for Self-Reflection	43
3.8 Difference between Religions Based on SRS Insight scores	44
3.11 Difference between Religions Based on Self-Reflection	49
4- Logistic Regression	51
Chapter IV	52
Discussion and Conclusion	53
References	55

Chapter I

Introduction

Many of the major predominantly Muslim countries including Saudi Arabia, Syria, Kuwait, Lebanon, Oman, Iraq, Libya, and Jordan report the lowest suicide rates in the world (WHO, 2015). To understand why, it may be helpful to ask whether and how Islamic faith, teaching or practice may protect against suicide. Faith in Islam is associated with seven core principals, among them optimism, gratitude, mindfulness, self-reflection, emotion regulation, patience and fear of god. Is it these specific tenants of Islam that offer the protection against suicide?

It may be that each of these specific teachings is associated with lower suicide risk, and it is expected that participants who endorse more of these will be less likely to report suicidal ideation or intent. Previous research suggests that religion can act as safeguard against suicide ideation (Stack, 1991). Most of those studies state that church attendance and social support are the factors most closely associated with suicide ideation. However it may be that core religious principles of certain religions may be considered as safeguards as well, expanding the suicide resilience toolkit proposed in the empirical literature. Results will therefore imply that Islamic belief and practice is protective against suicide. Other social scientists in the field might find this information important as they can use these principles when implementing anti-suicide programs in order to prevent suicide.

Definition of terms

Gratitude is defined as “person's sense of thankfulness and happiness in response to receiving a gift, either a tangible benefit given by someone or a fortunate happenstance” (Nugent, 2013).

Optimism is “the outlook that things occur for the best and that individual's hopes or goals will eventually be satisfied” (Nugent, 2013)

Mindfulness is "an individual's general level of awareness and their ability to comprehend one's own self and their existence within reality itself is class as ones mindfulness” (Nugent, 2013).

Emotion Regulation is the ability we have to modulate emotions in response of the demands of a situation (Nugent, 2013).

Self-Reflection is “the examination and contemplation of our thoughts and actions. It is a look on the reflective consciousness” (Nugent, 2013).

Patience is the capacity to accept or tolerate delay, problems, or suffering without becoming annoyed or anxious (Oxford, 2010).

Literature Review

Suicide is a serious public health issue, resulting in about 800,000 deaths each year (WHO, 2017). It is the 15th leading cause of death worldwide and the second lead-

ing cause of death among 15- to 29-year olds (WHO, 2017). Given the enormous social and economic costs of suicide, prevention is imperative. Therefore, research must continue to focus on causes and predictors of suicide. Religious belief may be one such predictor.

The literature relating religious belief and practice to suicide has produced conflicting data. Whereas many investigators have found that suicidal ideation and suicide attempts are more common in people who report a religious affiliation, other studies have not observed this pattern, and some studies have even identified religious belief as being associated with lower levels of suicide risk (Nelson et al., 2012).

Based on statistics from the World Health Organization, stating that Muslim countries have the lowest suicide rates, it may be that in a Muslim population, religion will function as a protective factor. Furthermore, it is hypothesized that there are factors beyond social support and the belief in an afterlife (e.g., a life in heaven or hell) that explain the nature of this association.

As stated earlier, researchers studying the relationship between suicide and religion have examined many factors including social support (Heikkinen et al., 1994; D'Attilio et al., 1992; Rowe et al., 2006; Nelson et al., 2012) and church attendance (Chatters et al., 2011; Nelson et al., 2012).

According to Bowlby's attachment theory, human beings have a fundamental need to belong and to attach and when this need is not met, suicidal behavior is more likely to occur (Orden et al. 2005). This led many social scientists to hypothesize that belonging to a community (e.g., a religious community) and feeling supported may protect

against suicide (Heikkinen et al., 1994; Nelson et al., 2012). Social support is a powerful mediator between religion and suicide and religion provides support from God, from the congregation as well as from the religious institution's leadership.

In other religions for instance, repeated attendance at church services results in a number of important social benefits (Nelson et al., 2012). The protective influence of Christianity is linked to the social benefits resulting from church attendance (Stack and Lester, 1991; Pescosolido et al., 1989). The benefits of Mosque attendance have never been assessed, which begs the question, then: are the benefits of mosque attendance the same that church attendance? Jang and Johnson (2004), found that religious people reported higher levels of social support and lower levels of depression. In their sample of 2,107 adult African Americans, retrieved from the National Survey of Black Americans (NSBA), the more religious a participant was, the less stressful he felt.

Previous research consistently shows that religiosity is an important source of emotional and instrumental support. Taking it a step further, regarding Islam, a number of Muslim practices may be protective against suicide (Nelson et al., 2012.). For instance, praying five times a day may provide closeness to God (Rezaeian, 2008). Also, some Muslims share beliefs such as almsgiving that can provide a sense of community and integration among the Muslim population (Stack et al, 2011). However, research examining the relationship between Islam and Suicide is scarce (Nelson et al., 2012).

The present study suggests that optimism, gratitude, mindfulness, self-reflection, emotion regulation, patience and fear of god, which are the core tenets taught by Islam, may be those mechanisms underlying the relationship. Gratitude, mindfulness and emo-

tion regulation have already been shown to predict lower suicide risk; patience, self-reflection and fear of God is tested here for the first time.

Gratitude

It has been suggested that positive emotions such as gratitude, enhance resilience (Epstein et al, 2016). Higher gratitude is associated with lower rates of self-reported suicidal ideation. For example, Dongping et al.'s (2012) examined the direct relation between gratitude and suicide ideation, and in their sample, higher ($n=1252$) scores on gratitude tests were related to reduced likelihood of suicidal ideation and fewer suicide attempts.

Gratitude is one of the most important principles taught by Islam. Muslims are required to be grateful for everything life offers. The first sentence of the Quran states "Alhamdulillah" which means "Thank you God." This word is often used throughout the day by Muslims, when they eat, when they drink or when they sneeze for instance. The aim of saying repeatedly this word is to remember to be grateful for being alive and to always feel good, no matter the hardship encountered.

Optimism

Optimism has also been described as a protective factor in the research literature. Past studies have shown that optimism is inversely correlated to suicidal ideation. O'Keefe (2013) suggests that higher levels of optimism are associated with lower levels of suicidal ideation. In their sample of 168 American Indian/Alaska Native participants, 130

women (77.4%) and 38 men (22.6%) responded to their questions. Measures were made of a demographic questionnaire, the Revised Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994) that measures dispositional optimism, the Trait Hope Scale (Snyder, Harris et al., 1991), the Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2008), the Acquired Capability for Suicide Scale (ACSS; Van Orden et al., 2008) and the Hopelessness Depressive Symptom Questionnaire- Suicidality Subscale (HDSQ-SS; Metalsky & Joiner, 1997). They found that optimism significantly negatively predicted suicidal ideation.

Optimism is considered in the present study because Islam's ideology revolves around positive thinking and optimism, described by the Quran as "el fal". In one of the Prophetes' Books, it has been written that "there are no omens (or signs that predict the future), but the best of it is optimism" (Sahih al-Bukhari, 5422). Furthermore, the Quran insists on the idea that positive thinking and optimism are important to be included into prayers. In order to encourage Muslims to have positive expectations from life, the Prophet demands Muslims to pray to God knowing that he will answer for sure: "When one of you supplicates, let him be determined in the supplication" (Sahih al-Bukhari, 5979). Islam teachings echo that one needs to hold on to life even when distress and pain is the current situation. Optimism gives Muslims a reason to live whenever one is tempted to quit through suicide.

Mindfulness

In the empirical literature, Mindfulness is well established among factors that confer resilience to suicide. Collins et al.'s research (2018) aims to examine whether mindfulness protects against suicidal ideation in university students ($n=33$) who are facing a high risk of adversity. Over 8 weeks, participants were given online surveys that were made of the Mindful Attention and Awareness Scale, Zest for Life Scale, Interpersonal Needs Questionnaire, Kessler Psychological Distress Scale, and items assessing suicidal ideation and suicidal intent. Results showed that mindfulness was associated with lower suicidal ideation. This suggests that mindfulness protects against suicidal desire by creating a zest of life which enhance the quality of one's life.

The present research looks at whether mindfulness is a mediator in the association of religion and suicide. The Quran insists on the argument that there is purity within every being on earth; this purity can be accessed through the practice of mindfulness. Mindfulness leads to the following: the suppression of the "dark layers of life", the "polishing of the heart", and the enlightenment of the mind through the promotion of wellness, peace, and happiness (Fischer, 2016). Fischer created a model of 'Mindfulness in Islam', composed of six major values within the religion: (1) *Tadabbur* is the act of seeking the essence of truth through knowledge in every act and being and the act of letting go what is meaningless or harmful. (2) *Taffakur* is the act of reflecting, observing, studying and releasing one's inner spirituality. (3) *Tassabut* is about being patient. (4) *Tazkiah* is the action of purification of the mind and the body. (5) *Tashakkhur* is to be grateful to everything and to see beauty everywhere. (6) *Taqwa* is the constant presence of God in the Muslim's heart, as a source of love, kindness and a guide to mindfulness. According

to Fisher (2016), these components of mindfulness are taught by advices of God that are in the Books, by obligations of the religion such as praying or fasting, and by the deep spirituality that is found in the believers.

