ORIGINAL ARTICLE

Structural Relations amongst Religiosity, Self-control, and Externalizing Problems of Juveniles in Malaysia

Nursyuhaidah Mohd Kadri[1], Nor Sheereen Zulkefly[2], and Rozumah Baharudin[1]

[1] Department of Human Development and Family Studies, Faculty of Human Ecology, Universiti Putra Malaysia, 43400 Serdang Selangor, Malaysia
[2] Department of Psychiatry, Faculty of Medicine and Health Science, Universiti Putra Malaysia, 43400 Serdang Selangor, Malaysia

ABSTRACT

Introduction: Early onset of externalizing behaviour may increase the likelihood of extensive maladaptation in future life. Recently, there has been a growing research undertaken on the role of religiosity on externalizing behaviour among Muslim adolescents. However, the mechanism underlying this relationship is still poorly understood. This study sets out to examine the relationships between adolescent religiosity, self-control, and externalizing behaviours (rule-breaking and aggressive behaviours) of Muslim juveniles in rehabilitation centre. **Methods:** Questionnaire assessments of adolescent religiosity, self-control, rule-breaking behaviour, and aggressive behaviour were collected from 427 Muslim adolescents aged between 13 to 18 years old in eight Tunas Bakti Schools (STB). **Results:** Structural equation modeling analysis indicated adolescent religiosity was negatively associated with externalizing behaviour, both directly and indirectly. The indirect association was mediated by self-control. This study suggests that greater adolescent religiosity was associated with higher self-control, which in turn lowers both rule-breaking and aggressive behaviour. **Conclusion:** The results highlight the important role of religiosity and self-control in preventing externalizing behaviour among Muslim adolescents. Further step towards designing preventative strategy may need to consider integrating both Islamic-based program and self-control input to enhance mental health and behavioural adjustment of Muslim adolescents.

Keywords: Adolescent, religiosity, self-control, externalizing

Corresponding Author:
Nor Sheereen Zulkefly, PhD
Email: sheereen@upm.edu.my
Tel: +603-97692541

INTRODUCTION

Across many region and culture, the transition from childhood to adulthood is complemented by the increase of novelty-seeking, and risk-taking behaviours (1). One of the remarkable changes during this transition period is the dramatic increase in the prevalence of externalizing behavioural problems (2). In Malaysia, the increase of child offenses has raised public concern, as it will affect the sustenance of the future generation whom will lead the country (3). Statistics from the Malaysian Department of Social Welfare showed considerable increment (i.e., from 4669 in 2015 to 4886 in 2016) of children involved in crimes, such as drugs and propriety/people-related crimes. An increasing trend (i.e., 1420 in 2015 to 1680 in 2016) of drug abuse among adolescents was also reported by the National Anti-drugs Agency. The dramatic increase in juvenile delinquency and crimes have led to a proliferation of studies that aims to prevent adolescent from misbehaviour and externalizing behaviour.

Externalizing behaviours are negative outward behaviours towards the surrounding environment such as aggression, property violation, rule-breaking, substance abuse, and risky sexual behaviour (4). These externalizing behaviours may have severe consequences including unintentional injuries, unplanned pregnancies, and health problems. Early onset in externalizing problem behaviour has been shown to be associated with long-term malfunctioning and predicted offences in later adult life, such as substance disorder (5), and violence (6). Given the high prevalence among adolescents and direct negative consequences of externalizing problem behaviour for both the individual and community, there is a clear need for more research regarding the underlying factor of this problem.

One of the crucial factors in the combatting externalizing problem behaviour is religiosity. Religiosity is widely considered to be important for overall adolescent developmental outcomes. Past studies revealed positive

associations between religiosity and educational outcomes (7), self-esteem (8), self-control (9–11), prosocial behaviour (12), life satisfaction (13) and well-being (14). Additionally, religiosity is associated with low rates of deviance and less involvement in many externalizing problem behaviours (15), such as substance use (9,16–18), crime (11), sexual behaviour (19–21), and delinquent activities (22,23). However, these studies have focussed mostly on Christian population. There is a dire need for more studies on Muslim population, especially in Malaysia which is recognized to have strong religious influence (24).

