

Personality Traits and Social Participation among Community-Dwelling Older Adults in China: The Mediating Role of Perceived Emotional Needs

Yuxi Liu

yuxiliu123@126.com

Shunde Women and Children's Hospital of Guangdong Medical University

Xizi Yang

Kunming Medical University Haiyuan College

Xinyu Dou

Guangdong Medical University

Chonghua Wan

Guangdong Medical University

Xiuchan Song

Dongguan Hong Mei Hospital

Jinzhi Huang

Shunde Women and Children's Hospital of Guangdong Medical University

Hang Cheng

Guangdong Medical University

Qikang Chen

Shunde Women and Children's Hospital of Guangdong Medical University

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Abstract

Background

Social participation is a key component of healthy and active aging and is closely associated with psychological well-being and quality of life in later life. Although previous studies have demonstrated associations between personality traits and social engagement, the psychological mechanisms underlying these associations remain unclear. In particular, the role of perceived emotional needs as a potential mediator has received limited empirical attention.

Methods

A cross-sectional survey was conducted among community-dwelling older adults aged 60 years or older in Dongguan, China (N = 1332), using a stratified cluster sampling approach. Personality traits were assessed using the Chinese Big Five Personality Inventory Brief Version, whereas perceived emotional needs and social participation were measured using self-report instruments adapted from prior theoretical and empirical work. The internal consistency of the measures was evaluated in the present sample. Pearson correlation analyses and multiple linear regression models were used to examine associations among the study variables. Mediation analyses were conducted using the PROCESS macro with 5,000 bootstrap resamples, with adjustment for relevant demographic and health-related covariates.

Results

Extraversion, agreeableness, and conscientiousness were positively associated with social participation, whereas neuroticism showed a negative association. Perceived emotional needs were positively correlated with social participation, extraversion, agreeableness, conscientiousness, and openness, but negatively correlated with neuroticism. Mediation analyses indicated that perceived emotional needs partially mediated the associations between social participation and four personality traits: extraversion, agreeableness, conscientiousness, and neuroticism. No significant indirect effect was observed for openness.

Conclusions

These findings suggest that personality traits are associated with social participation both directly and indirectly through perceived emotional needs. The results highlight perceived emotional needs as a potential psychological mechanism linking personality characteristics to social behavior in later life. Interventions that strengthen emotional connectedness and account for individual differences in personality may help promote social participation among older adults.

1. Introduction

Population aging has become a major global demographic and public health challenge [1]. As life expectancy continues to increase, promoting healthy and active aging has become a central priority for researchers and policymakers [2]. Among the determinants of healthy aging, social participation has received increasing attention because of its well-established associations with psychological well-being, cognitive functioning, and overall quality of life among older adults [3–5]. For older adults, engagement in social activities may help maintain social roles and interpersonal connections, provide emotional support, and facilitate adaptation to age-related changes [3, 6].

Community settings provide an important context for understanding social participation in later life [7, 8]. In rapidly aging urban areas such as Dongguan, China, community-based activities represent an important avenue through which older adults interact with others and access social resources [9]. However, older adults vary considerably in the extent to which they participate in social activities [10]. Whereas some older adults remain actively engaged in community life, others experience social withdrawal or limited participation [11]. Identifying the factors underlying these differences is essential for developing targeted interventions to promote active aging.

Previous research has identified a range of structural and contextual factors associated with social participation, including demographic characteristics, health status, family support, and the neighborhood environment [12–14]. In contrast, less attention has been paid to individual psychological characteristics that may shape older adults' engagement in social life [15]. Among these characteristics, personality traits are particularly relevant because they reflect relatively stable patterns of thinking, feeling, and behaving that may influence how individuals respond to social opportunities and constraints [16]. The Big Five model, which comprises extraversion, agreeableness, conscientiousness, neuroticism, and openness, has been widely used to examine personality across the lifespan [16].

Empirical studies suggest that personality traits are associated with social participation in later life, although the strength and direction of these associations may vary across traits [18]. For example, extraversion has been consistently linked to higher levels of social engagement, whereas neuroticism has often been associated with social withdrawal [19, 20]. Other traits, such as agreeableness and conscientiousness, may facilitate social participation through cooperative tendencies and self-regulation [17, 19]. However, most existing studies have focused on direct associations between personality traits and social outcomes, with limited attention to the psychological processes through which personality traits may be linked to social behavior [18].