Emotion Regulation

In an effort to expand knowledge about specific processes that reduce suicide, Pissani et al. (2013), did a cross-sectional study to test hypotheses regarding associations between self-reported suicide attempts and emotion regulation difficulties among high-school student ($n= 7978$). They found that emotion regulation difficulties were associated with an increased risk for making a past-year suicide attempt. Thus, students who were less effective in responding to, or in recovering from emotional distress were more likely to report a suicide attempt (Pissani et al. 2013). This hypothesis was also supported by other social scientists, such as Weinberg (2009) for instance who found that a lack of emotion regulation is associated with the onset of depression and a higher risk for suicide (Weinberg et al., 2009).

The Quran addresses emotion regulation explicitly. The 98th verse of chapter 16 says that when one is surrounded by a negative thought, a negative feeling, or a negative emotion, one is encouraged to say the sentence translated as above: “I seek refuge in Allah from the cursed Satan” (Verse 16:98). This allows the individual to turn to faith when feeling distressed, which may serve to foster optimism, hope, or distraction, and may as well function as thought stopping.

Self-Reflection

To that date, no scientific study has examined the correlation between self-reflection and suicide. However, it is hypothesized that self-reflection may protect against suicide by encouraging people to reflect upon their thoughts before acting. Impulsivity is a specific risk for suicidal behavior among adolescents (Fitzgerald, 1999). Impulsivity is a “tendency to act on a whim, displaying behavior characterized by little or no forethought, reflection, or consideration of the consequences” (VandenBos, 2007). Thus, it can be inferred that higher self-reflection is related to lower impulsivity, and therefore self-reflection may protect against suicide.

Islamic teachings encourage Muslims to constantly think before acting, which may protect against the impulsivity of a suicidal behavior. In one of the narrations of the prophetess, it has been said that “the radiance or light of faith is in reflection” (al-Durr al-Manthur 3:190). The Quran insists on the idea that Muslims should learn from their mistakes and should always be self-reflective because actions have consequences on the hereafter.

Patience

No evidence in the literature suggests that patience protects against suicide. However, patience is “the capacity to accept or tolerate delay, problems, or suffering without becoming annoyed or anxious” (Oxford, 2010). A possibility would be that an individual who is patient enough to tolerate suffering may consider not committing suicide and hence wait until the end of the hardship.

Islam teaches patience. The Quran encourage people to be patient if they encounter adversity: “If he is happy, then he thanks Allah and thus there is good for him. If he is harmed, then he shows patience and thus there is good for him” (Sahih Muslim, 2999). Islam’s philosophy is about waiting for good to come. If hardship comes, then it is a test from God, a challenge that must be raised with patience. The Prophet said: “If Allah loves a person, then he afflicts him/her with trials. Whoever is patient has the reward of patience, and whoever is impatient has the fault of impatience” (Musnad Ahmad, 23122). Similarly, Hasan Al-Basri, noted that:

“If people had patience when they are being tested by their unjust ruler, it will not be long before Allah will give them a way out. However, if they always rush to their swords, then they are left with their swords” (Ṭabaqat al-Kubra, 8789).

Muslim’s philosophy implies the idea that:

“If someone is tested with prosperity, he should remain grateful and he will receive a reward. If he is tested with hardship, he should remain patient and he will receive a reward” (Quran, Al-Mulk 67:2).

Fear of God

Similarly to other faiths and religions, respect for human life is fundamental to Muslims. Suicide is explicitly condemn in the Quran as "it is Allah Who gives life and who takes it, and to Him shall you all be brought” (Quran, 2:245). Also, surah 4, verse 29 of the Quran states “Do not kill yourselves” (Quran, 4:29) and explicitly claims that suicide leads to an eternity in hell. The present study is hypothesizing that the fear of

God may decrease suicide acceptability and hence be a mediator in the relationship between Islam and suicide.

Chapter II

Research Method

This research is a cross-sectional study of suicide acceptability depending on religion. Its goal is 1) investigate differences of suicide acceptability by religion, and 2) investigate whether the core tenets of Islam -optimism, gratitude, mindfulness, emotion-regulation, self-reflection, patience and the fear of God mediate the relationship between religion and suicide acceptability by providing a psychological well-being that offers protection against suicide.

Procedures

The study was conducted using an online survey administered via Qualtrics and participants were recruited through Amazon Mechanical Turk, by specifically targeting individuals currently located in the USA. The target sample was at least 50 participants from each religion.

Participants

A total of 452 individuals were inducted in the study after the approval from the Harvard Committee on the Use of Human Subjects. The target sample expected 50 Muslims, 50 Jews, 50 Christians, 50 Buddhists, 50 Hindus and 50 atheists to be recruited, but since participants were randomly selected and thus results didn't include an equal representation of religious groups. Participants were chosen depending on their age (+18) and regardless of their ethnicity, gender, and economic status.

From the enrolled sample, a total of 54 participants were excluded from the study because of a non-completion of the questionnaire. The final sample consisted 398 participants. Among them, there was 53.3% of Christians ($n=212$), 23.4% of atheists ($n=113$), 8.5% of Hindus ($n=34$), 5.8% of Muslims ($n=23$), 2% of Jews ($n=8$), and 2% of Buddhists ($n=8$).

Method Design

Data were collected from the online user population on Amazon Mechanical Turk (Mturk) the online crowdsourcing platform. It allows registered online workers to complete surveys or questionnaires in return for small sums of money.

As this research involves an interaction with human subjects, the researcher shared with each participant an informed consent, stating the purpose of this research, the risks and benefits, as well as the contact information for any questions or concerns. The survey, distributed through Qualtrics, included several validated measures that have been used in prior research. The assessment proceeded in the following order: (1) Screening,

(2) The Gratitude Questionnaire-Six-Item Form (GQ-6; McCullough, 2002); (3) The Positivity Scale (P Scale; Caprava, 2012); (4) Cognitive and Affective Mindfulness Scale (CAMS-R, Feldman et al., 2007); (5) Emotion regulation Questionnaire (ERQ; Gross & John, 2003); (6) The Self-Reflection and Insight Scale (SRIS; Grant et al., 2002); (7) 3-Factor Patience Scale (3-FPS; Schnitker, 2012); and finally, (8) Fear of God scale.

First, participants completed screening questions asking about their religion and their level of religiosity. The participant then had to answer to this: “Do you think a person has the right to end his or her own life if this person has an incurable disease or insurmountable problems? no = 0 yes = 1.

Sample items include:

“I believe that my future will work out”

“It’s easy for me to keep track of my thoughts and feelings”

“I have so much in life to be thankful for”

“When I want to feel less negative emotion (such as sadness or anger), I change what I’m thinking about”

“I frequently examine my feelings”

“My friends would say I’m a very patient friend.”

The participant then had to match the number accordingly with the statement.

In the end of the assessment, the participant received a thank you note and \$1 in his account.

Measures

The study protocol included various measures to capture total scores of each variable.

Gratitude was measured using the Gratitude Questionnaire-Six-Item Form (GQ-6; McCullough, 2002), a six-item self-report questionnaire created by McCullough in the aim of assessing individual differences in the ability to experience gratitude in daily life.

Optimism was measured using Caprara et al.'s (2012) 8-items scale designed to measure optimistic attitude toward the future: The Positivity Scale (P Scale; Caprara, 2012).

Mindfulness was measured using the Cognitive and Affective Mindfulness Scale with a 12-items measure invented by Feldman et al. (CAMS-R, Feldman et al., 2007). It will be used in this research to capture a broad conceptualization of a mindfulness that is not related to any particular type of meditation training.

Emotion Regulation was measured using the Emotion Regulation Questionnaire (ERQ; Gross and John, 2003). This 10 item scale is designed to measure the use of cognitive reappraisal and expressive suppression.

Insight was measured using the Self-Reflection and Insight questionnaire (SRIS; Grant et al., 2002), where the subjects will respond on a likert scale as follows: "Strongly agree, agree, neutral, disagree, strongly disagree", will be administered in this study to measure Self-Reflection. This 20 items scale will be provided to the participants in order to help them reflect on their level of insight, the understanding of their thoughts, feelings, and behaviour.

Patience was measured using the 3-Factor Patience Scale (3-FPS; Schnitker, 2012), which has 11 items that measure three types of patience: interpersonal (I am patient with other people), life hardship (I am able to wait-out tough times), and daily hassles patience (in general waiting in lines does not bother me). It will be administered in this research to measure patience in different religious groups, and to find if there is an existing correlation between suicide and patience (e.g., are the less suicidal person more patient?).