Available studies on Muslim population indicated the influence of religiosity in reducing externalizing behavioural problems. For example, religiosity is related to a lower rate of substance use of Istanbul youth (25), negative emotion of Algeria college student (26), problem behaviour of Indonesian adolescents (27), and social problem of Thailand adolescents (28). Several local studies on Malaysian adolescents had also found negative association between religiosity and behavioural problem including risky behaviours (15), truancy (29), social problem (30), and premarital sex (31). However, most of the research focused on general adolescent population who may not be truly delinquent. Little has been known on the association between religiosity and behavioural problems of adolescents who are at-risk and residing in institution for young offenders (also known as Approved Schools in Malaysia).

Although the impact of religion on adolescent externalizing behaviour has been widely investigated, there is less study examining the mechanism of how religiosity may protect adolescent from externalizing behaviour, particularly in a Muslim sample. A systematic review (32) suggested the need to conduct mediation analysis in examining the relationship between religiosity and health-related behaviour outcome as it can help to explain the mechanism or mediating process whereby religiosity operates on adolescent behaviour (20,23). Understanding these relationships is important in order to create effective interventions to combat adolescent from getting involved in externalizing behaviours.

As suggested by McCullough and Carter (33), religion fosters the development and practice of self-control and self-regulation, which leads to beneficial outcomes in a variety of behavioural and psychological domains. Therefore, this study aims to test self-control as a potential mediating role. Self-control refers to an individual's ability to inhibit impulses that are unaccepted by society, and to change and regulate behaviour, thoughts, and emotions (34). Higher self-control was associated to lower mental and physical health symptoms (34,35). Previous research also has documented that low self-control is associated not only with crime (11,36,37), but also with analogous behaviours (9,10). Recent studies have shown the mediating effect of self-control on the

link between religiosity and wide range of externalizing problem behaviours, including substance use (9), criminal behaviour (11), aggressive behaviour (38), and risky sexual behaviour (39). However, what is not yet clear is whether this mechanism is also consistent in Muslim population.

Therefore, the aim of the current study was to examine the associations between religiosity, self-control, and externalizing behaviour among a probability sample of Muslim juvenile offenders in Approved Schools in Malaysia specifically known as Tunas Bakti Schools. Based on the literature review, it is expected that adolescent religiosity will be directly and indirectly related to rule-breaking and aggressive behaviour via self-control. Adolescent with high levels of religiosity and self-control are expected to have less externalizing problem behaviour.

METHODOLOGY

This study is part of a larger project led by Baharudin, Zulkefly, and Zarinah (40) that seeks to investigate the comprehensive mechanisms by which parent's religiosity influence their children's problem behaviour. For the present study, cross-sectional design was undertaken to examine the relationship between adolescent religiosity, self-control, and externalizing behavioural problem among juveniles in Tunas Bakti Schools. Data were collected using questionnaires. The participants were asked to recall and complete the question survey on their religiosity, self-control, and externalizing behaviour before entering the juvenile rehabilitation school.

Participants
A total of 427 Muslim adolescents aged 13 to 18 years old from eight Tunas Bakti Schools were recruited for this study. Tunas Bakti Schools is a juvenile rehabilitation residential school which undergo special mode of education for child offenders below the age of 18 who have been ordered by Court. The adolescents were selected through stratified random sampling as the population was stratified by gender. The final sample comprised 256 male (60%) and 171 female (40%), with more than half (55.3%) of them aged between 17 and 18 (mean age =16.57 years, Sd.=1.14). Participants reported to have middle aged parents (Father: Mean=47.8, Sd.=9.2; Mother: Mean=42.9 , Sd.= 7.5) and mostly (71.5% of father and 65% of mother) had secondary school education. Regarding parents' marital status, more than half (58.5%) were married, followed by divorced (26.5%), death of spouse (12.4%), and separated (2.6%).

Measures
Adolescent religiosity scale
Despite several existing Islamic religiosity scale, there is no well-established guide of theoretical framework or agreement among scholars on the fundamental items or

dimensions in measuring religiosity (28). Some research use single item (for example, the level of religiosity (26) and importance of religion (31) to measure religiosity, which may lead to an incomplete understanding of religiosity. In the present study, the 15 items Adolescent Religiosity Scale (40) was used to measure adolescent's religious behaviour and practice which follows the Islamic teaching.

