Vol. 3 No. 4 (2025)

ISSN 3007-3170(O)
ISSN :3007-3162(P)

Social Sciences & Humanity Research Review

Socio-Cognitive Correlates of Health-Related Quality of Life Among Institutionalized Elderly in Pakistan

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ARTICLE INFO

Keywords:
Attachment Styles, Executive Functions, Social Connectedness, Health Related Quality Of Life, Institutionalized Elderly.

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ABSTRACT

A cross-sectional correlational research design was used in the current study to examine the relationship between attachment styles, social connectedness, executive function domains, and health-related quality of life among institutionalized elderly. This study includes 200 institutionalized elderly people with age range of 60 to 75 years (M_{age}= 68.66; SD= 5.118) through purposive sampling strategy. The sample size was calculated by G power as 200 (*n*=100 institutionalized men elderly, *n* = 100 institutionalized women elderly). The sample was selected from old homes (Afiat Center Faisalabad and Edhii Center Faisalabad, Women Welfare Organization Sargodha) of Faisalabad and Sargodha, cities. Self-reported measures including the Attachment Styles Questionnaire (Bartholomew & Horowitz 1991), WHOQOL-BREF (WHO, 1998), Social Connectedness Scale (Lee et al., 2001), Control Measures including Mini-Mental State Examination (MMSE) (Folstein et al., 1975), and Mindfulness Attention Awareness Scale (MAAS), task-based measures including Digits span (WAIS-IV) (Wechsler, 1997), Stroop Color and Word Test (Stroop, 1935), and Trial Making Test (TMT) A and B (Partington & Leiter, 1949) were used. The findings reveled that secure attachment was significantly positively correlated with processing speed, cognitive shift, and social connectedness. All insecure domains were found either negatively or uncorrelated with the executive functioning skills or HRQoL. This research will be a unique contribution in the field of gerontology specifically finding out the socio- cognitive correlates of HRQoL among the institutionalized elderly.

Introduction

According to Bartholomew and Horowitz (1991), attachment is a dichotomized, two-dimensional picture of the self and others. Four types are created by combining these two dimensions: secure, concerned, afraid, and dismissive. Bartholomew et al. (1991) identified four adult attachment styles: secure, anxious (also known as preoccupied), avoidant (also known as dismissive), and disorganized (also known as fearful avoidant). These four adult attachment styles were described in terms of working models of self and others.

According to Lee et al. (2001), the concept of social connectedness refers to beliefs about long-term interpersonal relationships and the social environment. This concept develops from interactions among people in social networks. Social connectedness, which is built on enduring interpersonal connections, can satiate one's sense of belonging. Social connection is defined as one's belief about oneself in relation to others and one's sense of belonging to the social world, which includes family, friends, and coworkers (Lee & Robbins, 1998).

The term "executive functions" (EF) refers to the mental abilities required to set goals, make plans, carry them out successfully, and engage in self-awareness and self-reflection. Several executive functions characteristics change during the normal aging process (Lima et al., 2012).

The WHO defines the QoL as "individuals' perceptions of their position in life in relation to their goals, expectations, standards, and concerns, and in the context of the culture and value systems in which they live" (World Health Organization, 2007). The three basic categories of quality of life are physical, social, and psychological. These broad sectors might be impacted entirely, in part, or separately (Lima et al., 2009). The physical domain of quality of life is comprised of physical function, which encompasses daily living activities (Painter et al., 1999). The term "health-related Quality of Life" (HRQoL) refers to "the subjective assessment of the impact of disease and treatment across the physical, psychological, social, and somatic domains of functioning and well-being" (Davis et al., 2010).

According to religious principles, the family in Pakistan is seen as a social care organization in charge of caring for the aged. The majority of the population is now urbanized, which has replaced the joint family structure with the nuclear family system and put pressure on close relatives to care for their older relatives as a result of recent modernization. The findings of the study will have important policy implications improving the health-related quality of life. The findings of the study will have important implication in improving the social connectedness which in result improves their health-related quality of life.

Methods

Measures

Demographic Information Sheet

Demographic information sheet was used to get the personal information of research participants on various demographic variables such as age, gender, education, number of children, marital status, no. of siblings, and duration of institutionalization.