Data Analysis

Data were entered into a spreadsheet for analysis. Dummy variables were created for the religion variable, and descriptive statistics were calculated and examined to check for out of range data. Next, to test the hypothesis that Islamic faith is associated with lower suicide risk, Analysis of variance (ANOVA) was used to compare suicide screening scores for each of the faith groups in the sample, completed with one degree of freedom chi-square comparison and Pairwise Comparison. Finally, a logistic regression was modeled to see if any of the independent variables explains the difference in how different religions have different opinions on suicide, and possibly exploring interactions.

Chapter III

Results

The final sample included in this study consisted in 398 participants. 54 participants did not complete the questionnaire and thus were excluded from the analysis.

1. Descriptive Statistics

1.1 Mean Scores

Table 1

Mean Scores by Variables

	<i>M</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
Gratitude	31.20	6.80	-0.44	0.13
Optimism	28.94	5.93	-0.84	1.29
Reappraisal	30.77	6.63	-0.67	0.55
Suppression	17.07	5.51	-0.40	-0.45
Engagement in Self-reflection	24.65	5.54	0.01	-0.07
Need for Self-reflection	26.12	5.75	-0.67	1.00
SRIS Insight	31.98	7.56	0.41	-0.74
FPS Patience	39.50	6.67	-0.06	0.04
CAMSr Score	40.82	7.79	-0.47	-0.06

Note: M = Mean; SD = Standard Deviation

Table 1 shows the mean scores for the variables of the study.

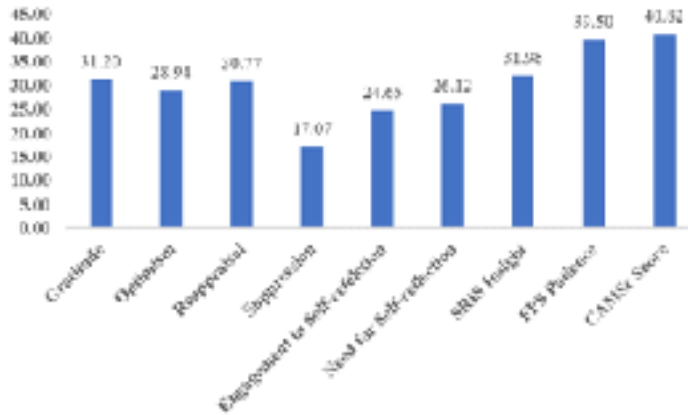


Fig 1. Mean Scores For Variables of the study

1.2 Frequencies

Table 2

Frequencies for Categorical Variables

	<i>f</i>	<i>%</i>
Right to end Life		
Yes	265	66.6
No	133	33.4
Religion you Believe in		
Christianity	212	53.3
Islam	23	5.8
Judaism	8	2.0
Hinduism	34	8.5
Budhism	8	2.0
None	113	28.4

How religious are you

Far Too Religious	36	9.0
Slightly Too much	54	13.6
Neither too much nor too little	195	49.0
Slightly too little	56	14.1
Far too little	57	14.3

Do You Believe in Afterlife

Yes	279	70.1
No	119	29.9

Are You afraid of God

Yes	161	40.5
No	237	59.5

Table 2 shows the frequencies for the categorical questions. The results indicate that approximately 67% of the respondents believe a person has the right to end his/her own life in case of suffering from any incurable disease or insurmountable problems ($n = 265$). Majority of the respondents (53.3%) believed in Christianity ($n = 212$), approximately 6% believe in Islam ($n = 23$), 8.5% believe in Hinduism ($n = 34$), 2% believed in Buddhism ($n = 8$) and 2% believed in Judaism ($n = 8$). Whereas, approximately 28% were

atheist ($n = 113$). Approximately 70% of the respondents believe in afterlife ($n = 279$) and approximately 40% said they are afraid of God ($n = 161$). Nearly half of the respondents (49%) said they were neither too much nor too little religious ($n = 195$). Only 9% said they were far too religious ($n = 36$). On the other hand, approximately 14% said they were far too little religious ($n = 57$).

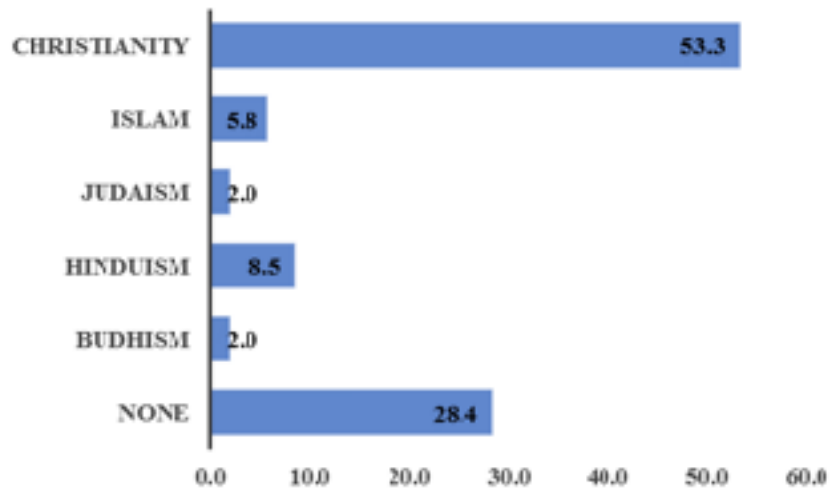


Fig 2. Religion Distribution

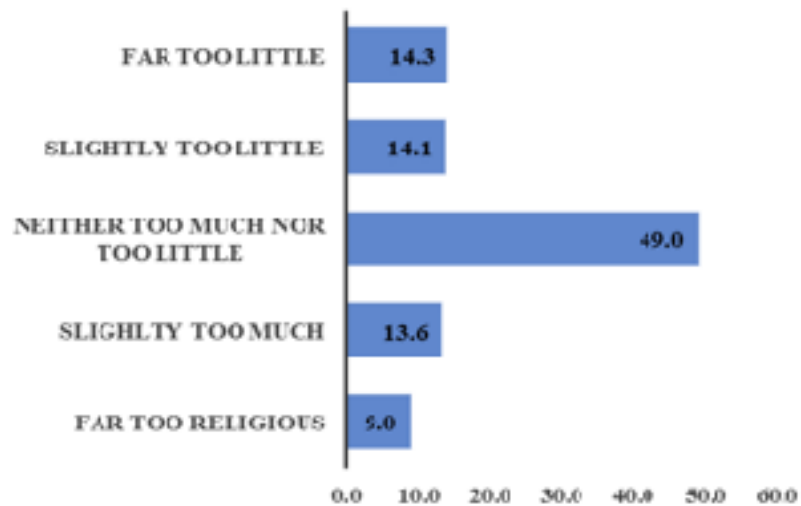


Fig 3. How Religious are you?

2. Chi-Square Analysis

Table 3

Chi-Square Test Between Religion and Suicidality

Religion	Right to End Life?				X² (5, N = 398)	Cramer's v
	Yes		No			
	f	%	f	%		
Christianity	119	56.1%	93	43.9%	40.079**	0.317
Islam	11	47.8%	12	52.2%		
Judaism	5	62.5%	3	37.5%		
Hinduism	23	67.6%	11	32.4%		
Buddhism	7	87.5%	1	12.5%		
None	100	88.5%	13	11.5%		
Total	265	66.6%	133	33.4%		

Note: **p<.001.

Chi-square test was performed to find out if there is any significant difference between followers of different religion in their opinion whether the person should end his/her life if he/she is facing incurable disease or insurmountable problems. Results indicate that there is a significant difference in the opinion of respondents belonging to different religions about whether a person should end his/her life if he/she is facing incurable disease or insurmountable problems ($\chi^2(5, N = 398) = 40.079, p < .001$). Majority of the followers

of all religions except Islam believe a person can end his/her life. On the other hand, majority of the followers of Islam believe a person should not end his/her life.