This scale was utilized as it focuses on major religious behaviour and practice of adolescents that is observable by nature in comparison to other religiosity scale (e.g. Comprehensive Measure of Islamic Religiosity (41) and Muslim Religiosity-Personality Inventory (15) that were more comprehensive with a wide range of constructs or dimensions. As this scale was developed based on an adolescent sample, items were worded in ways that were easy for adolescents to understand. Exploratory factor analysis revealed a unidimensional scale with all items having satisfactory loading values between 0.53 and 0.78 (42) as presented in Table I. Additionally, the authors reported the scale had good reliability and validity. The Cronbach alpha reported was 0.91.

Table I: Exploratory factor analysis for Adolescent Religiosity Scale

Item No.	Items	Factor loading
1	I read the Quran.	.53
2	I fast during Ramadhan.	.54
3	I pray five times daily.	.78
4	I say my prayers to Allah (dua')	.72
5	I remember death.	.53
6	I pray together.	.77
7	I consume only halal food.	.64
8	I have social boundaries with the opposite gender.	.62
9	I attend religious talk.	.74
10	I obey my parents.	.60
11	I read the stories of Rasulullah and friends.	.69
12	I involve with volunteer program.	.72
13	I make effort to understand the verses in Quran.	.72
14	I give donation.	.54
15	I cover my aurah.	.63
	Coefficient α	0.91
	Eigenvalues	6.43
	% of variance	42.82

Adolescents responded on a 4-point scale from 0=not at all to 3=always to indicate their engagement and the frequency of ritualistic practice, and behaviours reflecting Islamic importance values. Items included "I pray 5 times daily", "I fast during Ramadhan", "I cover my aurah", and "I read the Quran". For the present study, the Cronbach alpha was 0.91. Higher score in this scale reflected a higher level of religiosity.

Youth self report (YSR)

Externalizing domain of Youth Self Report (42) was used to measure adolescent's externalizing symptoms including rule-breaking and aggressive behaviour. This domain consists of 15 items of rule-breaking behaviour, including "I steal at home", "I use drugs for nonmedical purpose", and "I think about sex too much". Whereas, 17 items of aggressive behaviour including "I get in many fight", I have a hot temper", and "I argue a lot". Response options range from 0= not true to 2=very true.

The validity and reliability of this widely used youth self-report measure has been well documented. Good discriminant validity was shown with accuracy of 68% for the YSR scale (all 8 syndromes) between referred and non-referred samples (42). In the Achenbach's original study, the subscales reported high internal reliability via Cronbach alpha coefficient of .81 and .86 for rule-breaking and aggressive subscale respectively. Both subscales also demonstrated adequate internal reliability in the present sample with alpha of .77 for rule-breaking and .82 for aggressive subscale.

Brief self control scale

A total of 13 items from the Brief Self Control Scale (34) was used to access adolescent's self-control which conceptualized as the ability of adolescent to control their emotion, impulse, thought, and refrain from undesired behaviour. Adolescents responded on a 5-point Likert from 1=not at all to 5=very much like me. 9 items were reverse coded before creating the composite score of self-control. Example of items included "I have a hard time breaking bad habits" and "I do certain things that are bad for me, if they are fun".

The same content was tap in the 13-item Brief Self-control Scale and the 36-item Total Self-Control Scale, as they were correlated .93 and .92 in Studies 1 and 2. In the original study, the Brief Self-control Scale demonstrated good internal reliability with alpha of .83 in studies 1 and .85 in study 2, and the test-retest reliability was .89 (34). Whereas in the current sample, Cronbach alpha of .75 was reported, as it indicates adequate internal consistency for Brief Self-control Scale.

Procedure

The first step in the data collection process was to obtain the ethical clearance from ethic committee of University Putra Malaysia. Once the ethical clearance was sought, the proposal and questionnaires were sent to Department of Social Welfare to obtain the permission for data collection. Then, each rehabilitation school was contacted for the written consent and name list of students. During the data collection, respondents were divided into a smaller group contain from 5 to 10 adolescents with one enumerator in each group after being explained on the purpose of the study and debrief

on confidentiality. The respondent completed the questionnaire approximately in 30 minutes. The return rate was 100%.