Relationship Style Questionnaire (Griffen & Bartholomew, 1994)

The Relationship Style Questionnaire (RSQ), developed by Griffin and Bartholomew in 1994, has 30 items for assessing how one feels about close relationships. The RSQ assesses attachment styles of secure attachment (items 3, 9, 10, 15, 28), insecure fearful attachment (2, 6, 19, 22, 28) and insecure dismissive attachment (1, 5, 12, 24), insecure preoccupied attachment (6, 8, 16, 25) by examining two dimensions of anxiety and avoidance. However, the scoring for questions 9, 28, and 6 has been reversed. Each response is given a score on a Likert-type scale

ranging from 1 (not at all) to 5 (very much). The score for each style is determined by computing the means of the items in that style. A scale has a good internal consistency of .80 (Collins & Read, 1990).

Social Connectedness Scale-Revised (SCS-R; Lee & Robbins, 1995)

The SCS-R consists of 20 items that measure proximity experiences in interpersonal settings as well as challenges in creating and maintaining a sense of connection. Ten of the items are negatively worded, whereas the remaining items are positively worded. Examples of items are "I feel like I don't participate with anyone or any group" and "I am in tune with the world." Items with negative wording are reverse scored, and a higher score denotes a stronger level of social connectivity. A 6- point rating scale is used by the SCS-R (1 being strongly disagree and 6 being highly agree). With an item mean score range of 1 to 6, the scale can attain a score between 20 and 120. For the current study, Cronbach's Alpha coefficient of the social connectedness scale was .79.

MOS SF-36 Health Survey (Mc Horney et al., 1994)

The SF-36 health questionnaire has 36 items total. The remaining items are divided into eight multi-item scales, including physical functioning (PF; 10 items, rated from 1-3), role limitations brought on by physical issues (RP; four items, rated from 1-2), bodily pain (BP; two items, rated from 1-6 or 1-5), general health perceptions (GH; five items, rated from 1-5), and vitality (VT; four items). One item is intended to evaluate the health transition over the past year (health transition RT). A higher score indicates better health. The current study has Cronbach's Alpha coefficient for SF-36 Health Survey was .85.

Measures of Executive Functioning

Following measures of EF were used to assess executive functioning domains.

Digits Span (WAIS-III; Wechsler, 1997). To evaluate working memory, the digit span test was applied. An individual taking the test is exposed visually or audibly to a series of digits one after the other. The test subject is next required to recall the proper digits in the same order. The subject must repeat the numbers spoken by the examiner in the same order throughout the Digits Forward subtest. The patient must repeat the same numbers in reverse order in the Digits Backward subtest.

Stroop Test (Golden, 1978) was used for assessing inhibitory control, the Stroop test was the one that was used the most (6 out of 11 investigations). It evaluates the subject's capacity to control an automatic activity (saying the color the word is printed in) and suppress an automatic behavior (reading a word).

Trial Making Test (TMT; Reitan &Wolfson, 1985) form A and B were most frequently used test for assessing mental flexibility. TMT form A connects circled numbers in ascending order and it measures processing speed. It connects 13 numerals and 12 characters swiftly and alternately. The subject is required to alternate between two sequences (alphabetic and numerical) repeatedly.

Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003) is a 15-item MAAS test that measures someone's inclination to be present in the moment. As a result, the instrument concentrates on how attentive and conscious people are of their surroundings. This scale relates to several aspects of wellbeing as well as a person's capacity for handling stressful situations. The Likert scale has six points, range from 1 "almost always" and six "almost never." High scores indicate greater awareness. The scale has good reliability ranging of .82 and .87 (Brown & Ryan, 2003).

Procedure

The research proposal was approved by institutional Ethics Review Committee before further proceeding with data collection. Permission from the scale authors of original and translated versions was taken. The permission was also sought from the directors of the old homes to collect data from institutionalized elderlies.

Before starting the research, participants were provided with a brief introduction about study objectives and some guidelines were provided to fill the scales. During the completion of the research, the participant's queries were addressed by the researcher. After the completion of the research, the researcher thanked all the participants for their active participation in the research.

Results

Table 1

Descriptive Statistics and Reliability Coefficients of Study Variables (N=200).