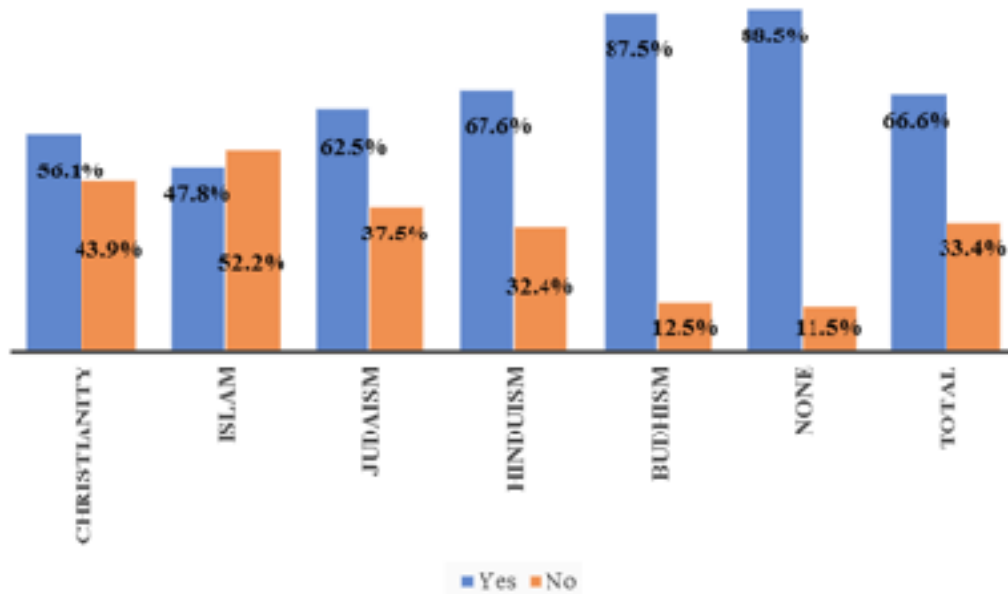


Fig 4: *Difference in Suicidality Based on Religion*

2.1 Follow up Chi square tests

After the main chi-square omnibus test revealed that there was a significant difference in the opinion of followers of different religion whether a person should end his/her life if he/she is facing incurable disease or insurmountable problems, a series of follow-up (1-degree-of-freedom) chi-square tests were performed to find out which two religions were significantly different from each other regarding this statement. Only those with significant difference with each other are mentioned in the report

2.2 Difference between Christianity and Atheism

Table 4

Difference in Suicidality Between Christianity and Atheism (Chi-Square)

	Right to End Life				χ^2 (1, N = 325)	Cramers' v
	Yes		No			
	<i>f</i>	%	<i>f</i>	%		
Christianity	119	56.1%	93	43.9%	35.128**	0.329
None	100	88.5%	13	11.5%		
Total	219	67.4%	106	32.6%		

Note: ** $p < .001$

There was a significant difference in opinion on the statement whether a person should end his/her life in difficult circumstances between Christians and Atheists ($\chi^2(1, N = 325) = 35.128, p < .001$). Approximately 56% of the Christians believe that a person can end his/her life in difficult circumstance compared to 88.5% Atheist who believe the same thing.

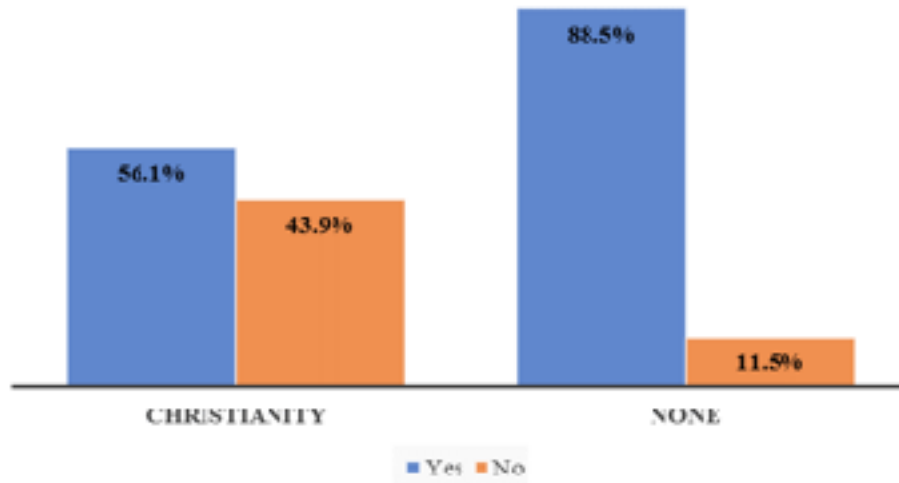


Fig 5: *Difference in Suicidality Between Christianity and Atheism*

2.3 Difference between Islam and Buddhism on Suicidality

Table 5

Difference in Suicidality Between Islam and Buddhism (Chi-Square)

	Right to End Life				χ^2 (1, N = 31)	Cramers' v
	Yes		No			
	<i>f</i>	%	<i>f</i>	%		
Islam	11	47.8%	12	52.2%	3.837*	0.352
Buddhism	7	87.5%	1	12.5%		
Total	18	58.1%	13	41.9%		

Note: * $p < .05$

There is a significant difference in the opinion related to acceptance of suicidality between Muslims and Buddhists ($\chi^2 (1, N = 31) = 3.837, p < .05$). Majority of the Muslims (52.2%) believe that suicidality is not acceptable ($N = 12$). On the other hand, majority of the Buddhists (87.5%) believe that suicidality is acceptable in difficult circumstances ($N = 7$).

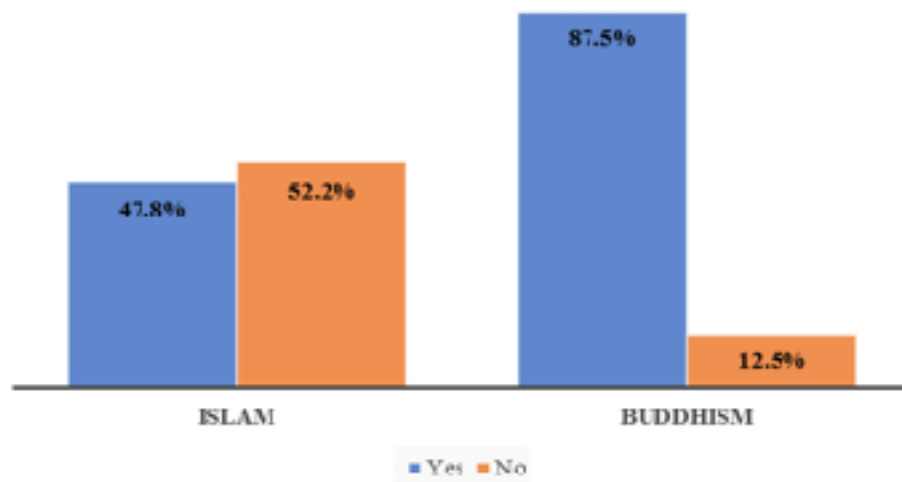


Fig 6: *Difference in Suicidality Between Islam and Buddhism*

2.4 Difference between Islam and Atheism on Suicidality

Table 6

Difference in Suicidality Between Islam and Atheism (Chi-Square)

	Right to End Life				$\chi^2 (1, N = 136)$	Cramers' v
	Yes		No			
	f	%	f	%		
Islam	11	47.8%	12	52.2%	21.068**	0.394
None	100	88.5%	13	11.5%		

Total	111	81.6%	25	18.4%
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Note: **p < .01

There was a significant difference of opinion on acceptance of suicidality between Muslims and Atheist ($\chi^2(1, N = 136) = 21.068, p < .01$). Almost 89% of the Atheist believe that suicidality is acceptable under difficult life circumstances ($N = 100$) compared to almost 48% of Muslims who also believe the same thing ($N = 11$).

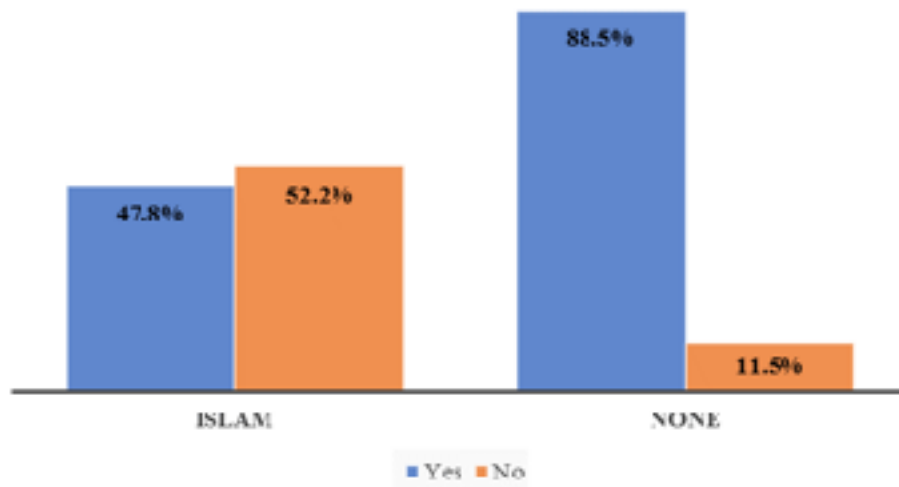


Fig 7: *Difference in Suicidality Between Islam and Atheism (Chi-Square)*

2.5 Difference between Hinduism and Atheism on Suicidality

Table 7

Difference in Suicidality Between Hinduism and Atheism (Chi-Square)

Right to End Life	
Yes	No

	<i>f</i>	%	<i>f</i>	%	χ^2 (1, N = 147)	Cramers' v
Hinduism	23	67.6%	11	32.4%	8.316**	0.238
None	100	88.5%	13	11.5%		
Total	123	83.7%	24	16.3%		

Note: ** $p < .001$

There was a significant difference of opinion related to acceptance of suicidality between Hindus and Atheists (χ^2 (1, $N = 147$) = 8.316, $p < .001$). Almost 68% of the Hindus believe suicide is acceptable under difficult life circumstances ($N = 23$) compared to almost 89% of the Atheists, who believe the same thing ($N = 100$).