One potentially important but understudied mechanism involves perceived emotional needs. In later life, perceived emotional needs, such as the need for belonging, interpersonal connection, and emotional support, may become particularly salient for some older adults because of life transitions such as retirement, widowhood, shrinking social networks, health decline, and increased vulnerability to loneliness [21, 22]. According to need-to-belong theory, the desire for interpersonal attachment is a fundamental human motivation that drives social behavior [23]. From this perspective, perceived emotional needs may function as a proximal motivational factor that encourages individuals to seek and maintain social engagement [24]. At the same time, personality traits may shape the intensity and expression of these needs, suggesting a potential pathway through which personality traits are associated with social

participation via emotional motivation [17, 25]. In addition to need-to-belong theory, socioemotional selectivity theory provides an aging-specific perspective for understanding perceived emotional needs in later life [26, 27]. This theory posits that, as perceived future time becomes increasingly limited, older adults tend to prioritize emotionally meaningful goals, relationships, and activities [26–28]. From this perspective, perceived emotional needs in later life may not merely reflect a general motivation for social contact, but may instead indicate a selective preference for emotionally meaningful forms of participation. Therefore, socioemotional selectivity theory offers a theoretical rationale for examining perceived emotional needs as a potential pathway through which personality traits are associated with social participation [26, 27].

Despite its theoretical relevance, empirical evidence for this mechanism remains limited, particularly among community-dwelling older adults in non-Western contexts [29]. Much of the existing literature has emphasized structural determinants of social participation, whereas relatively few studies have examined mediation models that integrate personality traits and motivational processes [30]. In addition, cultural context may play an important role in shaping both perceived emotional needs and social behavior. In Chinese society, values such as family cohesion, interpersonal harmony, and collective orientation may influence how older adults experience and express their social and emotional needs [31]. Examining these associations in a Chinese context may therefore provide additional insights into the generalizability and cultural specificity of existing theories.

Accordingly, the present study aimed to examine the associations among Big Five personality traits, perceived emotional needs, and social activity participation among community-dwelling older adults in Dongguan, China. Specifically, this study tested whether perceived emotional needs mediated the associations between personality traits and social participation. By adopting this mediation framework, the study sought to move beyond simple trait–behavior associations and provide a more comprehensive understanding of the psychological mechanisms underlying social engagement in later life.

Based on the theoretical framework and prior empirical findings, the following hypotheses were proposed:

H1. Big Five personality traits are significantly associated with social activity participation.

H2. Big Five personality traits are significantly associated with perceived emotional needs.

H3. Perceived emotional needs are positively associated with social activity participation.

H4. Perceived emotional needs mediate the associations between personality traits and social activity participation.

2. Materials and Methods

2.1. Participants and Procedure

This study employed a cross-sectional survey design to examine the associations among Big Five personality traits, perceived emotional needs, and social activity participation among community-dwelling older adults in Dongguan, China. Participants were recruited from 33 communities in Dongguan using a

stratified cluster sampling method. Stratification was based on the level of local economic development, and representative communities were selected from each stratum to ensure variation in socioeconomic characteristics. Within the selected communities, eligible older residents were invited to participate through community committees and on-site recruitment.

Eligibility criteria were as follows: (1) being aged 60 years or older; (2) having resided in the community for at least 6 months; and (3) having sufficient cognitive ability to complete the questionnaire independently or with minimal assistance. Individuals with severe cognitive impairment or serious health conditions that prevented them from completing the survey were excluded.

Data were collected between May and August 2023 through face-to-face surveys conducted by trained research assistants. Before participation, all respondents were informed of the study purpose and provided written informed consent. Ethical approval was obtained from the Institutional Review Board of Guangdong Medical University (Approval No. YS2022092).

A total of 1,366 questionnaires were distributed, of which 1,344 were returned. After incomplete or invalid responses were excluded, 1,332 valid questionnaires were retained for analysis, yielding a valid response rate of 97.51%.

2.2. Measures

2.2.1. Big Five Personality Traits

Personality traits were assessed using the Chinese Big Five Personality Inventory Brief 15-item version (CBF-PI-15), which was developed by Zhang et al. based on the Chinese Big Five Personality Inventory Brief Version (CBF-PI-B) [32]. The CBF-PI-15 measures five dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness. The scale consists of 15 items rated on a 6-point Likert scale ranging from 1 = strongly disagree to 6 = strongly agree. Higher scores indicate higher levels of the corresponding personality trait. Cronbach's α coefficients for the five dimensions ranged from 0.764 to 0.814 [32].

2.2.2. Emotional Needs

Perceived emotional needs were measured using an 11-item scale adapted from need-to-belong theory and previous studies on emotional motivation in older adults [23, 24]. The items assessed perceived needs for belonging, emotional support, and interpersonal connection. Responses were rated on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree, with higher mean scores indicating stronger perceived emotional needs. In the present sample, the scale showed acceptable internal consistency, with Cronbach's $\alpha = 0.801$.

2.2.3. Social Activity Participation

Social activity participation was assessed using an activity-frequency measure adapted from previous studies on social engagement among older adults [7, 13]. Participants reported how frequently they participated in common social activities, including community events, group recreational activities,

volunteering, learning activities, and informal social interactions. Each activity was rated on a 5-point frequency scale ranging from 1 = never to 5 = very frequently. A mean composite score was calculated to represent overall social participation, with higher scores indicating more frequent participation. Because social participation reflects engagement across diverse activity domains, this measure was treated as a composite activity-frequency index.