Variables	M	SD	Range	α
Attachment Styles	-	-	-	**.60**
Secure Attachment	4.55	1.864	1-7	
Insecure Fearful	3.73	2.477	1-7	
Insecure Dismissive	4.69	2.356	1-7	
Insecure Preoccupied	3.97	2.376	1-7	
Executive Functions	-	-	-	-
Inhibitory Control	4.77	10.42	0-80	
Motor Skills	44.30	12.816	25-80	
Cognitive Flexibility	144.82	22.365	120-190	
Cognitive Shift	.314	.1064	16-61	
Working Memory	7.63	2.899	3-20	
Social Connectedness	78.39	14.647	41-108	**.80**
Health Related QoL	-	-	-	**.81**
Physical Health	272.21	6.466	257-282	
Psychological Health	47.25	12.939	13-79	
Social Relations	65.54	21.812	17-100	
Environment	60.39	15.807	22-94	
Health Satisfaction	3.83	.973	1-5	

Note. M= Mean, SD = Standard Deviation

Table 1 show the reliability of the social connectedness scale is .80 and mindfulness awareness scale has .80 reliabilities for the current study which shows satisfactory reliability. The Cronbach's alpha of health-related quality of life is .77. The reliability coefficient ranges >. 90 is excellent, .70 - .80 is good and .60-.70 is considered as acceptable (Schmitt, 1996).

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

	SA	InF	InDis	InPr	ICl	TMT-A	TMT-B	CS	WM	SC	PhyH	PsyH	SR	EnvH	HS
SA	1	-.14*	.13	-.06	.02	.30**	-.10	.30**	-.04	.21**	.098	-.06	-.07	-.03	-.08
InF	-	1	.06	.22**	-.00	-.09	.12	-.15*	.20**	-.30**	-.16*	.05	.21**	.26**	.12
InDis	-	-	1	-.15*	.01	-.11	-.02	-.08	.00	.09	.03	.09	.14	.07	-.07
InPr	-	-	-	1	-.12	.05	.09	-.01	.09	-.20**	.05	.11	.23**	.17*	.14*
IC	-	-	-	-	1	.12	.23**	-.03	-.07	.22**	-.01	-.17*	-.15*	-.18*	-.23**
TMT-A	-	-	-	-	-	1	-.09	.89**	-.09	.12	.09	-.07	-.16*	-.08	-.06
TMT-B	-	-	-	-	-	-	1	-.52**	.02	-.06	.02	.06	.10	-.00	.01
CS	-	-	-	-	-	-	-	1	-.10	.13	.06	-.08	-.18*	-.07	-.05
WM	-	-	-	-	-	-	-	-	1	-.15*	-.11	.04	.046	.11	-.04
SC	-	-	-	-	-	-	-	-	-	1	-.06	-.24**	-.16*	-.26**	-.16*
PhyH	-	-	-	-	-	-	-	-	-	-	1	.28**	.14	.15*	.14
PsyH	-	-	-	-	-	-	-	-	-	-	-	1	.50**	.61**	.28**
SR	-	-	-	-	-	-	-	-	-	-	-	-	1	.52**	.24**
EnvH	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.28**
HS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note: SA= secure attachment, InF= insecure fearful, InDis = insecure dismissive, InPr = insecure preoccupied, IC=inhibitory control, TMT-A= Trial making part A, TMT-B= Trial making part B, CS = Cognitive Shift, WM= Working memory, SC= social connectedness, PhyH = physical health, PsyH = psychological health, SR = Social relations, EnvH = Environment, HS = Health satisfaction, *p<.05**, p<.01

Table 2 indicated that secure attachment was significantly positively correlated with processing speed, cognitive shift, and social connectedness with low to medium effect size. Insecure fearful attachment was found significantly negatively correlated with cognitive shift, social connectedness and physical (HRQoL) with low to medium effect size however, it was found significantly positively correlated with working memory, social relations and environmental health with low effect size. Insecure dismissive attachment style was significantly positively correlated with social relations with low effect size. Insecure pre- occupied attachment was found significantly negatively correlated with social connectedness with low effect size and significantly positively correlated with social relations, environmental health and health satisfaction. None of the executive domains was found correlated with physical health. Moreover, inhibitory control was significantly negatively correlated with psychological, social relations, environmental health and health satisfaction (the domains of HRQoL) with low effect size. While inhibitory control was significantly positively associated with social connectedness having low effect size. All the executive function domains were found significantly negatively correlated with social relations except working memory. The effect size of relationship was low.

Table 3

Multiple Regression for Prediction Health Related Quality of Life Domains in Institutionalized Elderly (N=200).

