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Socio-Cognitive Predictors Of Qol Among Female Adolescent Religious School Students

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Abstract

This cross-sectional study was carried out to examine the role of attachment styles, executive functioning, social connectedness, and quality of life among female students of religious schools (called madrassa) in Pakistan. The participants comprised of 12 to 18 years old (M_{age} = 1.56, SD = .631) girls (N= 200) enrolled in Madrassas in Faisalabad and Sargodha cities. Data were collected using a purposive sampling technique. Self-reported measures including the Urdu versions of Attachment Styles Questionnaire (Bartholomew & Horowitz., 1991), WHOQOL-BREF (WHO, 1998), Social Connectedness Scale (Lee et al., 2001), control measures included Mini-Mental State Examination (MMSE) (Folstein et al., 1975), and Mindfulness Attention Awareness Scale (MAAS), task-based measures included Digits span (WAIS-IV) (Wechsler, 1997), Stroop Color and Word Test (Stroop, 1935), and Trial Making Test (TMT) A and B forms (Partington & Leiter, 1949). The findings revealed that secure attachment significantly positively correlated with quality of life, and executive functions but not with social connectedness. Secure attachment, cognitive shift, and social connectedness positively predicted QOL. Study indicate strong association between attachment styles and cognitive skills so, improving parenting style play positive role in enhancing executive functioning among religious students. By paying attention on physical and psychological health, cognitive performance of madrassa adolescents might be improved. The findings of the current research might contribute to modify support systems and educational plan. Mental health initiatives can be incorporated to enhance the overall quality of life of female madrasa students.

Keywords: *Attachment styles, Social connectedness, Executive Functioning, Quality of Life, Madrassa Students.*

Introduction

WHO defines QoL as an individual's perception of his/her life situation in relation to the cultural background, expectations[1], value systems, criteria, and objectives (The WHOQOL Group, 1995). The WHO defines quality of life as a multidimensional construct. A sense of well-being, social functioning and emotions, all are related to quality of life (Eriksson & Lindstrom, 2007; Hays & Fayers, 2005). Previously, the definition of QoL for adults was more common than the definition of QoL for children and adolescents. However, in recent literature

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the QoL of children and adolescents is frequently correlated with the definitions meant for adults (Svedberg et al., 2013).

The idea of attachment refers to the innate propensity to develop a closeness and emotional attachment to a significant other. Adult attachment styles develop as a result of the relationships with important figures during childhood period, reflecting in later stages of life. People save early experiences with important figures in childhood period as mental images about themselves and others. These mental constructs serve as the internal working models of the social world and are shaped how people see, feel, and anticipate their interactions (Gallitto & Leth-Steensen, 2015). The psychological consequences of secure and insecure attachment styles were studied which concluded that adolescents suffer more from anxiety and depression due to insecure attachment styles, while those with secure attachment styles experience mental relaxation and as a result their quality of life will be better (Zeidner, et al., 2012).

According to Lee et al. (2001), social connectedness is the perception of long-term interpersonal relationships. Moreover, a person's sense of belonging can be satisfied by social connectedness, which is predicated on the basis of enduring interpersonal relationships. Social connectedness is the feeling of self-worth and belonging to the social world i.e., friends, family, and coworkers (Lee & Robbins, 2000).

Executive function (EF) generally known as cognitive control, is a term used to characterize a group of related but separate cognitive skills like shifting (the flexibility of thoughts and actions), problem-solving, decision-making, attention, working memory (concurrent remembering and processing), inhibitory control, and cognitive flexibility mediated by the prefrontal cortex (Burnett et al., 2013; Costanzo et al., 2013).

According to a research domination over the environment, the sense of control, and the attachment styles are associated with each other (Moghadam, et al., 2016) and the QoL is affected by attachment styles. Unpleasant circumstances are explained by attachment styles, which also affect encoding, reminding, and influencing processes. Because of this, secure attachment styles have a positive bias and raise quality of life, whereas insecure attachment styles have a negative bias that lowers it (Hart & Howard, 2016).

