

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH

2025, Vol. 6, No. 2, 564 – 573

<http://dx.doi.org/10.11594/ijmaber.06.02.12>

Research Article

Personality Traits and Sexual Risk Behaviors: The Moderating Role of Religiosity in Maritime Cadets

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Article history:

Submission 31 January 2025

Revised 07 February 2025

Accepted 23 February 2025

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ABSTRACT

This research explores whether religiosity moderates the link between Big Five personality traits and cadets' sexual risk behaviors. Overall, 474 respondents participated in the study. This number consists of students taking up Marine Transportation and Marine Engineering students in a maritime school situated in Metro Manila. They were surveyed using the converted electronic version of the Brief Multidimensional Measure of Religiosity and Spirituality (BMMRS), Big Five Personality Factors - 2 (BFI-2), and the Sexual Risks Behaviors Scale. Based on the results, the study found that agreeableness is negatively correlated with sexual risk behavior ($r = -.12^*$, $p < .05$), suggesting a tendency towards lower engagement in risky sexual behaviors among those with higher levels of agreeableness. Furthermore, this study concluded that religiousness did not moderate the relationship between agreeableness and sexual risk behavior. This suggests that, regardless of whether individuals are highly agreeable, their level of religiousness does not seem to alter the impact of agreeableness on sexual risk behavior.

Keywords: Religiosity, Sexual Risk Behaviors, Personality

Introduction

Sexual risk behaviors among adolescents and young adults are a serious public health issue. Engaging in risky sexual practices among adolescents can result in HIV infection, sexually transmitted illnesses, and unwanted pregnancy. Many young individuals participate in health-risk activities and experiences that might have unexpected health consequences. According to CDC statistics, protective sexual practices (such as condom usage, STD testing, and HIV testing), experiences of violence,

mental health, and suicidal thoughts and actions all increased from 2011 to 2021. Adolescent studies have found a link between drug use and sexual risk behaviors such as having sex, having several sex partners, not using a condom, and pregnancy before the age of 15 years. Among U.S. high school students surveyed in 2021, 30% had ever had sexual intercourse, 48% did not wear a condom the last time they had sex, 8% had been physically forced to have sexual intercourse when they did not want to, 9% had ever been tested for

How to cite:

Ortiz, D. M. V. & De Jose, E. G. (2025). Personality Traits and Sexual Risk Behaviors: The Moderating Role of Religiosity in Maritime Cadets. *International Journal of Multidisciplinary: Applied Business and Education Research*. 6(2), 564 – 573. doi: 10.11594/ijmaber.06.02.12

HIV, and 5% had been tested for sexually transmitted diseases in the previous year (Jones et al. 2024).

Sexual risk behaviors are also a major public health issue in Asia. Research done in Bangkok, Thailand, discovered that the mean age of 872 sexually active participants was 15.6 years, and 69.5% engaged in sex-risk behavior. The study revealed various sexual risk-related variables, including smoking, cannabis consumption, gambling, having intercourse without contraception, and a history of childhood sex abuse (Thephthien, and Celyn, 2022). The severity of the issue is similarly comparable among Filipino teenagers and young adults. According to the findings of the 2013 Young Adult Fertility and Sexuality (YAFS 4) survey, there has been an alarming increase in pre-marital sex (PMS) among young Filipinos aged 15-24. According to the research, 32% of young Filipinos have engaged in pre-marital sex, which is 9% higher than the 2002 survey. Furthermore, the prevalence of unprotected sexual encounters among adolescents raised worries about the increased risks of sexually transmitted diseases (STIs) and unintended pregnancies. Pregnancies among young women aged 15 to 19 have also more than doubled, reaching 13.6% from 6.3% previously. Such numbers highlight the necessity of studying the variables that influence sexual risk behaviors in young people (Cruz, 2016)

Extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience are the Big Five personality traits that have been linked to numerous aspects of human behavior. Previous studies have found associations between these personality traits and sexual risk behaviors. Higher levels of openness and lower levels of agreeableness were associated with more liberal attitudes toward sex, a greater number of sexual partners, a higher sex drive, more frequent sexual activity, and a greater tendency toward homosexuality (Allen and Desille, 2017). Conscientiousness has been associated with more conservative sexual beliefs, lower levels of sexual dysfunction, and a tendency towards heterosexuality.