Variables	*B*	*SE*	*β*	*t*	*p*
Physical Health	$R^2 = .096$, $\Delta R^2 = .043$, $F=1.58$				
Constant	50.12	1.99		25.18	.00
InF	-.07	.03	-.18	-2.19	.03
SC	-.012	.006	-.168	-2.061	.04
Psychological Health	$R^2 = .082$, $\Delta R^2 = .028$, $F = 1.81$				
Constant	13.295	3.953		3.363	.00
SC	-.028	.011	-.198	-2.450	.02
Social Relations	$R^2 = .142$, $\Delta R^2 = .092$, $F = 2.83$				
InDis	.228	.104	.154	2.193	.03
InPr	.300	.107	.205	2.798	.01
Environmental Health	$R^2 = .156$, $\Delta R^2 = .107$, $F = 3.16$				
Constant	13.071	4.665		2.802	.01
Mindfulness	.034	.014	.204	2.480	.01
Health Satisfaction:	$R^2 = .106$, $\Delta R^2 = .054$, $F = 2.03$				
Constant	3.589	1.846		1.944	.05
IC	-.019	.007	-.208	-2.688	.01

Table 3 concludes that all the HRQoL domains are predicted by various executive and personal domains. Insecure fearful attachment and social connectedness negatively predicted physical health while, social connectedness was also found to be a negative predictor of psychological health. The two types of attachment styles insecure dismissive and insecure preoccupied were revealed as the positive predictors of another health related QoL domain of social relations. Mindfulness attention awareness was found to be a positive predictor of environmental health. Inhibitory control on the other side was proved to be a negative predictor of health satisfaction.

Table 4

Independent Sample t-test Showing Genders Differences on Study Variables (N=200).

	Male		Female		*t*(198)	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*			
1. Insecure Preoccupied	3.60	2.391	4.31	2.324	-2.107	.036*	0.301
2. Motor Skills	42.01	12.590	46.40	12.719	-2.453	.015*	0.346
3. Environment QoL	57.39	17.069	63.16	14.068	-2.597	.010**	0.368

Note. *M*= Mean, *SD* = Standard Deviation, **p<.01, *p < .05

Table 4 indicates that there are significant differences between men and women on insecure preoccupied attachment with higher scores of women as compared to men. This reflects that women are more likely to show preoccupied attachment patterns than men in the studies sample.

Moreover, regarding expression of motor skills, women were better than men with medium effect size. Lastly, women perceive better quality of life related to the environment compared to men. Women at homes perceive greater satisfaction with their surroundings, facilities and services. They perceive more safety, comfort and support in their living environment.

Discussion

The current study was conducted to determine the relationship between attachment styles, social connectedness, executive functioning and health related quality of life among institutionalized elderly. According to Cuddy and Fiske (2004), old age is frequently accompanied by numerous challenges and issues. A person's social group changes as they become older, going from younger adults to older adults. Ageism can subsequently transform into a type of "self-ageism," which refers to having unfavorable opinions about persons who are your own age (Bodner, 2018).

The findings indicate (see table 3) that secure attachment supports stronger executive functions (processing speed, cognitive flexibility) and higher social connectedness, aligning with recent evidence that secure bonds enhance self-regulation and well-being (Fearon et al., 2025). In contrast, insecure attachments show mixed patterns: fearful attachment impairs flexibility, social connectedness, and physical health but relates positively to working memory and some HRQoL domains, suggesting compensatory mechanisms (Choi et al., 2023); dismissive and preoccupied styles show selective links to social relations and environmental satisfaction (Abolghasemi et al., 2024). The role of inhibitory control appears nuanced, correlating better social connectedness but lower psychological and environmental well-being, echoing findings that excessive self-control may trade off with emotional health (Kim-Spoon et al., 2024). Overall, the results reinforce

contemporary evidence that attachment styles shape executive functioning and health outcomes through both adaptive and maladaptive pathways.

Evidence from Asia also echoes these trends. The secure attachment has been linked with higher quality of life in married women through marital satisfaction (Acharya & Gohain, 2022), greater life satisfaction in adolescents via self-efficacy (Qin et al., 2020), and more positive relational outcomes overall, while insecure styles correlate with interpersonal distortions and rejection sensitivity adults (Bodner & Cohen-Fridel, 2010; Arathy, 2024). Longitudinal studies indicate that attachment patterns are reasonably stable across the adult lifespan, including old age. Research, such as a 14-year follow-up of the Whitehall II study, suggests that adult attachment has enduring associations with mental and physical health in older adults, implying stability in this phase of life (Platts et al., 2023).Together, these findings reinforce that attachment styles shape executive functioning, social connectedness, and health outcomes across cultural contexts through both adaptive and maladaptive pathways.