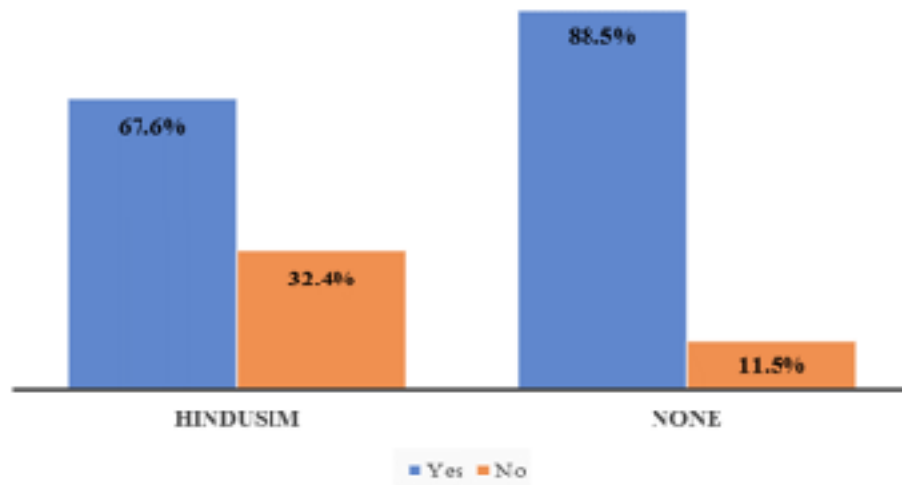


Fig 8: *Difference in Suicidality Between Hinduism and Atheism (Chi-Square)*

3- Anovas

3.1 Difference between Religions Based on Gratitude

Table 8

Gratitude Score For Religions

Religion	<i>N</i>	<i>M</i>	<i>SD</i>	<i>95% CI</i>	
				<i>LL</i>	<i>UL</i>
Christianity	212	31.60	6.33	30.75	32.46
Islam	23	32.13	5.80	29.62	34.64
Judaism	8	31.25	7.52	24.97	37.53
Hinduism	34	27.18	3.09	26.10	28.25
Buddhism	8	34.00	3.93	30.72	37.28
None	113	31.25	8.27	29.71	32.79
Total	398	31.20	6.80	30.53	31.87

Note: ANOVA is Significant ($F(5, 34.9) = 10.17, p < .05$)

A one-way ANOVA was conducted to find out if there is any significant difference in gratitude between followers of different religions. Variances were assumed unequal as the Levene's test for homogeneity of variance was significant ($p < .05$). The results revealed that there was a significant difference in gratitude between at least follower of two religions ($F(5,34.9) = 10.17, p < .05$).

Table 9

Games-Howell Pairwise Comparison of Gratitude score between Religions

A	B	Mean Difference (A- b)	SE	p	95% CI	
					LL	UL
Christianity	Hinduism	4.43*	0.69	.00	2.43	6.42
Islam	Hinduism	4.95*	1.32	.01	0.94	8.97
Hinduism	None	-4.07*	0.94	.00	-6.79	-1.35
Buddhism	Hinduism	6.82*	1.49	.01	1.56	12.08

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Games-Howell post hoc test indicated that Hinduism had significantly lower gratitude score ($M = 27.18$, $SD = 3.09$) compared to Christianity ($M = 31.60$, $SD = 6.33$), Islam ($M = 32.13$, $SD = 5.80$), Buddhism ($M = 34.00$, $SD = 3.93$) and Atheism ($M = 31.25$, $SD = 8.27$).

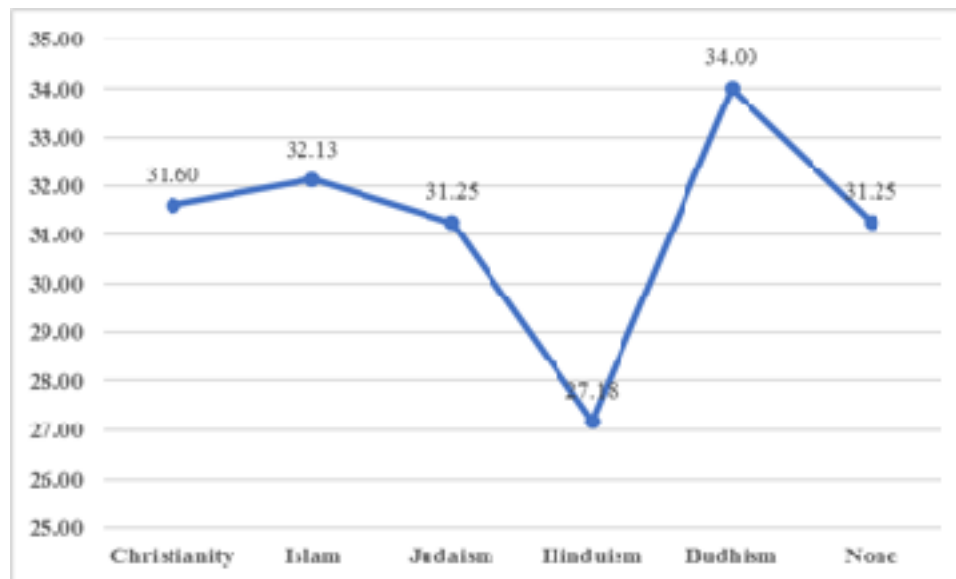


Fig 9: *Gratitude Score Distribution For Religions*

3.2 Difference between Religions Based on Optimism

Table 10

Optimism Score for Religions

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	29.70	4.81	29.05	30.35
Islam	23	30.96	4.97	28.81	33.10
Judaism	8	29.50	6.44	24.12	34.88
Hinduism	34	29.53	3.56	28.29	30.77
Buddhism	8	30.88	4.12	27.43	34.32
None	113	26.76	7.87	25.29	28.23
Total	398	28.94	5.93	28.36	29.53

ANOVA is significant (5, 34.13) = 3.126, $p < .05$)

A one-way ANOVA was conducted to find out if there are any significant difference in Optimism between followers of difference religions. Variances are assumed unequal as the Levene’s test for homogeneity of variance was significant ($p < .05$).

Table 11

Games-Howell Pairwise Comparison of Optimism score between Religions

A	B	Mean Difference (A-b)	SE	p	95% CI	
					LL	UL
Atheism	Christianity	-2.94*	0.81	0.01	-5.27	-0.60
Atheism	Islam	-4.19*	1.27	0.02	-7.97	-0.42

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Games-Howell test indicated that Atheism had a significantly lower optimism score ($M = 26.76$, $SD = 7.87$) compared to Christianity ($M = 29.70$, $SD = 4.81$) and Islam ($M = 30.96$, $SD = 4.97$). All other pairwise comparisons showed insignificant differences between religions based on optimism.

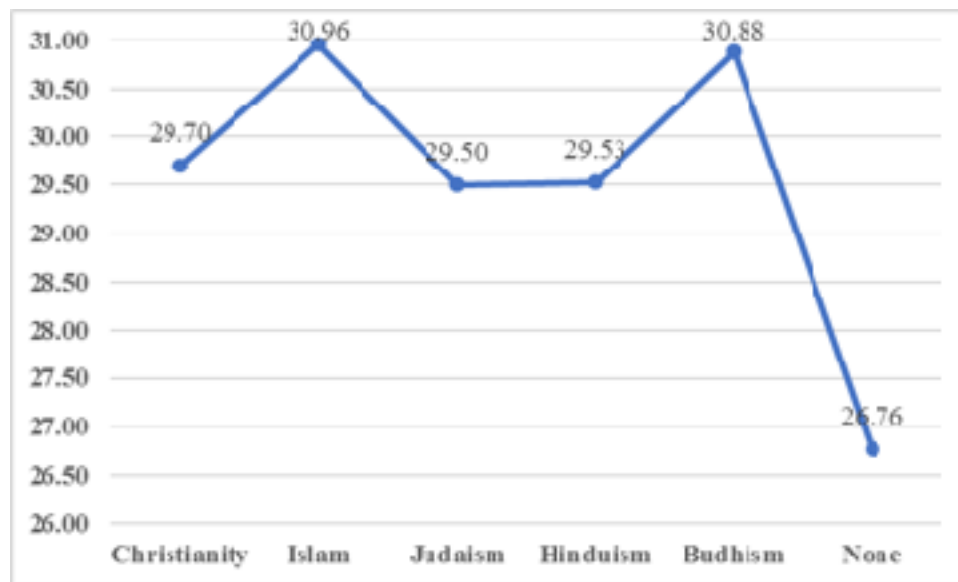


Fig 10: Optimism Score For Religions

3.3 Difference between Religions Based on CAMSr scores

Table 12***Mindfulness Score For Religions***

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	41.35	7.67	40.31	42.39
Islam	23	41.09	5.78	38.59	43.58
Judaism	8	42.25	10.05	33.85	50.65
Hinduism	34	43.35	5.54	41.42	45.29
Buddhism	8	42.13	7.00	36.27	47.98
None	113	38.82	8.53	37.23	40.41
Total	398	40.82	7.79	40.05	41.59

Note: ANOVA is significant ($F(5, 34.14) = 2.627, p < .05$)

A one-way ANOVA is conducted to find out if there is any significant difference in CAMSr score between followers of different religions. Variances are assumed unequal as the Levene's test for equality of variance is significant ($p < .05$).