Higher levels of extraversion and lower levels of neuroticism were associated with increased sexual pleasure in sexually active older

individuals. Furthermore, males with higher levels of extraversion and lower levels of conscientiousness had more sexual partners than women. Furthermore, research conducted across ten world regions found that relationship infidelity was generally related to poor agreeableness and conscientiousness. Sexual promiscuity was associated with these attributes as well; however, extraversion was more strongly related across many, but not all, geographical locations. Across cultures, both types of risky sexual behavior were unrelated to neuroticism and openness (Schmitt, (2004)). In terms of the relationship between personality traits and religiosity, several studies have confirmed the relationship between these variables. According to Szcześniak et al. (2019), extraversion and agreeableness correlate positively with religious attitude and personal religiousness. Conscientiousness also correlates positively with faith, personal religiousness, and religious attitude. Negatively significant relationships were also found between openness and all the subfactors of personal religiousness. While no relationships were found between neuroticism, religious practices, or the religious self. However, an older study contended that religion is independent of personality factors. The study by Robbins et al. (2010) revealed that there are no associations between religiosity and any of the five personality factors. Intrinsic religiosity was significantly associated with only one of the five personality factors, reporting a positive correlation with agreeableness ($r = .17$). This is also consistent with the study of Afhami et al. (2017). From the said study, it can be observed that only Agreeableness ($r = .23, p < .01$) and Conscientiousness ($r = .16, p < .05$) correlated positively with a self-rated religiosity measure, while negatively associated with Openness to Experience ($r = -.25, p < .01$).

It was demonstrated in literature that religiosity acts as a safeguard against sexual risk behaviors. Puzek et al. (2012) investigated the relationships between religious and sexual risks among young Croatian individuals. The study discovered that religiosity had temporary impacts on lowering sexual risk-taking among young individuals at three separate levels (religious upbringing, personal religiosity, and

social network religiosity). Moreover, Haglund and Fehring (2010) investigated the relationship between religion, sexual education, family structure and hazardous sexual behaviors in adolescents and young adults. According to the study, people who considered religion to be extremely important, attended church frequently, and had religious sexual attitudes were 27-54% less likely to have had sex and had much fewer sex partners than their peers. Furthermore, it was discovered in another study that students who reported strong religiosity were much less likely to have used alcohol or drugs in the preceding 30 days. In addition, these students were less likely to participate in risky sexual activities (Francis et al., 2019). In general, religion is seen to be a protective factor against risk-taking behaviors (Holmes et al., 2019; Hosseinkhanzadeh et al., 2013). With these research findings, it is reasonable to hypothesize that religiosity acts as a protective factor against risky sexual behaviors.

In terms of the research gap, it can be inferred that most studies in the Philippines focus on the sexual risk behaviors of existing seafarers. There is a lack of research on the sexual behaviors of Filipino maritime cadets during their education and training. Despite the high prevalence of sexual risk behaviors among adolescents and young adults in the general population, the sexual risk behavior of maritime cadets of Filipinos has not been extensively explored, even with the presence of multiple studies demonstrating the sexual behaviors of existing seafarers (Laraqui et al., 2017; Okeafor and Okeafor, 2017; Pougnat et al., 2020).

Given that most institutions in the Philippines follow a 3-year maritime classroom instruction and 1-year onboard training program, these maritime cadets, who will soon be called seafarers during their onboard training, are at high risk of being exposed to sexually risky behaviors. Furthermore, Palmer et al. (2017) reported in their study that patterns of risk-taking adopted in adolescence may continue to affect sexual behaviors during adulthood, adding to the cumulative risk of contracting STIs.

As Filipino youth are very religious individuals (Del Castillo et al., 2021), investigating the moderating role of religiosity on the

relationship between the Big Five personality factors and sexual risk behaviors of maritime cadets is essential to understanding the complexities of their decision-making and behavior in the context of sexual encounters. Religiosity holds great influence in the lives of many individuals and is often associated with attitudes and beliefs regarding sexual behaviors. The primary aim of this study is to explore the moderating role of religiosity on the relationship between the Big Five personality factors (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience) and sexual risk behaviors among maritime cadets.

