The Correlation between Attachment Style, Cognitive Flexibility, and Mentalization with the Social Well-being of Yoginis

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Abstract

Background: Women play a key role in the social and psychological well-being of societies, and yoga is one of the recognized training methods for improving women's psychological abilities. The present study aimed to investigate the correlation between attachment style, cognitive flexibility, and mentalization with the social well-being of yoginis, female yogis.

Method: This was a descriptive and correlational study. The statistical population consists of all female yogis who participated in yoga classes in Tehran, Iran in 2023. The convenience sampling technique was used to select a group of 120 women practicing yoga, aged 30 to 50, who had been practicing yoga regularly for a minimum of five years. The study variables were measured using the Social Well-Being Questionnaire (SWQ), Reflective Functioning Questionnaire (RFQ), Cognitive Flexibility Inventory (CFI), and Revised Adult Attachment Scale (RAAS). The correlation between the study variables was analyzed using the Pearson correlation coefficient and regression analysis through SPSS version 24.

Results: The outcomes of the multiple regression analysis indicated that avoidant attachment style (β=-0.214, P=0.029), anxious attachment style (β=0.341, P=7.731×10⁻⁴), and confidence dimension (β=0.259, P=0.004) were able to predict social well-being significantly. The most substantial contributions to social well-being came from anxious attachment style (β=0.341) and confidence dimension (β=0.259). However, secure attachment (P=0.109), cognitive flexibility (P=0.434), and uncertainty dimension (P=0.150) showed no significant associations with social well-being. The model's coefficient of determination was 0.239, indicating that the predictor variables accounted for 23.9% of the variation in social well-being.

Conclusion: Given the strong connection between attachment and mentalization, the impact of an individual's attachment style on social interactions is highlighted. Our results can lead researchers to gain a more profound insight into topics related to health and its components.

Keywords: Attachment style, Cognitive flexibility, Mentalization, Social well-being, Yoga

1. Introduction

Health and disease arise from the interplay of biological, psychological, and social factors. Health encompasses not only the absence of illness and infirmity but also complete psychological and social well-being (1). The present perspective on health and disease considers the mutual impact of the mentioned interactions as a biological-psychological-social model. Health is divided into two main branches, namely clinical-based health psychology and social-based health psychology (2). One of the crucial sub-branches of health psychology is social well-being, which is generally used in two different and intertwined meanings. Social well-being encompasses individual health, social interactions, progress in social situations, as well as the health of the entire society and how members of society behave toward each other (3).

Therefore, social well-being is of double importance as it is closely related to physical and mental health, making it the latest critical and essential part of individual health. Social well-being usually involves how individuals establish correlations with others, including forming and maintaining friendships. Isolation is not only a result of mental and physical illness, but it can also lead to the development or worsening of illness (4).

Yoga practitioners have better balance compared with other groups and engage brain regions related to self-regulation and inhibitory control (5). Yoga is associated with increased social interaction. Findings indicated that yoga practically and emotionally creates a sense of social belonging for yogis. Yogis meet new friends and feel a sense of belonging to them (6). Yoga practices bring individuals closer together and have a significant

impact on their physical, emotional, and social well-being (7).

According to the World Health Organization (WHO), health refers to complete physical, mental, and social well-being. Social well-being refers to individuals' ability to have good interpersonal correlations and social adjustment. Several studies indicated the interaction between the three dimensions of health (8). Yoga is a tool for strengthening mental, intellectual, social, emotional, and overall health. The formation of friendships, strengthening various powers among yogis, and reducing behavioral problems can improve individuals' cognitive flexibility (9). Some researchers defined this concept as the individual's evaluation of the controllability of conditions that changes in different situations (10). Looking at attachment theory, individuals with different attachment styles (secure, anxious, avoidant, ambivalent, disorganized) show different reactions to social situations. Individuals with anxious and avoidant attachment styles have lower psychological flexibility and mindfulness, as well as less mental and social well-being. Yoga and mindfulness both serve a common goal, which is calming the minds of yogis and helping them look inward to their true selves (11).