The findings of this study further highlight how attachment styles, executive functioning, and personal resources shape health-related quality of life (HRQoL) among institutionalized older adults. The negative predictive role of insecure fearful attachment and social connectedness for physical and psychological health suggests that, in old age, fear-based relational patterns and weakened social bonds may erode well-being, echoing prior work showing insecure attachment as a risk factor for poor health outcomes in later life (Cicirelli, 2010). Interestingly, dismissive and preoccupied attachment styles emerged as positive predictors of social relations, which may indicate that, even in insecure patterns, relational engagement remains a coping mechanism for institutionalized elders, a finding supported by evidence that attachment strategies can function adaptively depending on context (Magai & Cohen, 1998). Moreover, the role of mindfulness as a positive predictor of environmental health is consistent with studies showing that present-moment awareness enhances perceptions of environmental mastery and quality of life in older populations (Geiger et al., 2016). Conversely, the negative impact of inhibitory control on health satisfaction suggests that rigid self-regulation may limit flexibility and emotional fulfillment in institutional settings, aligning with recent work emphasizing that over controlled regulation can undermine subjective well-being (Kim-Spoon et al., 2024). Taken together, these results underline the complex ways in which attachment and self-regulation processes interact with social and personal resources to influence well-being in later life, particularly for those residing in old age homes in Pakistan.

The findings suggest that women tend to be more insecurely preoccupied in their relationships during later stages of life (see table 4), which aligns with previous research highlighting gender differences in attachment patterns across the lifespan. Insecure-preoccupied attachment type is characterized by heightened dependency, fear of abandonment, and anxiety about relational stability, has been found to be more prevalent among women, particularly as they age and face psycho-social challenges such as declining health, loss of partner, gaining lesser approval from family members in the form of reduced social support and connectedness (Mikulincer & Shaver, 2019). Older women may internalize cultural expectations, particularly in Pakistan, of relational interdependence more strongly than men, which can heighten feelings of insecurity when relationships become strained (Antonucci et al., 2010). These findings underscore the importance of considering gendered socialization processes and age-related stressors in understanding attachment insecurities among elderly populations, with implications for both mental health interventions. Gender and cultural norms are important to understand this deterioration.

Elderly Women secured higher score on fine motor skills which is explained through the gender based differences in motor functioning where women demonstrate better preserved coordination, manual dexterity and fine motor control in older age as compared to men who are supposedly higher on muscular strength (Rodríguez-Aranda et al., 2016).These findings further suggest that higher motor skill scores of elderly women may reflect both biological and life style factors that contribute to sustained motor performance in later life.

The findings further support that women have better environmental quality of life than men that is indicative of the favorable living conditions while institutionalized, there is less insecurity regarding daily routines, health related checkups or medical assistance, good access to services and facilities and lack of environmental nuisance (Skevington et al, 2024). Higher scores also indicate not only satisfaction with physical infrastructure but overall perceived control and mental peace.

Implications

The findings of the current study have important implications for policy making, clinical practice, and institutionalized care of elderly people. There is dire need for government-based policies and programs to promote social engagement and cognitive stimulation among Pakistani institutionalized elderly to enhance their health-related quality of life. On the other hand, healthcare providers can use socio-cognitive assessments to identify at-risk elderly individuals and design personalized interventions targeting social support, executive functioning domains, and coping strategies. Old homes can implement structured social activities, various cognitive training programs, and counseling services to improve overall mental health and well-being. Additionally, the study findings highlight the importance of cultural and environmental factors in elderly care and provides a foundation for further research on socio-cognitive determinants of well-being in low- and middle-income countries.

Future Suggestions

Future research should consider employing longitudinal research designs to better understand how attachment styles, executive functions, and health-related quality of life change over the period of time, as the cross-sectional nature of the current study limits causal inference. To enhance generalizability of the research findings, future studies may also expand the sample to include community-dwelling older adults and compare them with institutionalized populations. Future research should also pay closer attention to gender differences in attachment and cognitive functioning, as well as the influence of institutional environments, such as caregiving quality and social activity structure. Given the significance of secure attachment and social connectedness observed in this study, intervention-based research such as attachment-focused group therapy, mindfulness-based programs, or structured social engagement activities could be valuable in improving cognitive and quality-of-life outcomes among the elderly.

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