Methods

The study used a predictive-correlational research method, an appropriate for moderation analysis, as it allows researchers to analyze how a third variable, in this case, religiosity, affects the relationship between the predictor (personality traits) and the outcome variable (sexual risk behaviors). This method helps in understanding not just the direct relationships between variables, but also how these relationships may change under different conditions or levels of the moderating variable (Cohen et al., 2013).

Population, Sample Size, and Sampling Technique. The population of this research is comprised of maritime students in a maritime school situated in Metro Manila. A simple random sampling technique was used in this study. The researcher used a simple random sampling technique to ensure that the data yielded statistically accurate results. Furthermore, as per recent enrollment data, the population of maritime students in the said institution is 1,926 students from 1st year to 3rd year. Based on sample computation, 321 is the required number of samples for this study. However, the researcher decided to include more respondents to ensure the accuracy of the results. Overall, 474 respondents participated in the study. This number consists of students taking up Marine Transportation and Marine Engineering students. Students from other programs and graduate studies are not included in this study. As per records, most of the students in these programs have ages ranging from 17-24 years old.

Considering that the sample is drawn in a single institution, the researchers acknowledge this limitation and suggest that future researchers may explore and include diverse maritime institutions in Metro Manila.

Research Instrument. The following research instruments were used in this study:

Brief Multidimensional Measure of Religiosity and Spirituality (BMMRS): The Brief Multidimensional Measure of Religiousness/Spirituality (BMMRS) is a pen-and-paper, self-rated tool that measures various facets of religiousness and spirituality (R/S). This questionnaire was developed in 1999 by the Fetzer Institute and the US National Institute on Aging (NIA). It has 38 items across 11 dimensions (Masters, 2020). It has a reliability index of 0.70 and is stable over a 1-week period with test-retest reliability of 0.70 (Harris et al., 2008). Furthermore, this measure has also been validated in diverse medical conditions and diverse cultures in India, the US, (Americans and African Americans) Europe, and Southeast Asia (Johnston et al. 2020). In the administration of this questionnaire, the researcher only picked the dimensions related to religiosity such as values and beliefs, private religious practices, organizational religiousness, and religious support other dimensions of this test were omitted as these dimensions measure spirituality. Based on studies, it has the following psychometric properties: the Private Religious Practices subscale measures the frequency of religious activities with five items using an 8-point response format, and it has a Cronbach's alpha of 0.86. Organizational Religiousness assesses involvement in formal public religious events with a 6-point response format, achieving a Cronbach's alpha of 0.74. Additionally, the Values/Beliefs subscale measures religious values and beliefs with two items using a 4-point response format, and it has a Cronbach's alpha of 0.63. (Johnstone, 2015). While religious Support evaluates the perceived help, support, and comfort provided by local congregations with four items and a 4-point response format, yielding an internal consistency reliability of 0.92 (Harris et al., 2008) Thus, further suggesting that all items have an acceptable reliability. Generally accepted rules indicate that an alpha (α) of 0.6-0.7 signifies an acceptable level of

reliability, and 0.8 or greater indicates a very good level. (Hulin et al., 2001; Ursachi et al., 2015).

Big Five Personality Factors - 2 (BFI-2). The Big Five personality factors are a group of five basic personality traits used to define human personality. Openness, conscientiousness, extraversion, agreeableness, and neuroticism are the five basic dimensions that predict human behavior (Rammstedt, & John, O.P., 2020). The BFI-2 has good psychometric properties, and the structural validity of the 44 questions has consistently given five reproducible and reasonably independent variables. This suggests that the factors of the big five are independent and cannot in any way be related to each other (Rammstedt, & John, O.P., 2020). The BFI-2 has a high level of internal consistency. In the research of Soto and John (2017), Cronbach's alpha for the five categories was 0.90 for extraversion, 0.87 for agreeableness, 0.86 for conscientiousness, 0.85 for neuroticism, and 0.82 for openness.