Although EF and social development are still viewed as separate domains of development, there is growing evidence that they are functionally interconnected. Most studies focused on the social origins of EFS and reported that the development of EF occurs through the social interaction of caregivers with their infants (Roskam et al., 2014).

Therefore, the present study's primary goal is to find the role of attachment in the development of EF and quality of life in the Pakistani context. The available literature, regarding this phenomenon reveals that the targeted sample was either adolescents from mainstream schools or from community while this research aims to fill that specific gap by recruiting female students from madrassas. Madrassa which is an Islamic institution may have particular social and cultural contexts that differ across genders in Pakistan.

Materials and Methods

Measures

Demographic Information Sheet

Demographic variables included age, education, birth order, socio-economic status, and time of residing in the institute, nature of the institute, parents' education, family system, and residential area.

Attachment Styles Questionnaire (AAQ; Bartholomew & Horowitz, 1991; Urdu Version; Basri, 2021)

This is a four items scale rated on 7-point Likert type scale ranging from 1 (not at all like me) to 7 (very much like me) measuring four attachment styles (secure, insecure/fearful, dismissive, and preoccupied). The multidimensional nature of the scale and the fact that each item is based

on a distinct theme related to the attachment pattern. Reliability coefficients of the components of the scale are .71, .77, .62, and .41 respectively (Basri, 2021).

Quality of Life (WHOQOL-BREF; WHO, 1998; Urdu version; Lodhi, et al., 2017)

In the present study, the Urdu version of WHOQOL-BREF was used. The 26-item test has four domains: environmental health, social relationships, psychological health, and physical health. Participants use a 5-point Likert type scale, with 1 representing "not at all" and 5 representing "completely," to indicate how much they have experienced the items over the last two weeks. It takes about 4-12 minutes to complete, with average 7-minutes. The reliability coefficient for the whole scale is .86 and for physical, psychological, environmental, and social domains are .78, .71, .73 and .56 respectively (Lodhi et al., 2017).

Social Connectedness Scale (SCS; Lee et al., 2001; Urdu version; Fatima, 2014)
The scale comprised of 20 items rated on a 6-point Likert type scale (1 is strong disagreement and 6 is strong agreement, to answer to various statements on the Social Connectedness Scale. Higher scores correspond to greater social connectedness. The reliability coefficient of the original version SCS-R is .94 determined by Lee (2001). While reliability of Urdu translated version is .89 (Fatima, 2014).

Measures of Executive Functioning

Wechsler Adult Intelligence Scale WAIS-IV-Digits Span subtest (Wechsler, 1997)
It was used for the assessment of working memory. Digit Span Forward requires the participant to repeat numbers in the same order while Digit Span Backward requires the participants to repeat the number in the reverse order. The total raw score for forward and backward digit span is the sum of the item's scores.

Stroop Color and Word Test (Stroop, 1935)
The Stroop Color and Word test was used to measure cognitive inhibition. In this Stroop color test, participants have to recall color words, while in the color-word test, the goal is to identify the color of the ink used to print the words, completely disregarding the meaning of the words themselves. The neutral from the in-congruent trials was subtracted to determine the Stroop interference scores.

Trial Making Test (TMT A&B, Partington & Leiter, 1949)
The respondent connects 13 numbers and 12 letters alternately as quickly as possible. TMT A and B were most frequently tested for assessing mental flexibility. The individual must repeatedly switch their focus of attention between two sequences (numerical and alphabetical).

Control Measures

Mini-Mental State Examination (MMSE; Folstein et al., 1975; Urdu version, Awan et al., 2015)
The MMSE, is a simple paper-and-pencil test, a total possible score of 30 points, used to screen out the presence of cognitive impairment. The alpha reliability of the test is .74 for Urdu version (Awan et al., 2015)

Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan 2003; Urdu version, Ajmal & Batool, 2020)
The scale is comprised of 15 items with a 6-point Likert type scale for measuring fundamental aspects of mindfulness. The item scores range from 1 (never) to 6 (quite often). The Cronbach's Alpha of the MAAS Urdu version is .97 (Ajmal & Batool, 2020). A negative emotional state is

indicated by lower scores, while higher scores demonstrate a higher degree of dispositional mindfulness.