The profound philosophy of yoga and meditation encompasses various theories about the human mind and different methods of mental functioning. Yoga, mindfulness, and mentalization are related concepts often interchangeably (12). Mentalization is often thought of as the ability to understand and empathize with others. It encompasses various capacities and involves being able to recognize and distinguish one's thoughts from those of others. This concept is based on attachment theory, but recent research suggests that the link between mentalization and personality disorders lies in the ability to effectively engage in communication (13). Mentalization refers to the fundamental ability to understand and analyze the thoughts and motives of individuals, playing a vital role in how people perceive and interact with one another. However, the complexities of its role in actual social interactions are not frequently explored (14). Given the importance of attachment styles in social interactions and the potential impact of yoga on cognitive abilities, the effect of its practice as a form of mindful intervention based on mentalization, and having a strong historical background, the primary question is: what is the correlation between attachment style, cognitive flexibility, and mentalization, with the social well-being of female yoginis?

2. Methods

The present study was both descriptive and correlational in nature, focusing on female yogis who were involved in yoga classes in Tehran, Iran in 2023. The convenience sampling method was used. Adequacy of the sample size was done using G*Power software considering $\alpha=0.05$, effect size=0.233, and power test=0.95 (15). Based on this, the sample size was calculated to be 132 . However, due to the possibility of attrition, 150 people were included in the study.

A total number of 150 women aged 30-50, practicing yoga for more than five years who attended yoga classes in Tehran, Iran in 2023 were selected using through convenience sampling method. Participants who did not complete the questionnaires were excluded from the study. They were asked to fill out questionnaires on attachment style, cognitive flexibility, mentalization, and social well-being with their consent and in adherence to ethical guidelines. After selecting and calculating the relative number of sample individuals, questionnaires were distributed. A total of 150 questionnaires were collected, and after screening and eliminating the invalid questionnaires, 120 questionnaires were subjected to analysis. The aim of the study, tools of the study, and questions about the questionnaires were all explained to the participants in detail. All questionnaires were completed without names of the participants to protect their anonymity. The participants were also provided with necessary information on the disclosure of research results. No physical harm or financial damage was inflicted on the participants during the study.

2.1. Measures

2.1.1. Social Well-Being Questionnaire (SWQ): SWQ, inspired by Keyes's views, has 28 questions that evaluate social coherence, social integration, social contribution, social actualization, and social acceptance (16). The questionnaire follows an interval measurement level and is structured with closed-ended questions using a 5-point Likert scale. Scoring is conducted as per the provided

guidelines, including reverse-scoring certain items. The total score is obtained by summing all items, with a possible range of 28 to 140. Dimension scores are calculated by adding up the relevant items based on a specific table. In the Iranian version, internal consistency is reported at 0.72 using Cronbach's alpha coefficient. A CVR score of at least 0.62 is deemed acceptable based on input from 10 specialists, while a minimum CVI score of 0.79 is required (17). In this study, the internal reliability was confirmed with a Cronbach's alpha coefficient of 0.76.

2.1.2. Reflective Functioning Questionnaire (RFQ):

The Reflective Functioning Questionnaire, developed by Fonagy and colleagues in 2016, aims to evaluate individuals' mentalization abilities through 14 items and two subscales assessing certainty and uncertainty (18). This questionnaire employs a 7-point Likert scale, with items from the uncertainty subscale being reverse-scored. Scores on this questionnaire range from 14 to 98, with higher scores indicating a greater level of mentalization skills. In a non-clinical sample, Fonagy and colleagues reported internal consistency for the certainty and uncertainty components as 0.63 and 0.67, respectively (18). Test-retest reliability over a three-week period was calculated at 0.84 for uncertainty and 0.75 for certainty. Their study revealed two factors, certainty and uncertainty regarding one's own and others' mental states, through factor analysis. This questionnaire has been used and compared in both clinical populations with borderline personality disorder and eating disorders, as well as non-clinical samples. In a study by Seyed Mousavi and co-workers, the certainty subscale demonstrated a reliability of 0.88 using Cronbach's alpha, while the uncertainty subscale had a reliability of 0.66, indicating convergent validity. An inverse correlation was observed between certainty and uncertainty components. Content validity, as evaluated by a Content Validity Ratio above 0.59 and a minimum Content Validity Index of 0.70, was confirmed (19). Internal consistency in this study was supported by a Cronbach's alpha coefficient of 0.86.