Sexual Risks Behaviors Scale. This is a 16-item self-report questionnaire that examines sexual habits associated with the risk of STI or HIV/AIDS infection. Sexual activity with multiple partners (items= 4); incorrect or insufficient use of protective barriers (items = 4); sexual activity while under the influence of alcohol or drugs (items = 4); and awareness of the partner's sexual history (items = 4). The items are Likert attitudinal/behavioral statements with four levels (1 "Never"- 4 "Always") It has a reliability of 0.80 (Ferrer-Urbina et al., 2022).

Data Gathering Procedure. The pen-and-paper format of the questionnaires was converted into electronic format via Google Forms. Then, these questionnaires were presented along with an official correspondence to the research center of the institution. This correspondence outlines the intent of the study, the possible benefits, the target date of data collection, the data gathering procedures, ethical considerations, and the commitment of the researcher toward the confidentiality of data.

Upon approval, the researcher started the data gathering. The researcher integrated the online questionnaire into the school learning management system (LMS) for easy access by the respondents. However, the researcher did

not allow these questionnaires will be responded to outside the institution. The researcher scheduled the data gathering during the examination week of the students (midterm and final examinations are conducted in a dedicated computer laboratory in this institution). The researcher decided to utilize this period to ensure that he was able to explain the rights and obligations of the respondents in the study along with the electronic consent form. Upon completion of the responses, the researcher conducted data cleaning (removal of outliers if there are any), assumption testing, and finally statistical analysis of data. Furthermore, upon processing the data, the results and the raw data were subjected to final validation by the official statistician of the university.

Ethical Considerations. To ensure that ethical considerations are not violated, this research will be subjected to approval by the Ethics Review Committee of the university. To secure approval, the following mechanisms were put in place as aligned with the American Psychological Association (APA) ethical guidelines in the conduct of research.

Since the primary method used in this study was survey, physical harm was not expected during the data gathering. However, considering that the questionnaires used may elicit thoughts and emotions that are taboo, the researcher will ensure that there is a counselor available to debrief or to provide relief in case some respondents are triggered. To minimize the chances that this study will precipitate some adverse feelings/emotions in vulnerable respondents, a trigger warning will be mentioned in the informed consent form.

Considering that the data collection will be conducted during the respondents' examination, participation in this study was purely voluntary. If there were instances where respondents would like to withdraw during the time of their participation, they are allowed to do so. Respondents will not be forced to participate in this research. Respondents will be briefed about the purpose, benefits, and risks prior to their participation in this study. Standard documentation such as an informed consent form and an assent form will be filled out. These forms were accomplished upon careful deliberation of the respondents. No identifiable data

will be presented in the results section of this study. The manner of presenting the results of the study will be solely based on its objectives, problem statements, and hypothesis. Personal data that are beyond the scope of this study will not be collected. Student numbers and age will only be collected for monitoring of data.

Statistical Analysis. The following statistical techniques were used in this study using JAMOVI and the Moderation Analysis Module and SPSS v29 (licensed by the institution of the researcher)

Multiple Correlations. This technique was used to identify correlations between and among personality traits, religiosity, and sexual risk behaviors.

Moderation Analysis. The researcher used moderation analysis to determine how the relationship between personality traits and sexual risk behaviors is influenced by religiosity. When a moderator variable is present, it can influence the strength and direction of the relationship between two other variables. This means that as the levels of the moderator variable change, the strength of the relationship between the other two variables may also change (Hair et al., 2021). Moderation analysis is commonly used in behavioral sciences and involves the use of linear multiple regression analysis or causal analysis

Results and Discussion

The results of this study are presented and discussed in this portion. Moreover, the research questions are answered with reference to the study's goal of assessing personality traits and sexual risk behaviors, moderating role of religiosity in Maritime cadets.