SPSS version 21.0 and Analysis of Moment Structure (AMOS) 20.0 were used for the statistical analysis of the data. Descriptive analysis was used to describe the distributional characteristics of the study variables. Correlational analysis using Pearson correlation was also conducted to examine the correlation coefficients among study variables in this present study. Next, structural equation modeling was employed to postulate the pathways in which religiosity affects adolescents externalizing problem behaviour. Structural equation modeling is a powerful collection of statistical multivariate analysis technique that is able to analyse complex relationships between variables simultaneously (43). Lastly, the testing of the mediating effect of adolescent self-control was performed using bootstrapping method as described by Hayes (44).

RESULTS

Descriptive statistics and correlations
The result of the descriptive and correlational analysis for all study variables in this study are presented in Table II. It is apparent from this table that adolescent religiosity, self-control, rule-breaking, and aggressive behaviour are significantly correlated with one another, and with the right direction. Specifically, adolescent religiosity was positively associated with self-control (r=0.33), and negatively associated with rule breaking (r=-0.29) and aggressive behaviour (r=-0.23). Negative correlation also found between self-control with rule-breaking (r=-0.44) and aggressive behaviour (r=-0.46). These results suggest that adolescents with higher religiosity level and self-control are more likely to have less rule-breaking and aggressive behaviour.

Table II: Correlations among variables, means and standard deviations

		1	2	3	4
1.	Adolescent religiosity				
2.	Self-control	.33***			
3.	Rule-breaking behavior	-.29***	-.43***		
4.	Aggressive behavior	-.23***	-.46***	.73***	
	Mean	21.65	35.79	16.61	18.01
	Sd.	9.85	5.80	5.36	6.12

Note. *p<.05, **p<.01, ***p<0.001,Sd. = Standard deviation

Structural equation modeling
The first step in structural equation modeling process is to validate the measurement model for all of the latent variables separately. Confirmatory Factor Analysis (CFA) was conducted to analyse the measurement model in

order to determine whether the indicators are good in measuring the construct. The results of the CFA indicate all measurement model fit indices considered acceptable model fit. However, due to large number of items in this scale, parcelling technique was applied to make structural equation modeling more manageable with fewer indicators (45).

All of the latent variables were parcelled into few indicators using item-to-construct balance technique. This technique constructs parcel according to the loadings order obtained from previous factor analysis. As a result, higher loading items were matched with lower loading items and created a balance parcel. The model was considered to be acceptable if Root Mean Square Error of Approximation (RMSEA) <.08, Comparative Fit Index (CFI) ≥.09, Goodness of Fit (GFI) ≥.90 (46). The fit indices of the parcelled model of adolescent religiosity (χ^2= 2.90; df= 2; χ^2/df = 1.45; RMSEA= .03; CFI= .99; GFI= .99), self-control (χ^2=.20, p=0.65, χ^2 / df=.20, RMSEA= .00, CFI=1.0, GFI=1.0), rule-breaking (χ^2=1.15, p=0.564, χ^2 /df=0.57, RMSEA= .00, CFI=1.0, GFI=.99), and aggressive behaviour (χ^2=0.39, p=0.83, χ^2 /df=.19, RMSEA= .00, CFI=1.0, GFI=1.0) also showed satisfactory in overall goodness of fit statistics. Finally, these parcelled models were then combined to become a full structural model (as illustrates in Figure 1) to examine the relationship between the constructs.
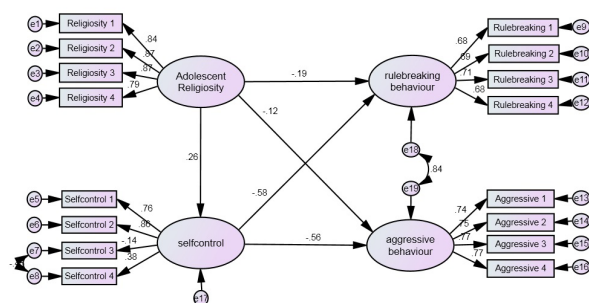

Figure 1: Final structural model. Initial analysis revealed an unacceptable model fit with χ^2=415.15; df =98; χ^2/ df =4.20; p < 0.001; RMSEA = 0.08; CFI = 0.90; GFI = 0.89. Modification indices were examined and path between the residual errors for rule-breaking and aggressive were freed. However, analysis still revealed a poor fitting model. Modification indices were re-examined and paths between item 3 and 4 of the self-control variable were freed. Final model indicated a satisfactory fit to the data with χ^2=322.14; df =97; χ^2/ df =3.32; p < 0.001; RMSEA = 0.07; CFI = 0.93; GFI = 0.92.