2.1.3. Cognitive Flexibility Inventory (CFI):

The study evaluated the cognitive flexibility of yogis using the Cognitive Flexibility Inventory created by Dennis and Vander Wal (20). To improve the accuracy in differentiating between cognitive flexibility and rigidity levels, a 7-point Likert scale was utilized for responses. This scale allowed individuals to express their level of agreement or disagreement with the CFI items on a spectrum from strongly disagree to strongly agree. By assigning numerical values and incorporating reverse scoring for certain items, a total score was calculated for each individual. Higher scores were believed to indicate higher cognitive flexibility levels, which were associated with improved adaptability in stressful situations. Conversely, lower scores were suggested higher cognitive rigidity levels, which were linked to lesser adaptability in stressful circumstances. The study also demonstrated the validity of the questionnaire with the Beck Depression Inventory and the Cognitive Flexibility Scale. In Iran, Soltani and co-workers reported reliability coefficients and validity indices for the scale (21). In this particular study, internal consistency was established with a Cronbach's alpha coefficient of 0.73.

2.1.4. Revised Adult Attachment Scale (RAAS):

To measure the yogis' attachment styles, the 18-item RAAS by Collins and Read was developed. This questionnaire is a self-assessment of correlation-building skills, self-descriptive, and correlation-shaping styles toward attachment figures (22). The subscales include: 1. Dependence (D): The level of trust and reliance of examinees on others; 2. Closeness (C): The level of comfort concerning intimacy and emotional closeness; and 3. Anxiety (A): Fear of having a correlation. The questionnaire is scored using a 5-point Likert scale, with each subscale containing 6 items added together to determine the subscale score. Some items may need to be reverse-scored based on specific guidelines. In the study conducted by Collins and Read (22), the anxiety subscale (A) is associated with anxious and ambivalent attachment styles, while the closeness subscale (C) represents secure and avoidant attachment styles that are opposites. Therefore, closeness (C) aligns with secure attachment, while dependency (D) can be seen as the opposite of avoidant attachment. The Cronbach's alpha values for all subscales in their study were reported to be 0.80 or higher, indicating high reliability. Additionally, the content validity ratio (CVR) for the questions was 0.75 or higher, and the content validity index (CVI) was 0.85 (23). The internal consistency of the study was confirmed with a Cronbach's alpha value of 0.79.

2.2. Data Analysis

Descriptive data were analyzed in terms of mean, median, mode, standard deviation, relevant tables, graphs, and frequency distribution. In the section presenting the results, Pearson's correlation and multiple linear regression parametric tests were used based on the validity of statistical assumptions. The data were analyzed using SPSS version 24.

3. Results

Results showed that the age group with the highest occurrence consisted of 86 individuals (72%) aged 41 to 50 years old, while the age group with the lowest occurrence comprised only one individual (0.8%) with 61 years old. Similarly, women were divided into three groups of 1 to 2 hours (40.5%), 2 to 3 hours (41.4%) and more than 3 hours a day (18.0%) in terms of the duration of yoga practice per day. Likewise, women were divided into three groups, Diploma (21.7%), Bachelor (66.8%) and Higher education (PhD, MSc) (11.5%) in terms of the level of education.

As indicated by the data in Table 1, the skewness and kurtosis of the variables of the study fall within the range of normality. This means that the skewness and kurtosis values for all variables do not exceed the range of -2 to +2, and the data distribution is within the normal range. Therefore, parametric tests can be used to analyze the data and test the hypotheses of the study.

Table 2 shows the relationship between attachment styles and the social well-being of female yogis, including components and overall scores. The findings suggested a noteworthy association between secure attachment style and social well-being among female yogis (r=-0.233, P=0.010).

Furthermore, there was a remarkable adverse correlation between anxious attachment style and social well-being (r=-0.183, P=0.045). Nevertheless, no notable correlation was found between avoidant attachment style and their social well-being (r=-0.131, P=0.155). We used multiple linear regression analysis to predict social well-being. At first, the assumptions of the regression model were assessed. They verified the normality of the residuals using a P-P plot diagram, which confirmed a normal distribution. The independence of the residuals was checked with the Durbin-Watson test, resulting in a value of 2.01, indicating no serial correlation. The Variance Inflation Factor (VIF) index was used to test for multicollinearity, with values below 5 suggesting no issues. The results of the multiple regression analysis can be found in Table 3.