Procedure

After getting approval from Ethical Review Board and Faculty Board the permission was sought from the authors of the original and translated study measures before data collection. Later on, the female madrassa authorities were approached with authority letters to seek permission for data collection. The participants were approached and their informed consent was taken. They were assured that the data will remain anonymous and confidential and scores will only be used for research purpose without showing participant's or institute's identity. The data collection comprised of two sessions where in the first session self-report measures were administered. The next session started after a break of 15-20 minutes where task based measures was administered. The participants were thanked for sparing time out of their busy academic schedules.

Results

Table 1 Descriptive Statistics and Alpha Reliability for Study Measures (N = 200)

				Range	
Scales	M	SD	α	Potential	Actual
Secure Attachment	4.99	2.37	--	1	7
Insecure/Fearful Attachment	4.02	2.58	--	1	7
Insecure/Dismissive Attachment	4.69	2.61	--	1	7
Insecure/Preoccupied Attachment	3.78	2.53	--	1	7
PH	65.89	15.67	.63	7	35
PH	66.08	14.71	.69	6	30
SR	66.42	21.67	.54	3	15
EH	62.09	14.92	.62	8	40
Interference Measures	3.48	3.99	--	0	22
Working Memory	13.84	5.38	--	3	30
Cognitive Shift	.94	.12	--	.57	1.96
Social Connectedness	71.25	9.91	.63	20	120
MAAS	47.76	12.43	.76	15	90
MMSE	29.16	1.31	--	0	30

Note: PH = Physical Health, PS=Psychological Health, SR=Social Relationships, E=Environment.

It has been found that the reliability value of all scales and sub-scales range from (.54 to .76). The reliability coefficient of the scales SA, IFA, IDA, and IPA was not computed because it is a multidimensional scale each item is based on a separate theme relating to attachment pattern. The reliability of the Mini-Mental State Examination, cognitive shift, and Interference scale was not computed being task based measures.

Table 2 Spearman Bivariate Correlation Matrices of Study Variables (N=200)

Variables	SA	IFA	IDA	IPA	QOL	SWH	PH	PSY	SOH	EH	CF	Inter	WM	CS	PSS	SC	MAAS	MMSE
SA	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
IFA	-.04	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
IDA	.08	**.13**	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
IPA	.06	.02	**-.20****	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
QOL	-.01	.01	.06	.02	1	--	--	--	--	--	--	--	--	--	--	--	--	--
SWH	.00	.01	.12	.12	**.41*****	1	--	--	--	--	--	--	--	--	--	--	--	--
PH	.09	-.12	**.14***	-.06	**.28*****	**.28*****	1	--	--	--	--	--	--	--	--	--	--	--
PSY	.13	-.05	**.21****	-.01	.13	**.22****	**.57*****	1	--	--	--	--	--	--	--	--	--	--
SOCI	.13	.07	**.23****	-.07	.12	.11	**.46****	**.48****	1	--	--	--	--	--	--	--	--	--
ENVI	**.23****	.09	.10	-.05	.14	**.18***	**.50****	**.56****	**.49****	1	--	--	--	--	--	--	--	--
CF	-.05	-.08	.09	-.02	.06	.05	-.01	-.02	.03	-.05	1	--	--	--	--	--	--	--
Inter	.05	.01	-.05	.04	-.05	-.01	-.09	.00	.04	-.07	-.09	1	--	--	--	--	--	--
WM	**-.28****	-.04	.01	.04	-.12	.02	-.13	.03	-.05	-.11	.08	-.13	1	--	--	--	--	--
CS	.08	-.00	.06	-.04	.06	-.01	.02	**.15***	.10	.10	**-.31*****	.12	-.09	1	--	--	--	--
PSS	.04	-.07	.11	-.01	.10	.05	-.02	.07	.08	.01	**.80*****	-.02	-.00	**.28*****	1	--	--	--
SC	.05	.03	.03	-.00	.12	.08	.03	.02	.03	.12	.07	.03	-.08	.02	.09	1	--	--
MAAS	**.24****	.08	.02	-.09	.04	.05	**-.19****	-.12	-.04	.14	**-.15***	-.14	-.05	-.03	**-.16***	**.18***	1	--
MMSE	.039	-.11	.13	-.07	.06	-.07	.13	.07	**.19****	.09	.04	.04	.05	**-.14***	-.04	-.01	.02	1