Table 13***Games-Howell Pairwise Comparison of Mindfulness score between Religions***

A	B	Mean Difference (A-B)	SE	p	95% CI	
					LL	UL
Hinduism	Atheism	4.53*	1.24	0.01	0.90	8.16

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Games-Howell test indicated that Hinduism had a significantly greater CAMSr score ($M = 43.35$, $SD = 5.54$) than Atheism ($M = 38.82$, $SD = 8.53$). All other pairwise comparison yielded insignificant results.



Fig 11: *Mindfulness Score For Religions*

3.4 Difference between Religions Based on ERQ_Reappraisal scores

Table 14

Reappraisal score for Religions

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	31.27	5.96	30.46	32.08
Islam	23	31.96	6.36	29.20	34.71
Judaism	8	29.25	8.63	22.03	36.47
Hinduism	34	32.82	4.74	31.14	34.50
Buddhism	8	32.88	5.03	28.67	37.08

None	113	28.98	7.88	27.51	30.45
Total	398	30.77	6.63	30.12	31.43

ANOVA is significant ($F(5,33.89) = 2.674, p < .05$)

A one-way ANOVA is conducted to find out if there is any significant difference in ERQ Reappraisal score between followers of different religions. Variances are assumed unequal as the Levene's test for equality of variance is significant ($p < .05$).

Table 15:

Games-Howell Pairwise Comparison of Reappraisal score between Religions

A	B	Mean Difference (A-b)	SE	p	95% CI	
					LL	UL
Hinduism	Atheism	3.83*	1.11	0.01	0.60	7.07

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Games-Howell test indicated that Hinduism had a significantly higher Reappraisal score ($M = 32.82, SD = 4.74$) than Atheism ($M = 28.98, SD = 7.88$). All other pairwise comparison yielded insignificant results.

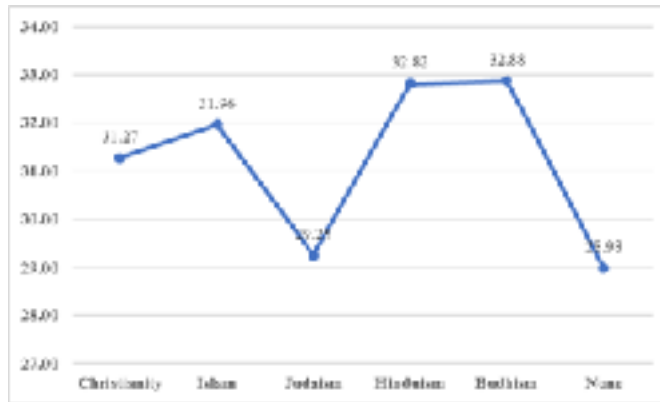


Fig 12: *Mindfulness Score For Religions*

3.5 Difference between Religions Based on Suppression scores

Table 16

Suppression Scores For Religions

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	17.20	5.55	16.45	17.95
Islam	23	17.39	5.77	14.89	19.89
Judaism	8	13.75	6.25	8.52	18.98
Hinduism	34	20.39	4.14	18.93	21.86
Buddhism	8	17.13	5.82	12.26	21.99
None	113	16.01	5.30	15.02	17.00
Total	398	17.07	5.51	16.52	17.61

ANOVA is significant ($F(5, 33.64) = 5.152, p < .01$)

A one-way ANOVA is conducted to find out if there is any significant difference in Suppression score between followers of different religions. Variances are assumed unequal as the Levene's test for equality of variance is significant ($p < .05$).

Table 17

Games-Howell Pairwise Comparison of Suppression score between Religions

A	B	Mean Difference (A-b)	SE	p	95% CI	
					LL	UL
Hinduism	Christianity	3.19*	0.81	0.00	0.78	5.61
Hinduism	Atheism	4.38*	0.88	0.00	1.81	6.96

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Games-Howell test indicated that Hinduism had a significantly higher Suppression score ($M = 20.39$, $SD = 4.14$) than Christianity ($M = 17.20$, $SD = 5.55$) and Atheism ($M = 16.01$, $SD = 5.30$). All other pairwise comparison yielded insignificant results.

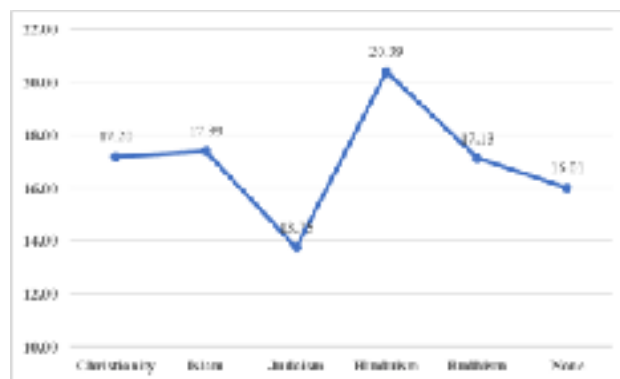


Fig 13: *Suppression Scores For Religions*

3.6 Difference between Religions Based on Engagement in Self-Reflection

Table 18

Engagement in Self-reflection Based on Religion

Religion	<i>N</i>	<i>M</i>	<i>SD</i>	<i>95% CI</i>	
				<i>LL</i>	<i>UL</i>
Christianity	212	24.11	5.25	23.40	24.82
Islam	23	26.26	4.84	24.17	28.35
Judaism	8	23.13	6.42	17.75	28.50
Hinduism	34	21.47	2.19	20.71	22.24
Buddhism	8	24.50	4.90	20.40	28.60
None	113	26.41	6.28	25.24	27.58
Total	398	24.65	5.54	24.10	25.20

ANOVA is significant ($F(5, 34.41) = 11.872, p < .001$)

A one-way ANOVA is conducted to find out if there is any significant difference in Engagement in Self-reflection score between followers of different religions. Variances are assumed unequal as the Levene’s test for equality of variance is significant ($p < .05$).

Table 19

Games-Howell Pairwise Comparison of Engagement in self-reflection score between Religions

95% CI

A	B	Mean Difference (A-b)	SE	p	LL	UL
Christianity	Hinduism	2.64*	0.52	0.00	1.13	4.15
Christianity	None	-2.29*	0.69	0.01	-4.29	-0.30
Islam	Hinduism	4.79*	1.08	0.00	1.50	8.08
Hinduism	None	-4.94*	0.70	0.00	-6.96	-2.91

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Games-Howell test showed that Christianity had a significantly higher engagement in self-reflection score ($M = 24.11$, $SD = 5.25$) than Hinduism ($M = 21.47$, $SD = 2.19$) and significantly lower score than Atheism ($M = 26.41$, $SD = 6.28$). Hinduism also has a significantly lower engagement in self-reflection score than Atheism and Islam ($M = 26.26$, $SD = 4.84$). All other pairwise comparison yielded insignificant results.

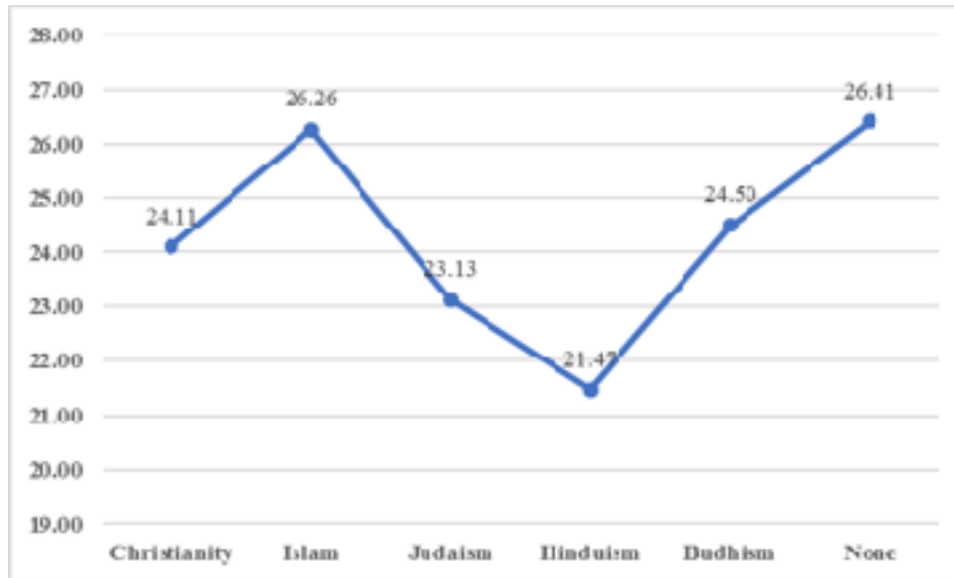


Fig 14: *Engagement in self-reflection based on religion*

3.7 Difference between Religions Based on Need for Self-Reflection

Table 20

Need For Self-Reflection Based on Religion

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	26.06	5.33	25.34	26.78
Islam	23	27.96	5.62	25.53	30.39
Judaism	8	23.38	6.09	18.28	28.47
Hinduism	34	25.65	2.88	24.64	26.65
Buddhism	8	28.38	2.13	26.59	30.16
None	113	26.03	7.15	24.69	27.37
Total	398	26.12	5.75	25.55	26.68

ANOVA is not significant ($p > .05$)

A one-way ANOVA is conducted to find out if there is any significant difference in Engagement in Self-reflection score between followers of different religions. Results showed that there was insignificant difference between followers of different religions based on need for self-reflection scores.