The results of the multiple regression analysis revealed that the avoidant attachment style (β=-0.214, P=0.029), anxious attachment style (β=0.341, P=7.731×10^{-4}), and confidence dimension (β=0.259, P=0.004) were able to significantly predict social well-being. Anxious attachment style (β=0.341) and confidence dimension (β=0.259) made the most significant contributions to social well-being. However, secure attachment (P=0.109), cognitive flexibility (P=0.434), and uncertainty dimension (P=0.150) did not show significant associations with social well-being. The model's coefficient of determination was 0.239, indicating that the predictor variables explained 23.9% of the variance in social well-being (Table 3).

4. Discussion

In examining the first hypothesis, the scores obtained from the questionnaires in the present study and their analysis showed that there was a positive and significant correlation between secure attachment and the social well-being of female

Table 1: Descriptive indices of research variables (n=120)

Variable	Minimum	Maximum	Mean±SD	Skewness	Kurtosis
Secure attachment style	13	25	18.23±2.39	0.217	-0.349
Avoidant attachment style	10	25	17.60±2.63	-0.243	0.049
Anxious attachment style	6	24	13.58±4.91	0.195	-0.876
Cognitive Flexibility	71	123	94.91±9.55	0.027	0.477
Certainty dimension	18	57	40.43±10.79	-0.352	1.025
Uncertainty dimension	5	29	14.03±4.83	-1.062	1.302
Mentalization(total)	30	78	54.46±12.98	-0.190	-0.951
Social well-being (total)	61	98	74.40±7.80	0.598	0.731

SD: Standard Deviation

Table 2: Correlation matrix of attachment style and social well-being

Variable		1	2	3	4	5	6	7	8	9
1. Secure attachment style	Pearson's r	—								
	P value	—								
2. Avoidant attachment style	Pearson's r	0.295**	—							
	P value	0.001	—							
3. Anxious attachment style	Pearson's r	0.153	0.425***	—						
	P value	0.096	$1.307×10^{-6}$	—						
4. Social coherence	Pearson's r	-0.138	0.052	0.176	—					
	P value	0.133	0.574	0.054	—					
5. Social integration	Pearson's r	-0.221*	-0.250**	-0.038	0.321***	—				
	P value	0.015	0.006	0.678	$3.505×10^{-4}$	—				
6. Social contribution	Pearson's r	-0.060	-0.011	0.156	0.394***	0.171	—			
	P value	0.516	0.909	0.088	$8.299×10^{-6}$	0.061	—			
7. Social actualization	Pearson's r	-0.090	0.087	0.179	-0.044	-0.193*	-0.026	—		
	P value	0.327	0.344	0.051	0.632	0.034	0.774	—		
8. Social acceptance	Pearson's r	-0.021	-0.165	0.164	0.057	0.332***	0.246**	0.100	—	
	P value	0.823	0.072	0.074	0.535	$2.150×10^{-4}$	0.007	0.278	—	
9. Social well-being (total)	Pearson's r	-0.233*	-0.131	0.183*	0.532***		0.546***	0.377***	0.520***	—
	P value	0.010	0.155	0.045	$3.853×10^{-10}$	$5.799×10^{-19}$	$1.099×10^{-10}$	$2.250×10^{-5}$	$1.203×10^{-9}$	—

*P<0.05, **P<0.01, ***P<0.001

Table 3: Regression test results to predict social well-being

Predictor variable	B	SE	β	P value	VIF
Secure style	-0.468	0.290	-0.143	0.109	1.17
Avoidant style	-0.634	0.287	-0.214	0.029	1.39
Anxious style	0.542	0.157	0.341	$7.731×10-4$	1.45
Cognitive Flexibility	-0.054	0.069	-0.066	0.434	1.05
Confidence dimension	-0.187	0.063	-0.259	0.004	1.14
Dimension of uncertainty	-0.220	0.152	-0.137	0.150	1.32

VIF: Variance Inflation Factor; SE: Standard Error

yoga practitioners, suggesting that the more secure attachment experience an individual had, the higher social well-being they experienced. Conversely, anxious attachment style showed a significant negative correlation with the social well-being of the sample group, indicating that higher scores on anxious attachment in yoga practitioners showed a reduction in their social well-being. However, there was no significant correlation between avoidant attachment style and the social well-being of the participants.