*p<.05. **p<.01. ***p<.001

Note. SA= Secure Attachment; IFA= Insecure/Fearful Attachment; ISA= Insecure/Dismissive Attachment; IPA= Insecure/Preoccupied Attachment; QOL= Quality of Life; SWH= Satisfaction with Health; PH= Physical Health; PSY= Psychological Health; SOCI= Social Relationships; ENVI= Environmental Health; PSS= Processing Speed Skills; CF= Cognitive Flexibility; Inter= Interference; WM= Working Memory; CS= Cognitive Shift; SC= Social Connectedness; MAAS= Mindfulness Attention Awareness Scale, MMSE= Mini-Mental State Examination.

The finding indicates that secure attachment positively correlates with environmental health (a domain of QOL) with a small effect size. Insecure/dismissive attachment positively correlates with physical, psychological, and social relationships, (domains of QOL) with a small effect size. Psychological Health (a domain of QoL) positively correlates with cognitive shift a component of executive functioning with a small effect size. Cognitive shift, a component of EF positively correlates with psychological health (QoL domain) with a small effect size. EF (working memory) negatively correlates with secure attachment having a small effect size. Attachment styles negatively correlate with working memory a component of EF with a small effect size.

Social connectedness does not correlate with any component of attachment styles, QoL, and Executive Functioning. Secure attachment does not correlate with components of EF i.e. interference measures, cognitive shift, cognitive flexibility, and processing speed skills. QoL does not correlate with any of the EF component.

Table 3 Multiple Linear Regression for Predictors of QoL (N=200)

Variables	B	SE	β
Constant	61.55	8.38	
Secure Attachment	.84*	.33	.17
Cognitive Shift	10.72*	6.48	.11
Social Connectedness	.21**	.08	.18
ΔR^2	.08		

*p<.05, **p < .01.

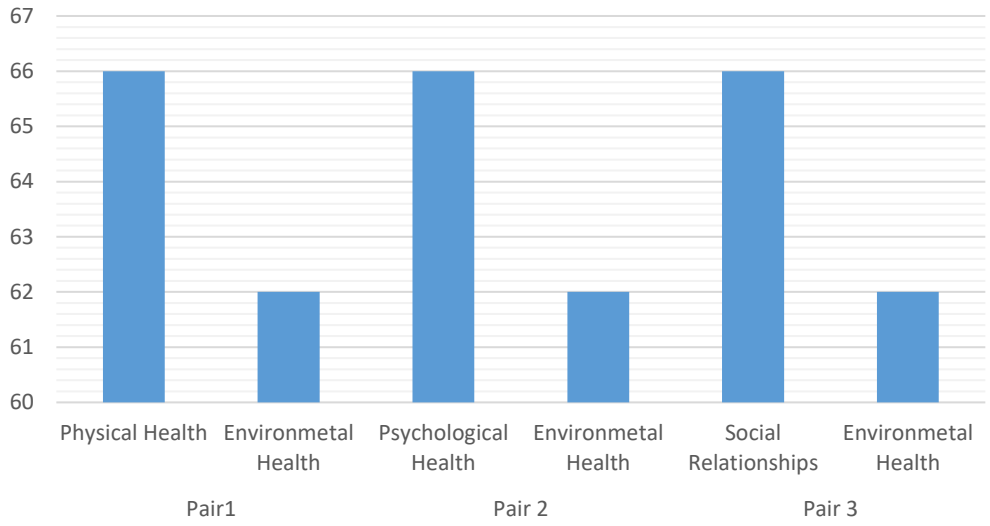
The multiple linear regression analysis results revealed that Secure Attachment, Cognitive Shift, and Social Connectedness were found to be significant predictors of QoL as an outcome. Indicating that the value of ΔR^2 was .08 which indicated that Secure Attachment, Cognitive Shift, and Social Connectedness explained 8% variance in Quality of Life with F (3, 196) = 5.897, p<.01. The results mean that the mental skill to redirect the attention from one fixation to another point predicts the quality of life. On social grounds, perceived secure attachment with others and a sense of belongingness, being cared for and supported by their diverse relationships predict congruence between aspirations and accomplishments in female madrassa students.

