

The Relations among Religiosity, Subjective Well-being, and Attitudes towards Science

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Abstract

Research in three last decades has linked religiosity with health and Subjective Well-Being (SWB), suggesting that religion leads to physical and mental health. Recently, it has been shown that science can often do the same. This study aims to investigate the relationship of religiosity and attitudes towards science to SWB. Two hundred and eighteen university students and 122 seminary school students were selected through non-random, convenience sampling and filled out the following scales: Scientific Attitude Assessment scale (SAAS), Spirituality Self-Rating Scale (SSRS), Satisfaction with Life Scale (SWLS), and Subjective Happiness Scale (SHS). Results showed that religiosity was positively correlated with happiness and life satisfaction. Religious people reported more positive attitudes towards science, showing that at the personal level they do not see much of a conflict between their religion and contemporary science. Life satisfaction and happiness were also positively associated with positive attitudes towards science. While seminary school students reported higher levels of religiosity, university students reported higher scores on extrinsic attitudes towards science but not intrinsic attitudes. These results demonstrated the positive links between religiosity and attitudes towards science, suggesting that both religion and science can contribute to SWB.

Keywords: Religiosity, Subjective Well-Being, Happiness, Attitude towards Science

Introduction

Subjective Well-Being (SWB) is a major focus of attention in psychological and social sciences. Personality is one of the strongest predictors of SWB. Two personality variables that have been connected with SWB are Extroversion and Neuroticism [1, 2]. Additionally, a growing body of research has found positive links between SWB and religiosity. The relation of religiosity to SWB is independent of personality [3] and is thought to be mediated by perceived social support, feeling respected, hope, optimism, self-control, meaning in life, and lower death anxiety [4].

Religiosity and SWB are two important facets of human experience, with influence upon other aspects of human life. Happy people are successful across multiple life domains. Spirituality and religiosity are important dimensions of human experiences across the lifespan. Even among people thought to be unconcerned with spirituality and religiosity, religious concerns are active [5, 6].

Affective states and experiences, religiosity and spirituality influence attitudes about self, others, and the world. When a person tends to be chronically happy, for instance, he/she has positive attitudes towards life and the world, he/she is more sensitive to reward cues in his environment and is more likely to approach, rather than avoid, rewarding situations [5]. Because of the potential benefits of science, one might expect that happy people have positive attitudes towards science. Previous studies in Iran showed that there was a positive link between scientific attitude and SWB [7, 8].

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Although because of some tensions between religion and science it may be hard to speculate about the nature of their relationship, a study on college students in the United States suggests that there may be null or weak negative links between religiosity and attitudes towards science [9]. A recent study of 15 European countries also showed that religiosity could not predict attitudes towards science [10]. Pardo and Calvo [11] had found the same results, suggesting "that the tensions between science and religion have diminished in the cognitive maps of individuals in advanced societies" (p. 186). Also, religious affiliation has been found as a source of variation in experiencing positive and negative emotions [12], but does religious affiliation have an influence upon attitudes towards science? A comparative study of four Anglo-American nations showed that across Britain, Canada, and New Zealand, religious affiliation did not emerge as a significant predictor of attitudes towards science. Only in the United States, religious affiliation emerged as a differential predictor of attitudes. This effect was exclusively confined to a Protestant-Catholic difference, with Catholics being significantly more likely to hold a more positive view of science than Protestants. In all four nations, however, weaker religiosity was associated with more positive attitudes towards science [13]. This is while a recent study in Iran showed positive relations between religiosity and positive attitudes towards science and technology [14].

As much of past research on the relation of religiosity to emotion and science have centered on Christianity, it is important to replicate those findings with other religious contexts, especially since some affiliation-related differences have been reported [13]. This study sought to extend the research on religiosity and well-being by demonstrating that their links has cross-cultural consistency, and by investigating their relationships to attitudes towards science, in a Muslim context. Six hypotheses has been followed from this introduction. Hypothesis one stated that religiosity would positively associate with the cognitive aspect of SWB (i.e. life satisfaction). Hypothesis two stated that religiosity would positively correlate with the affective aspect of SWB (i.e. happiness). Since Islamic teachings and also Muslim scholars have been historically encouraging learning, teaching and gaining new knowledge, beyond any border [7, 8, 14], hypothesis three stated that positive attitude towards science would positively correlate with religiosity. Hypotheses four and five stated that attitudes towards science would positively correlate with life satisfaction and happiness. Previous studies have shown that Islamic seminary students score higher than university students on measures of religiosity and spirituality. Such findings would be expected for seminary students who place Islamic beliefs and practices closer to the center of their future life plans [15]. Thus, hypothesis six stated that seminary school students would report higher levels of religiosity than general university students.