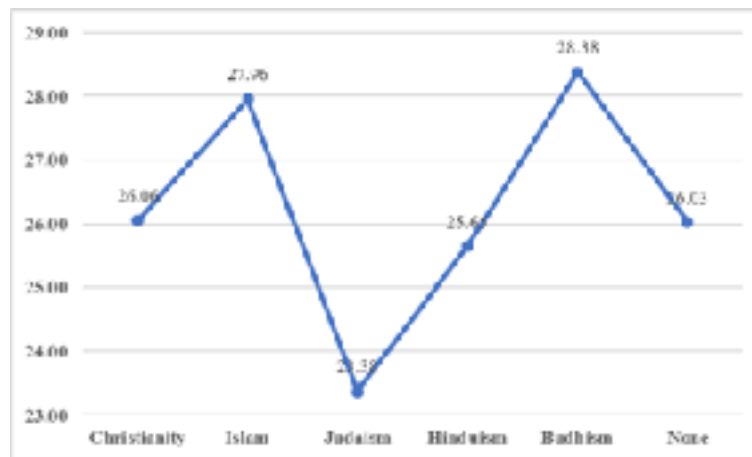


Fig 15: *Need For Self-reflection Based on Religion*

3.8 Difference between Religions Based on SRS Insight scores

Table 21

Insight Scores For Religions

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	31.50	7.31	30.51	32.49
Islam	23	29.91	6.80	26.97	32.85
Judaism	8	35.63	7.89	29.03	42.22
Hinduism	34	26.65	2.74	25.69	27.60
Buddhism	8	31.75	5.99	26.74	36.76

None	113	34.67	8.13	33.16	36.19
Total	398	31.98	7.56	31.24	32.72

ANOVA is significant ($F(5, 31.61) = 18.907, p < .001$)

A one-way ANOVA is conducted to find out if there is any significant difference in SRS Insight score between followers of different religions. Variances are assumed unequal as the Levene's test for equality of variance is significant ($p < .05$).

Table 22

Games-Howell Pairwise Comparison of Insight score between Religions

A	B	Mean Difference (A-b)	SE	p	95% CI	
					LL	UL
Christianity	Hinduism	4.84*	0.69	0.00	2.86	6.84
Atheism	Christianity	3.18*	0.92	0.01	0.54	5.81
Atheism	Hinduism	8.02*	0.90	0.00	5.43	10.62

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Games-Howell analysis showed that Hinduism had a significantly lower SRS insight score ($M = 26.65, SD = 2.74$) than Christianity ($M = 31.50, SD = 7.31$) and Atheism ($M = 34.67, SD = 8.13$). Christianity also has a significantly lower score than Atheism. All other pairwise comparison yielded insignificant results.

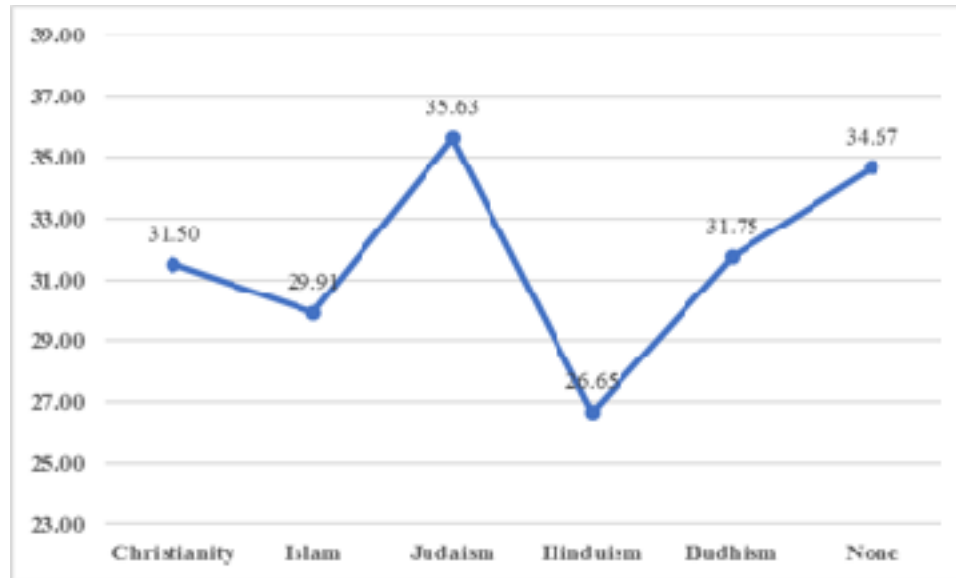


Fig 16: *Insight score for religions*

3.9 Difference between Religions Based on Patience Score

Table 23

Patience Score By Religion

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	39.35	6.52	38.47	40.23
Islam	23	40.65	5.72	38.18	43.12
Judaism	8	36.00	8.90	28.56	43.44
Hinduism	34	38.56	4.69	36.92	40.20
Buddhism	8	44.13	4.61	40.27	47.98
None	113	39.75	7.43	38.37	41.14
Total	398	39.50	6.67	38.84	40.16

ANOVA is insignificant ($p > .05$)

A one-way ANOVA is conducted to find out if there is any significant difference in Patience score between followers of different religions. The results showed that there was insignificant difference between followers of different religions based on patience scores.

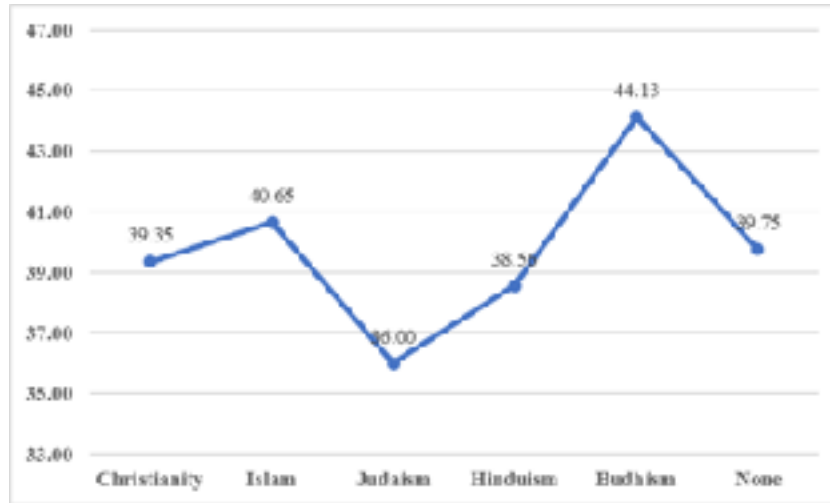


Fig 17: Patience score for religions

3.10 Difference between Religions Based on Emotional Regulation

Table 24

Emotional Regulation Scores By Religion

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	209	549.54	236.49	517.29	581.78
Islam	23	558.04	245.62	451.83	664.26
Judaism	8	396.25	217.41	214.49	578.01
Hinduism	33	681.64	201.83	610.07	753.20
Buddhism	8	573.13	246.27	367.23	779.02
None	113	470.81	216.94	430.38	511.25
Total	394	535.89	234.91	512.62	559.15

ANOVA is significant ($F(5, 388) = 5.342, p < .001$)

A one-way ANOVA is conducted to find out if there is any significant difference in Emotional Regulation score between followers of different religions. Variances are assumed equal as the Levene's test for equality of variance is insignificant ($p > .05$).