Table 4 Difference between Pairs of Four Domain Scores of Quality of Life for Female Madrassa Students (N=200)

Domain/Items	**Mean Difference**	**SD**	**t(199)**	**95%CI**	**p-value**	**η^2**
PH and PS	-.19	14.08	-.19	(-2.15, 1.77)	.849	--
PH and SR	-.52	20.09	-.37	(-3.32,2.28)	.713	--
PH and E	3.79	15.29	3.51	(1.67,5.93)	**.001**	0.06
PS and SR	-.33	19.50	-.24	(-3.05,2.39)	.809	--
PS and E	3.99	13.91	4.06	(2.05,5.93)	**.000**	0.08
SR and E	4.32	19.33	3.16	(1.63,7.02)	**.002**	0.05

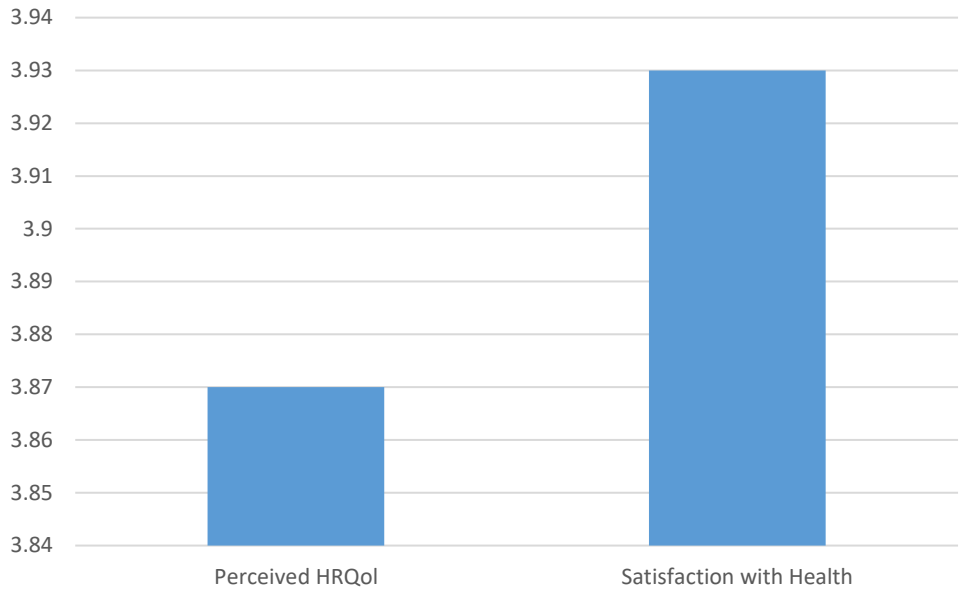
Note: PH = Physical Health, PS=Psychological Health, SR=Social Relationships, E=Environment.