Methods

Data for this research came from two separate samples

in Iran. Sample 1 consisted of 149 female (M age = 20.36; SD = 2.34) and 69 male (M age = 21.17; SD = 2.48) university students from University of Tehran. Sample 2 consisted of 59 female (M age = 22.40; SD = 2.39) and 63 male (M age = 26.84; SD = 3.78) seminary school students from Qom Islamic Seminary School. Given the number of variables being measured in this research, the total number of participants seems adequate. This study used a convenience non-random sampling method. Data were collected using questionnaires delivered to participants. Persian versions of the following measures were administered to groups of various sizes in classrooms.

The tools used in this study are as follows:

Scientific Attitude Assessment scale (SAAS)

This 14-item scale, designed by Gonce [9], was constructed to determine the extent of people's interest in science. The SAAS was meant to parallel Gorsuch & McPherson's 14-item Religious Orientation Scale-Revised [16] which is an adaptation of Allport and Ross's scale [17]. The SAAS measures individual differences in motivation and attitudes towards science. Intrinsic motivation toward science consists of 8 items such as "I enjoy studying science" and "Working in a science laboratory would be fun". Extrinsic motivation towards science consists of 6 items like "I study science because I want a well-paying job" and "What science offers me is an opportunity to have a meaningful career". Cronbach's alphas for this scale in Gonce' study were at .81 and .79 [9]. Cronbach's alpha for this scale, in the current study, was at .66. A five point Likert-type scale was used. Higher scores indicate more positive attitudes towards science.

Spirituality Self-Rating Scale (SSRS)

This 6-item measure, designed by Galanter and his colleagues [18], reflects a global measure of spiritual orientation to life and an intrinsic orientation to religiosity/spirituality. Sample items include "I try hard to live my life according to my religious beliefs" and "I enjoy reading about my spirituality and/or my religion". Cronbach's alphas for this scale in Galanter's study were between .82 and .91 [18]. Coefficient alpha of the Persian version of the SSRS in a previous study was at .90 [19]. Responses to each item ranged from 1 (strongly disagree) to 5 (strongly agree).

Satisfaction with Life Scale (SWLS)

This 5-item widely used measure of life satisfaction, designed by Diener and his colleagues [20], was applied to measure the cognitive aspect of SWB. The SWLS has a robust one-factor structure, convergent validity, internal reliability and high test-retest reliability [20, 21]. Cronbach's alpha for the SWLS in Diener's study was at .87 and its two month test-retest reliability was at .82 [20]. Cronbach's alpha for the Persian version of the SWLS in a previous study was at .80 [14]. Responses to each item ranged from 1 (strongly disagree) to 5 (strongly agree).

Subjective Happiness Scale (SHS)

This 4-item global assessment of happiness, designed by Lyubomirsky and Lepper [22], was applied to measure the affective aspect of SWB. This scale demonstrated good psychometric properties such as test-retest reliability, convergent validity, and internal reliability.

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Cronbach's alphas ranged from .79 to .94. A one month test-retest reliability of the SHS among American college students was at .90 [22]. Cronbach's alpha for the Persian version of the SHS in a previous study was at .79 [14]. Each item was assessed on a 7 point Likert scale

Results

Two series of *t* tests showed that whereas seminary school students reported higher scores on religiosity, university students reported higher scores on extrinsic attitudes towards science. There were no differences between the two groups in happiness, life satisfaction, and intrinsic attitudes towards science (see Table 1).

Also, women reported higher levels of life satisfaction and more extrinsic attitudes towards science (Table 2).

Table 3 and 4 provide bivariate correlations of the study variables among males, females, university students, and seminary school students. Among both men and women religiosity and attitudes towards science were positively

associated with SWB. Relation of religiosity with intrinsic attitudes towards science was positive among both sexes (see Table 3).

Among both university students and seminary school students, religiosity and attitudes towards science were positively associated with SWB. The relation of religiosity with intrinsic attitudes towards science was positive among both groups (see Table 4). Controlling for gender, through partial correlations, had little or no effect on these relations.

Two linear regressions were applied to assess the power of religiosity and the two well-being measures (as predictor variables) together in predicting attitudes towards science as criterion variables. Life satisfaction was the strongest predictor of intrinsic, as well as extrinsic attitudes towards science. This is while it did not negate the interpretive value of the relationship between religiosity and intrinsic attitudes towards science (see Tables 5 and 6).

Table 1. Comparisons between variables for university and seminary school students

Variables	M (SD)		t
	university	seminary school	
Religiosity	3.45 (.83)	3.98 (.51)	7.14**
Happiness	4.53 (1.28)	4.75 (1.20)	1.52
Life Satisfaction	3.02 (.85)	3.04 (.81)	.17
Intrinsic scientific attitude	3.00 (.91)	3.15 (.79)	1.54
Extrinsic scientific attitude	2.96 (.50)	2.73 (.45)	4.27**

Note: * p < .05, ** p < .01.