Relationship of Personality Traits, Religiosity, and Sexual Risk Behavior

The analysis reveals several significant relationships between personality traits, religiosity, and sexual risk behavior. Firstly, individuals higher in agreeableness demonstrate a negative correlation with sexual risk behavior ($r = -.12^*$, $p < .05$), suggesting a tendency towards lower engagement in risky sexual behaviors among those with higher levels of agreeableness. This finding can be explained by the fact that respondents who are not agreeable with

practices involving safe sex are more prone to engaging in sexual risk behaviors. In addition, this finding is consistent with the research of Fernandez et al. (2019), who stated that low levels of agreeableness are associated with uncommitted sexual activities. In older studies, this finding was also demonstrated in the meta-analysis of (Miller et al., 2003) and the validation study of Nascimento et al. (2018) where low agreeableness was associated with multiple sexual partners. Additionally, values and beliefs exhibit a positive correlation with

sexual risk behavior ($r = 0.19^{**}$, $p < .01$), indicating that individuals with higher values and beliefs are prone to engaging in risky sexual activities. Considering that the measurement for values and beliefs does not encourage reverse scoring and higher scores in values and beliefs signify low levels of religiousness, it can be inferred that higher scores would really mean higher levels of risky sexual activities. Lower scores would mean lower levels of risky sexual activities.

Table 1. Correlation Matrix of Factors

	1	2	3	4	5	6	7	8	9	10
1 Sexual Risk Behavior	1									
2 Extraversion	0.01	1								
3 Agreeableness	-.12*	.39**	1							
4 Conscientiousness	-0.09	.54**	.60**	1						
5 Neuroticism	0.02	-.37**	-.37**	-.41**	1					
6 Open-Mindedness	-0.05	.44**	.55**	.61**	-.23**	1				
7 Values and Beliefs	.19**	-.17**	-.17**	-0.09	.091*	-0.04	1			
8 Private Religious Practices	0.04	-0.08	0.08	.14**	-0.04	.19**	.38**	1		
9 Religious Support	.16**	-.10*	0.06	.11*	0.00	.14**	.45**	.57**	1	
10 Organizational Religiousness	-.10*	-.10*	0.07	.11*	-0.01	0.09	.23**	.55**	.39**	1

Private religious practices are positively correlated with conscientiousness ($r = .14^{**}$, $p < .01$) and open-mindedness ($r = .19^{**}$, $p < .01$), indicating that individuals who are more conscientious and open-minded are more inclined to engage in private religious activities. Moreover, religious support shows a positive correlation with sexual risk behavior ($r = .16^{**}$, $p < .01$). This is also the case for this variable, a higher score would mean lower religious support while lower scores mean higher religious support.

Lastly, sexual risk behavior ($r = -.10^*$, $p < .05$), and extraversion ($r = -.11^*$, $p < .05$), nega-

tively correlated with organizational religiousness. As for organizational religiousness, higher scores would also mean lower participation in religious activities. Thus, higher participation (high score) would mean lower sexual risk behavior and lower participation (high score) would mean lower extraversion. Moreover, it can also be observed that organizational religiousness positively correlates with conscientiousness ($r = .11^*$, $p < .05$). This indicates that individuals with high conscientiousness are less likely to engage in organizational religious activities.

Religiousness as Moderator to the Relationship of Agreeableness and Sexual Risk Behavior

Table 2. Results of the Moderation Analysis

Predictor	Estimate	SE	Z	p	Effect Size (Cohen's d)
Agreeableness	-0.24	0.09	-2.55	0.01	-2.55
Religiousness	0.05	0.04	1.34	0.18	1.34
Agreeableness * Religiousness	-0.01	0.01	-1.28	0.2	-1.28

Table 2 presents the results of a moderation analysis examining the influence of agreeableness and religiousness on sexual risk behavior. Agreeableness is found to have a significant negative effect (estimate = -0.28, SE = 0.09, Z = -2.55, p = 0.01) on sexual risk behavior. This suggests that as agreeableness increases, the outcome tends to decrease. On the other hand, religiousness, representing the level of involvement in religious activities or adherence to religious beliefs, exhibited a non-significant positive effect (estimate = 0.05, SE = 0.04, Z = 1.34, p = 0.18) on sexual risk behavior. This indicates that while there is a tendency for the outcome to increase as religiousness increases, the effect is not statistically significant. Furthermore, the interaction between agreeableness and religiousness was also non-significant (estimate = -0.01, SE = 0.01, Z = -1.28, p = 0.20), suggesting that the combined influence of these two variables on the outcome was not statistically significant.