Figure 1 Paired Sample t-test to Compare the Means of Four Domains of QoL of Female Madrassa Students (N=200)



The results of paired sample t-tests to compare the means of (Physical, Psychological, Social Relationships, and Environmental Health) domains of QoL. Physical, psychological, and social relationship domains were found statistically significant with the Environmental Health domain. However, the mean difference between physical health and the environment was significant with a higher score on physical health than the environment. The value of η^2 indicated a medium effect size. Interpreting the findings madrassa students were good in physical health as compared to the environment. The mean difference between psychological health and the environment was significant with a higher score on psychological health than the environment. The value of η^2 indicated a large effect size. Interpreting the findings students were better in psychological health than environmental health. Similarly, the mean difference between social relationships and the environment was significant with a higher score on psychological health than the environment. The value of η^2 indicated a moderate effect size. Interpreting the findings students were good in social relationships as compared to the environment.

Figure2 Mean Scores of Satisfaction with Health and Perceived Health-Related QoL of Female Madrassa Students (N=200)



The figure above shows mean scores of female madrassa students on two items of Quality of Life i.e. Satisfaction with Health and Perceived Health indicate that Satisfaction with Health was greater than the mean scores on Perceived Health-Related Quality of Life.

Discussion

In the current study, overarching goal was to find out the predictive role of social cognitive factors (i.e. working memory, cognitive inhibition, & mental flexibility) for the quality of life while controlling for the effect of state attention and current mental and cognitive state in madrassa students. According to the study's findings, significant association was found between students' attachment styles and their QoL (Noftle & Shaver, 2006). Students with secure attachment styles showed higher QoL scores (Brumbaugh & Fraley, 2006). In addition, research indicates that secure attachment style predicts better QoL. These findings are supported by Muris et al (2004) who states that secure attachment styles of adolescents positively correlated with life satisfaction and sociability (see Table 2)

Secure Attachment styles do not positively correlate with inhibitory control, working memory, and cognitive shift (executive functioning abilities). The relationship between secure attachment style and working memory is complex and not fully understood. These findings are supported by Del Villano et al. (2014) who states that there may be a negative correlation between secure attachment and working memory. There might be a possibility that secure attachment often develops through positive early care giving experiences, which can lead to a strong sense of trust and safety. If a person had secure attachment experiences, they may not have faced significant stressors or trauma during their early development (see Table 2).

The study didn't include a diverse sample. Due to the small and homogeneous sample, the correlations may not have represented the population. However, variability in attachment styles is a cultural phenomenon that may have been overlooked. Various other factors like educational opportunities may overshadow the influence of early attachment. Girls may adapt and develop cognitive executive functions regardless of their early attachment style which demonstrates a natural human capacity for resilience (Mikulincer & Shaver, 2012).

Secure attachment styles predict a better quality of life among female madrassa students. The people with a secure attachment style use strategy that reduce stress and promote positive emotions, whereas insecure attachment styles use strategies that target negative emotions. These findings suggest that there is an association between student's attachment styles and day-to-day moods (Noftle & Shaver, 2006; Tatnell et al., 2017).

The quality of life is inversely correlated with insecure attachment types. According to a research by Moghadam and colleagues' (2016), there is a connection between attachment style and a feeling of dominance and control over one's surroundings. It has been observed that

people with insecure attachment styles have limited interpersonal relationships since they are unable to control their surroundings and form positive relations (Zilcha-Mano, 2018).

Attachment patterns are linked to executive functioning skills and its development. People who have a strong attachment pattern have more resources (emotional, cognitive and behavioral) to invest in their academic performance. Executive functioning is thought to be essential for academic performance because it supports many of the skills needed to successfully manage a learning environment, such as the ability to focus and distract as needed, remain focused, resist distraction in class or in social interactions, learn from academic or interpersonal mistakes, and control the urge to react impulsively to social stimuli (Bernier at al., 2015).

Study Implications

This study finding will help out religious school authorities to promote positive growth by introducing better social environment (specifically social connectedness) among religious students. Understanding socio-cognitive predictors may guide targeted interventions, rehabilitation programs, and holistic social support systems/ networks to address the unique needs of female students and in turn will enhance their overall QoL. The implementation of more comprehensive and effective strategies based on relational and emotional components will also help out in reducing recidivism among students of religious schools. Building secure attachments and addressing attachment-related issues could contribute to improve overall mental health outcomes.

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