Table 2. Comparisons between variables for female and male participants

Variables	M (SD)		t
	female	male	
Religiosity	3.69 (.71)	3.57 (.86)	1.37
Happiness	4.66 (1.27)	4.54 (1.24)	.81
Life Satisfaction	3.11 (.85)	2.90 (.79)	2.32*
Intrinsic scientific attitude	3.08 (.89)	3.03 (.85)	.52
Extrinsic scientific attitude	2.94 (.49)	2.78 (.49)	2.91**

Note: * p < .05, ** p < .01.

Table 3. Correlations of study variables for female (below diagonal) and male participants (above diagonal).

Variables	1	2	3	4	5
1. Religiosity	1	.11	.31**	.30**	.01
2. Happiness	.29**	1	.49**	.27**	-.13
3. Life Satisfaction	.20**	.41**	1	.39**	.16*
4. Intrinsic scientific attitudes	.24**	.16*	.22**	1	.12
5. Extrinsic scientific attitudes	.09	-.03	.11	.05	1

Note: * p < .05, ** p < .01.

Table 4. Zero order and partial correlations of study variables for university students (below diagonal) and seminary school students (above diagonal).

Variables	1	2	3	4	5
1. Religiosity	1	.12 (.12)	.31** (.31**)	.19* (.17*)	.15* (.11)
2. Happiness	.22** (.21**)	1	.49** (.49**)	.16* (.18*)	-.06 (-.06)
3. Life Satisfaction	.26** (.25**)	.42** (.41**)	1	.30** (.33**)	.01 (-.01)
4. Intrinsic scientific attitudes	.28** (.26**)	.21** (.22**)	.28** (.28**)	1	.16* (.14)
5. Extrinsic scientific attitudes	.15** (.15*)	-.03 (-.03)	.22** (.20**)	.08 (.06)	1

Note: * p < .05, ** p < .01. Values in parentheses are sex-controlled correlations.

Table 5. Regression predicting intrinsic attitudes towards science from religiosity and SWB.

	B	SE	Beta	t	P
Religiosity	.19	.06	.17	3.08	.01
Happiness	.06	.04	.08	1.50	.13
Life satisfaction	.22	.06	.21	3.52	.01
R ²					.01

Table 6. Regression predicting extrinsic attitudes towards science from religiosity and SWB.

	B	SE	Beta	t	P
Religiosity	.03	.03	.05	.99	.32
Happiness	-.06	.02	-.15	2.54	.05
Life satisfaction	.11	.03	.20	3.17	.01
R^2	.20				.01

Discussion

This study aimed to investigate the links between religiosity, SWB, and attitudes towards science. Generally, emotion theorists associate positive affect with an approach orientation and negative affect with an avoidance orientation. One possible reason for the tendency of happy people to have more positive attitudes towards science may be that the chronically satisfied/happy people are relatively more sensitive to rewards in their environment (i.e. they have a more reactive behavioral approach system) and are more likely to approach rewarding situations [5]. It is plausible, then, to assume that people with higher levels of SWB have more positive attitudes towards science because of an open attitude towards benefits of scientific developments.

Religiosity also correlated with higher levels of SWB which is consistent with what has been found previously in other religious contexts. The present study, therefore, provided a cross-cultural confirmation for the conclusion that religiosity may contribute to one's well-being. Results also showed that there are positive links between religiosity and attitudes towards science which is in line with recent research in Muslim populations [14] and Pardo and Calvo's theoretical speculation that the tension between science and religion have diminished in the cognitive maps of people in advanced societies [11].

The history of science has often been regarded as a series of conflicts between science and religion, usually Christianity. The cases of Galilei and Darwin are merely the most celebrated examples. Such a view of conflicting relations between science and religion is described as a conflict thesis [23]. However, other relationships between science and religion should be recognized. At different phases of their history, they were not so much at war as largely independent, mutually encouraging, or even symbiotic. The conflict thesis may have produced an incomplete picture of the relationship between science and religion [23, 24]. This incomplete picture may be attributed to the Western subjects on whom previous studies have exclusively focused. In contrast, Islamic teachings have encouraged learning, teaching, and gaining knowledge beyond any border. There are Islamic proverbs from the Prophet such as "Seek knowledge from the cradle to the grave" and "Seek knowledge even if it is in China" [8, 14]. Religious people in this study reported more positive attitudes towards science. This reveals that they do not see much of a conflict between their religion and science. However, future research studying other religions and cultures is needed to test the generalizability of these findings.

This study was correlational. Contrasts between the university and seminary students were only quasi-experimental, therefore, no firm conclusions could be drawn about causality. Other limitations were the use of

self-reports in assessing all of the variables, and the use of convenience samples. Future research should examine other cultures and religious groups. Such research will further test the generalizability of these findings and see whether the religion-science links would be negative in some religious contexts and positive in others.

Conclusion

This research, which has depicted the relations of religiosity to attitudes towards science and the contributions of religiosity and attitudes towards science to SWB among university and seminary school students in Iran, suggests that religion and science are working together and helpful for people's well-being.

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