Initially, the fit indices for the structural model resulted in unacceptable fit (χ^2= 577.72; df= 99; χ^2/df = 5.84; RMSEA= .10; CFI= .85; GFI= .85). The modification indices suggested covariance between the residual errors for 'rule-breaking' and 'aggressive'. It is noted that in the study of Achenbach (1991), both variables form the domain of behavioural problem or externalizing problem in the Youth Self Report. Both were significantly related to each other. Through the correlation of residual error between rule-breaking and aggressive behaviour, the revised model seems to improve the fit indices with exception of GFI which is mediocre (χ^2= 415.15; df= 98; χ^2/df = 4.20; RMSEA= .08; CFI= .90; GFI= .89).

Next, the model was revised again by examination of the modification indices. It was suggested to correlate the error tem between item 3 and 4 in self-control. Conceptually, item 3 and 4 appeared to be positively and negatively worded and may be causing this correlated error to be estimated. Following the error correlation, the goodness-of-fit indices were improved with χ^2= 322.14; df= 97; χ^2/df = 3.32; RMSEA= .07; CFI= .93; GFI= .92, indicating a satisfactory model fit to the data. Therefore, this revised model was retained as a final structural model, as illustrated in Figure 1.

The result of SEM analysis for this final structural model indicated that all of the parameters were statistically significant (p<.001). Furthermore, all of the path weights were also statistically significant at the 0.05 level and in the expected direction, indicating the hypothetical model was supported. Consequently, squared multiple correlation coefficient showed that the final model accounted 43% of the variance in rule-breaking, 37% of the variance in aggressive behaviour and 7% of the variance in self-control.

As expected, adolescent religiosity was inversely associated with both rule-breaking and aggressive behaviour (β= -.19 and β= -.12; p<.05, respectively). Results suggest that adolescent with higher religiosity level is more likely to have less externalizing problem behaviour. In addition, analysis revealed that adolescent religiosity was positively associated with self-control (β=.26, p<.001). In turn, self-control was negatively associated with both rule-breaking (β=-.58, p<.001) and aggressive behaviour (β=-.56, p<.001).

Next, further mediation analysis using bootstrapping method was conducted to examine the significance of the mediational effect of self-control in the structural model. Bootstrapping method is a non-parametric method based on the resampling, which has more accurate type I error rate and assume a normal distribution (47). In this study, the bootstrap set to be 95% of confidence interval with resampled data set repeated 1000 times. The lower bounds of the interval would be the 25th, while upper bounds of the interval would be 976th in the distribution. Claim of mediation or indirect effect can be made if zero is not in the interval.

Table III showed the result of bias-corrected confident interval bootstrapping for the indirect model. For both indirect paths, zero is not in the lower and upper limit. These suggested that there were a significant indirect effect through self-control. Result reported that there was significant indirect effect of adolescent religiosity on rule-breaking behaviour through self-control (SIE=-.15, SE=.04, CI.95=-.23, -.08). Similarly, there was also a significant indirect effect of adolescent religiosity on aggressive behaviour via self-control (SIE=-.14, SE=.04, CI.95=-.23, -.07). Overall, result of mediation analysis supports the meditational effect of self-control

on the relationship between adolescent religiosity and externalizing problem behaviour, suggesting that adolescent religiosity is indirectly related to adolescent externalizing problem behaviour via adolescent self-control. This result provides important insight on the mechanism on which religiosity buffers the externalizing problem behaviour of adolescent, with self-control as an important mediator.

Table III: Bias-corrected confident interval bootstrapping for indirect model.

Path	Standardized indirect effect (SIE)	Standard Error (SE)	Bootstrap BC 95%CI		
			Lower	Upper	p
AR→SC→RB	-.15***	.04	-.23	-.08	.000
AR→SC→AG	-.14***	.04	-.23	-.07	.000

Note. *p<.05, **p<.01, ***p<0.001; AR=adolescent religiosity, SC=Self-control, RB=rule-breaking, AG=aggressive.