These findings were consistent with the results of the studies by Calvo and colleagues (24), Faramarzinia and co-workers (25), Fathi Ashtiani and Sheikholeslami (10), and Rouzbahani and Akhlaghi Kouhpayeh (26).

In the review study by Calvo and colleagues (24), higher levels of insecure attachment were found to be related to lower levels of psychological well-being. Both anxious and avoidant attachment played a similar role in predicting psychological well-being. Among the findings of the study by Faramarzinia and co-workers, a significant negative correlation between insecure attachment styles and dimensions of students' well-being was found (25). Furthermore, evidence indicated positive and significant correlation between secure attachment and the psychological well-being of students, as well as a negative and significant correlation between insecure attachment styles (anxious, avoidant) and psychological well-being (10, 26). Their findings also revealed a significant positive correlation between secure attachment style and social desirability in addicted people in the process of quitting, as well as a significant negative correlation between insecure attachment style and their social desirability.

In the present study, similar to the above research, secure attachment was shown to have a positive and significant correlation with social well-being. As expected, the results indicated that

individuals with secure attachment in correlations and social roles also interact well with others, help others in times of need, and seek help from others when necessary. In this study, anxious attachment was found to have a significant negative correlation with social well-being. An anxious individual experiences emotional, physical, and cognitive disturbances, leading to lower social well-being and weaker performance in social situations and interactions.

In this study, no significant correlation was found between avoidant attachment and social well-being, which could be attributed to differences in sample size and measurement instruments of the research variables. In the studies by Fathi Ashtiani and Sheikholeslami, the large sample size (272 and 210) could indicate the presence of a meaningful correlation and differences in results compared with the present study (10). In the study by Rouzbahani and Akhlaghi Kouhpayeh, the measurement instrument (Hazen and Shaver attachment style) was also different, which could be a reason for the discrepancy in results with this study (26). In this study, the Revised Adult Attachment Scale by Collins and Read was used, which is validated and more up-to-date (22).

4.1. Limitations and Recommendations

This study faced certain limitations. As the study was conducted on female yogis in Tehran, Iran, the results can only be generalized to women in Tehran. Variables such as marital status, economic status, and education level were not examined, as they could help other predictor factors of social well-being. Although all the results were consistent with the emerging theoretical and empirical background, further research is needed to explore and clarify the exact nature of the observed correlations. Some of the questionnaires were flawed and incomplete, resulting in the sample attrition from 150 to 120.

Conducting similar studies with larger samples and in different regions enables the generalizability of research findings. Examining the correlation between attachment style, cognitive flexibility, and mindfulness with social well-being, considering demographic factors such as socioeconomic status, education level, and other factors, can enhance the theoretical knowledge of the research topic. Conducting another study with a causal-comparative method can reveal causal correlations among the mentioned variables. Developing useful educational programs or self-help booklets for teaching different attachment styles and how to interact and communicate to promote individuals toward healthy social correlations should be designed. It is suggested that yoga instructors and even instructors of other sports study the present research to understand the role of psychological variables in creating different dimensions of health.

5. Conclusions

The present study found a significant positive correlation between mentalization and the mental state of certainty in reflective functioning, or mentalization, with social well-being. It is evident that mentalization is a uniquely human trait, and has evolved to enable individuals to predict and interpret the actions of others in an efficient manner in different situations. Unfortunately, not all individuals have an equal share of this ability. According to previous findings, yoga, mindfulness, and mentalization are interconnected, and certainty in reflective functioning in female yogis, their overall ability for mentalization, and success in self-awareness and awareness of others have been shown to predict well-being in interactions and, therefore, social well-being.

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Authors' Contribution

Elham Askari Ashtiani: Substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data for the work, drafting the work. Anita Baghdasarians: Substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data for the work, drafting the work and reviewing it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such that the questions related to the accuracy or integrity of any part of the work.

Ethical Approval

The research was approved by the ethics committee of Islamic Azad University, Central Tehran Branch, Tehran, Iran with the code of IR.IAU.CTB.REC.1402.108. Also, written informed consent was obtained form the particpants.

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