Table 25

Tukey HSD Pairwise Comparison of Emotional Regulation score between Religions

A	B	Mean Difference (A-b)	SE	p	95% CI	
					LL	UL
Christianity	Hinduism	-132.10*	42.84	0.03	-254.78	-9.42
Christianity	Atheism	78.72*	26.70	0.04	2.25	155.20
Judaism	Hinduism	-285.39*	90.12	0.02	-543.49	-27.29
Atheism	Hinduism	-210.82*	45.25	0.00	-81.22	-340.41

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Tukey HSD test showed that Hinduism had a significantly greater emotional regulation score ($M = 681.64, SD = 201.83$) than Christianity ($M = 549.54, SD = 236.49$), Judaism ($M = 396.25, SD = 217.41$) and Atheism ($M = 470.81, SD = 216.94$). Atheism also has a significantly lower emotional regulation score than Christianity. All other pairwise comparison yielded insignificant results.

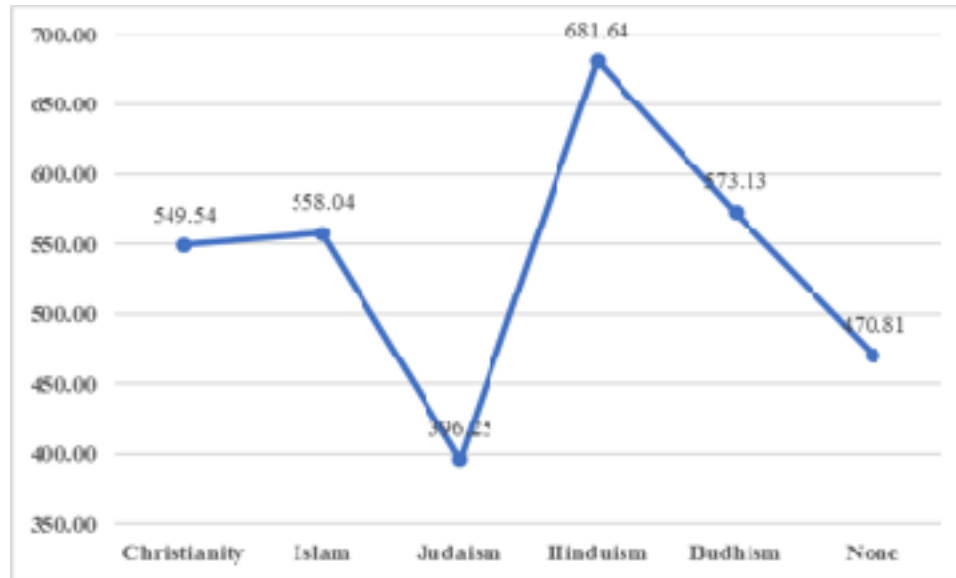


Fig 18: *Emotional Regulation Score for religions*

3.11 Difference between Religions Based on Self-Reflection

Table 26

Self-Reflection Score for Religions

Religion	N	M	SD	95% CI	
				LL	UL
Christianity	212	21056	11685	19474	22638
Islam	23	22750	11032	17979	27520
Judaism	8	21689	15535	8701	34676
Hinduism	34	14726	3003	13678	15773
Buddhism	8	23054	10082	14625	31483
None	112	25675	14615	22938	28411
Total	397	21968	12454	20739	23197

ANOVA is significant ($F(5, 34.52) = 17.041, p < .001$)

A one-way ANOVA is conducted to find out if there is any significant difference in Emotional Regulation score between followers of different religions. Variances are assumed unequal as the Levene's test for equality of variance is insignificant ($p < .05$).

Table 27

Games-Howell Pairwise Comparison of Self-Reflection score between Religions

A	B	Mean Difference (A-b)	SE	p	95% CI	
					LL	UL
Islam	Hinduism	8024*	2357	0.025	741	15307
Christianity	Hinduism	6330*	954	0.000	9074	3587
Atheism	Hinduism	10949*	1474	0.000	15210	6688
Atheism	Christianity	4619*	1597	0.048	20	9218

Note: SE = Standard Error; LL = Lower Limit; UL = Upper Limit; CI = Confidence Interval

Post hoc Games-Howell test showed that Hinduism had a significantly lower self-reflection score ($M = 14726$, $SD = 3003$) compared to Islam ($M = 22750$, $SD = 11032$), Christianity ($M = 21056$, $SD = 11685$) and Atheism ($M = 25675$, $SD = 14615$). Christianity also has a significantly lower self-reflection score than Atheism. All other pairwise comparison yielded insignificant results.

4- Logistic Regression

Table 28

Logistic Regression Results

	B	SE	Odds Ratio	prob
Gratitude Score	0.055	0.03	1.06	0.043
Optimism Score	0.025	0.03	1.02	0.472
CAMSr Score	-0.001	0.02	1.00	0.966
Reappraisal	-0.050	0.03	0.95	0.051
Suppression	0.035	0.03	1.04	0.202
Engagement in self- reflection	-0.004	0.04	1.00	0.905
Need for Self-reflection	-0.026	0.03	0.97	0.434
Christianity	-3.283	1.30	0.04	0.012
Islam	-3.771	1.58	0.02	0.017
Judaism	5.854	6.27	348.52	0.350
Hinduism	-2.433	1.66	0.09	0.143
Buddhism	-2.831	7.71	0.06	0.713
Religiosity X Judaism	1.744	1.38	5.72	0.208
Religiosity X Hinduism	-0.133	0.30	0.88	0.656
Religiosity X atheism	0.062	0.21	1.06	0.767
Religiosity X Christianity	-0.286	0.12	0.75	0.016
Religiosity X Buddhism	-0.579	1.88	0.56	0.758
Islam X Religiosity	-0.389	0.31	0.68	0.205
Constant	3.310	11.12	27.39	0.766
Model X2	63.725	p < .001		
Correct Classification	71.50%			

B = Beta coefficient; SE = Standard Error prob = probability

Logistic regression was performed to find out if religion, gratitude, optimism, mindfulness, self-reflection and religiosity has any impact on suicide acceptability. The logistic regression model is significant ($\chi^2(8) = 63.725, p < .001$). The regression model was able to correctly classify 71.5% of the cases. The regression model can explain 20.8% variation in suicide acceptability ($R^2 = .208$). The results show that Gratitude ($B = .055, SE = .03, p < .05$) has a significant and positive impact on beliefs about suicide acceptability. It indicates that people with higher gratitude will have higher chances of suicidality. The religion Christianity has a significant and negative impact on suicidality ($B = -3.823, SE = 1.30, p < .05$). It shows that Christians are less likely to believe that it is acceptable to die by suicide in tough life circumstances. The religion Islam also has a significant and negative impact on suicidality ($B = -3.771, SE = 1.58, p < .05$). Muslims are also less likely to commit suicide in tough life circumstances. The interaction between religiosity and Christianity also has a significant and negative impact on suicide acceptability ($B = -.286, SE = .12, p < .05$). Religious Christians are less likely to commit suicide in tough life situations. All other independent variables had insignificant impact on suicidality.

Chapter IV

Discussion and Conclusion

As a conclusion to the analysis above, the first hypothesis is supported: Islam is indeed a protective factor against suicidal behavior (and so is Christianity). Although results were insignificant, making hypothesis two rejected, the Muslim group do not score higher on all expected mediators. They score higher in gratitude, emotion-regulation, mindfulness, self-reflection and patience, compared to other groups, but do not always have the highest scores, besides for optimism where the Muslim group have the highest mean score. Conversely, atheists had the lowest scores in all those expected to be protective factors (regardless of self-reflection, where they score the highest). Hypothesis three is also rejected since not all variables stated above show statistically significant relationships. According to this research, only gratitude is a mediator to the relationship religion and suicide.

This research advances science in a way where it proves the differences in suicide acceptability between religions and claims that Islam is a protective factor against suicide ideation. It has already been suggested that a number of Muslim practices may be protective against suicide (Nelson et al., 2012.) Besides including optimistic thoughts and sayings to daily lives, it is mandatory to understand what are those practices that significantly protect against suicide, and how to include them in suicide prevention programs to help decreasing suicide rates in non Muslim countries. Other social scientists may research the benefits of praying, fasting, going to the Mosque, reading Quran, or helping other people (commonly referred as *Zakkat*). Islam may not be protective for the values it

teaches, but it may be for the actions it promotes. Other researchers may also do qualitative research instead of quantitative, experimental or case studies for instance.

The biggest limitation of this study relates to the collection of data. Although a population of 398 is a large enough sample, it is not perfectly suitable for this type of research. As this is a cross-sectional study, some groups with a sample including lower than 50 participants may not be enough to represent a whole population of a religious group. Other studies should hence focus on one group with a larger sample.

Another challenge raised in this study is found in National Statistics Data. Traditionally, suicide rates were low in Islamic countries. However, this might be due to the image that goes with suicide in those countries. Suicide is stigmatized by society and people who kill themselves are seen as sinners who will go to hell. The families who undergo this stigma face shame and distress and hence may not reveal the real cause of death, which may decrease suicide rates in national data of some countries.

Finally, questionnaires were administered exclusively in English and offered only on Mturk, therefore, this may have limited the data.

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