DISCUSSION

The findings of this study revealed that adolescent religiosity is significantly and negatively related to rule-breaking and aggressive behaviour. Results indicate that as the level of involvement in religious practices increases, adolescents are less likely to engage in externalizing problem behaviour. This is consistent with earlier studies (9,13,16,18,22,23) where adolescent religiosity was found to lower the risk of externalizing behaviours including substance use, risky sexual behaviour, and delinquent activities. Thus, the importance of religiosity in adolescent development is emphasized. As suggested by the social control theory (48), it is likely that Islamic religious practice provides opportunities that strengthens adolescents' bond of attachment, involvement, commitment, and belief which promote the conformity and lowering the probability to commit in externalizing problems.

In Islam, the concept of religion is termed as "din", which denotes the faith, beliefs and practices and teachings adhered by the Muslims individually and collectively as a community and manifesting itself altogether as an objective whole (49). Religiosity is the state of a Muslim who believes in Allah, and practice piety or righteousness in his life (41). Muslims believe that the voluntary submission and obedience to God will result into a state of supreme peace and eternal blessedness (49). It is likely that adolescents, who regularly perform religious practice such as praying, fasting, and Quran recitation, are more likely to have close attachment with Allah, thus inhibiting the development of externalizing behaviours (13). Allah says in the Quran, "Recite what has been revealed to you of the Book, and perform the Salah (prayer). Verily, the Salah prevents from immoral sins and evil deeds and the remembering (praising) of Allah is greater indeed. And Allah knows what you do" (29:45). In the Quran, Allah also forbids Muslims from various externalizing behaviours, including aggression

(2:193), harsh (3:159), theft (5:38), murder (6:151) and adultery (24:30-33). The remembrance and fear of Allah, whom Muslims believe has unlimited power and knows everything, this makes them obedient to God and try to avoid from wrongdoing.

This study also revealed that adolescent religiosity is indirectly related to both rule-breaking and aggressive behaviour, via adolescent self-control. Consistent with past Western studies, self-control was found to mediate the relationship between religiosity and externalizing behaviour (50). Results indicate that adolescents with higher religiosity are more likely to have higher self-control which in turn reduces the likelihood of externalizing behaviours in Muslim adolescents. In other words, self-control is the psychological resource that transmits the effect of religiosity on adolescent behaviour. It is in line with the Islamic teaching which emphasizes the importance of control and discipline for the human soul with the true knowledge guided by religion. For example, it is commanded in the Quran to restrain anger (3:134), lower gaze (24:31), and lower voice while talking (31: 18-19). The soul attributes that balance and control by the intellect will result in good conduct (49). The element of self-control (for example resist temptation, goal setting, and delay gratification) is inculcated through various Islamic religious practices and behaviours including fasting, attending religious talk, praying, and reading Quran. Therefore, practicing religious behaviours plays a role in the reduction of adolescent's externalizing behaviours.

The present study is not without limitations. Firstly, it is cross-sectional in nature. Data carried out at one point of time may not provide causal relationship between adolescent religiosity and externalizing problem behaviour. Future research is suggested to access the causal relationship and effect of religiosity on externalizing problem behaviour repeatedly over a long period of time. Secondly, this study used self-report and retrospective design of measures, which is potentially subject to recall bias. Moreover, sensitive nature of the concept of both religiosity and externalizing behaviour may make respondents feel uncomfortable to answer honestly or is underreported, which in turns may threaten the validity of the results. Lastly, the generalizability of findings in this study is limited to Muslim adolescents in Tunas Bakti Schools only. These findings may not be applicable to the wider adolescent population or adolescent from different religious groups. Hence, findings from this study should be interpreted cautiously.

Notwithstanding these limitations, the present study highlights the importance of religiosity in adolescent behavioural adjustment, specifically in protecting Muslim adolescents from externalizing behaviours. Additionally, this study emphasized the role of higher self-control strengthened by religiosity as an important component for deterring externalizing behaviour among adolescents. Therefore, religious-based prevention and intervention programmes is needed to nurture stronger religiosity among adolescents, thus fostering higher self-control and preventing them from being involved in externalizing behaviour.

CONCLUSION

The aim of the present study was to examine the relationships between adolescent religiosity, self-control, and externalizing problem behaviour of Muslim juvenile in correctional institutions. Adolescents with higher religiosity levels were more likely to have higher self-control, subsequently reducing the likelihood of externalizing behaviours. Thus, this study emphasized the importance of religiosity in promoting higher self-control and better behavioural adjustment in Muslim adolescents. Prevention and intervention programs involving Muslim adolescents should instil both religiosity and self-control to help facilitate optimal adolescent development.

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