In addition, the effect size suggests that there is a moderate to large negative effect on the outcome variable. This suggests that as

agreeableness increases, the predicted outcome decreases substantially. However, the interaction term between agreeableness and religiousness yielded a Cohen's d of -1.28, suggesting a small to moderate negative effect. Given that the interaction term was not statistically significant ($p = .200$). This suggests that religiousness does not meaningfully moderate the relationship between agreeableness and the outcome variable.

While agreeableness appears to have a significant negative impact on sexual risk behavior, religiousness does not exhibit a statistically significant effect, and there is no significant interaction between agreeableness and religiousness in predicting sexual risk behavior. Therefore, based on these findings, it can be concluded that religiousness does not moderate the relationship between agreeableness and sexual risk behavior. This further suggests that, regardless of whether individuals are highly agreeable or not, their level of religiousness does not seem to alter the impact of agreeableness on sexual risk behavior.

Table 3. Slope Analysis

	Estimate	SE	Z	p
Average	-0.24	0.09	-2.55	0.011
Low (-1SD)	-0.11	0.14	-0.81	0.419
High (+1SD)	-0.36	0.13	-2.78	0.01

Table 3 examines the effect of the predictor variable, Agreeableness, on the dependent variable, Sexual Risk Behavior, at different levels of the moderator, Religiousness. At the average level of religiosity, the estimate indicates a significant negative effect of Agreeableness on Sexual Risk Behavior (estimate = -0.24, SE = 0.09, Z = -2.55, p = 0.01). This suggests that as Agreeableness increases, Sexual Risk Behavior tends to decrease, holding Religiousness constant. At the low score of Religiousness (1 standard deviation below the mean), the estimate (-0.11) is negative but not statistically significant (SE = 0.14, Z = -0.81, p = 0.42). This implies that at lower scores on the Religiousness scale, the effect of Agreeableness on Sexual Risk Behavior is not reliably different from zero.

Conversely, at the high level of religiosity (1 standard deviation above the mean), the estimate (-0.36) is negative and statistically significant (SE = 0.13, Z = -2.78, p = 0.01). This suggests that at higher scores of Religiousness, the effect of Agreeableness on Sexual Risk Behavior is more pronounced, with higher Agreeableness associated with lower Sexual Risk Behavior. With this finding, the said results did not show conformity with the published studies of Izdebski and Ostrowska, (2003) and Stulhofer et al. (2011) who claimed that religiosity acts as a safeguard against sexual risk behaviors. As gleaned from the results of Del Castillo and Alino (2020), it can be inferred that religiosity did not act as a moderator because Filipino students only rely on their religiosity in times of

academic problems, financial difficulties, problems with family relationships, the death of a family member or relative, and a romantic breakdown. In this context, students do not rely on religiosity when faced with urges related to sexual risk behaviors.

Moreover, young people's sexual and reproductive health seems only marginally linked to faith and not to the whole concept of religiosity (Koletic et al., 2021). Furthermore, as also stated by Hardy, S. A., & Willoughby, B. J. (2017), religious communities may promote chastity and positive psychosocial functioning by teaching chastity values and providing structures to motivate and enable people to live consistently with them. Considering that the measure of religiousness did not tap religious education, it can be inferred that this might be a possible reason why religiousness did not moderate the relationship between extraversion and sexual risk behavior.

Conclusion

Acknowledgment

I am grateful to the Almighty God for his unwavering guidance, wisdom, and grace throughout the completion of this research. His guidance has been very helpful in every step of the completion of this research.

I would like to extend my deepest gratitude to my co-author and research adviser, Dr. Elmer De Jose, whose insightful guidance, and expertise were instrumental to the completion of this research.

I would also like to extend my sincere thanks to my girlfriend Jeanne Dimanlig for serving as my external grammarian. Her attention to detail, patience, and willingness to provide critical feedback on my drafts have significantly contributed to the quality of this research. Her support and belief in my abilities have been invaluable.

I would like to extend my gratitude to several professors who have been instrumental in the distribution of my questionnaire. My appreciation goes to Ms. Charity Manuel, Mr. Rafael Benito, Ms. Judith Secusana, and Dr. Franco Quodala. Their willingness to assist in disseminating the questionnaire to their students has been invaluable.

Additionally, I would like to extend my heartfelt appreciation to my family as an inspiration. I am grateful for their encouragement, and the shared camaraderie that made this research journey bearable.

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