2.2.4. Control Variables

Several demographic and health-related variables were included as covariates, including age, gender, education level, marital status, self-rated health, and living arrangement. These variables have been shown to be associated with social participation among older adults.

2.3. Data Analysis

Data were analyzed using SPSS version 27.0. First, descriptive statistics and Pearson correlation analyses were conducted to examine the associations among the study variables. Second, multiple linear regression analyses were performed to examine the associations of Big Five personality traits with social activity participation and perceived emotional needs. Third, mediation analysis was conducted using PROCESS macro Model 4, developed by Hayes [33], to examine whether perceived emotional needs mediated the associations between personality traits and social participation. Bootstrapping with 5,000 resamples was used to estimate indirect effects and their 95% confidence intervals. Indirect effects were considered statistically significant if the 95% confidence interval did not include zero. All analyses were adjusted for demographic and health-related covariates. Statistical significance was set at a two-sided $p < 0.05$.

3. Results

3.1. Descriptive Statistics and Correlations

Descriptive statistics and Pearson correlation coefficients for the study variables are presented in Table 1. The mean age of the participants was 69.32 years ($SD = 7.65$). Most participants were female (55%) and married (70%). The mean scores for the Big Five personality traits were as follows: extraversion ($M = 3.45$, $SD = 0.80$), agreeableness ($M = 3.72$, $SD = 0.75$), conscientiousness ($M = 3.62$, $SD = 0.71$), openness ($M = 3.56$, $SD = 0.74$), and neuroticism ($M = 2.91$, $SD = 0.89$). Perceived emotional needs ($M = 3.56$, $SD = 0.91$) and social activity participation ($M = 3.24$, $SD = 0.85$) were at moderate levels.

Pearson correlation analysis showed that extraversion ($r = 0.32$, $p < 0.01$), agreeableness ($r = 0.28$, $p < 0.01$), conscientiousness ($r = 0.26$, $p < 0.01$), and openness ($r = 0.30$, $p < 0.01$) were positively associated with social activity participation, whereas neuroticism was negatively associated with social activity participation ($r = -0.22$, $p < 0.01$). Perceived emotional needs were positively correlated with social activity participation ($r = 0.43$, $p < 0.01$), extraversion ($r = 0.34$, $p < 0.01$), agreeableness ($r = 0.35$, $p < 0.01$), conscientiousness ($r = 0.30$, $p < 0.01$), and openness ($r = 0.27$, $p < 0.01$), but negatively correlated with neuroticism ($r = -0.25$, $p < 0.01$).

Table 1
Descriptive statistics and correlations among study variables (N = 1332).

Variables	Mean	SD	1	2	3	4	5	6	7
1. Extraversion	3.45	0.80	—						
2. Agreeableness	3.72	0.75	0.41**	—					
3. Conscientiousness	3.62	0.71	0.38**	0.44**	—				
4. Neuroticism	2.91	0.89	-0.36**	-0.29**	-0.33**	—			
5. Openness	3.56	0.74	0.35**	0.37**	0.40**	-0.21**	—		
6. Emotional Needs	3.56	0.91	0.34**	0.35**	0.30**	-0.25**	0.27**	—	
7. Social Participation	3.24	0.85	0.32**	0.28**	0.26**	-0.22**	0.30**	0.43**	—
Note: **P < 0.01, * P < 0.05									

3.2. Regression Analysis

Multiple regression analysis was conducted to examine the associations between the Big Five personality traits and social activity participation (H1). The Big Five personality traits were entered as the main predictors. As shown in Table 2, the overall model was statistically significant, $F(5, 1326) = 18.45, p < 0.001$, and explained 24% of the variance in social activity participation ($R^2 = 0.24$).

Extraversion ($\beta = 0.22, p < 0.01$), agreeableness ($\beta = 0.18, p < 0.01$), and conscientiousness ($\beta = 0.15, p < 0.05$) were positively associated with social participation, whereas neuroticism ($\beta = -0.14, p < 0.05$) was negatively associated with social participation. Although openness was positively correlated with social participation at the bivariate level, this association was no longer statistically significant in the multivariable regression model after adjustment for other personality traits and demographic covariates ($\beta = 0.08, p = 0.17$). All regression analyses were adjusted for demographic and health-related covariates, including age, gender, education, marital status, self-rated health, and living arrangement.

All regression analyses controlled for demographic variables (age, gender, education, marital status, self-rated health, and living arrangement), none of which substantially altered the main results.

Table 2
Multiple regression analysis of factors associated with social participation.

Predictor	β	SE	t	p
Extraversion	0.22	0.05	3.85	< 0.01
Agreeableness	0.18	0.05	3.21	< 0.01
Conscientiousness	0.15	0.06	2.67	< 0.05
Neuroticism	-0.14	0.05	-2.54	< 0.05
Openness	0.08	0.06	1.37	0.17
Note: $R^2 = 0.24$; $F = 18.45$; $p < 0.001$. All analyses were adjusted for age, gender, education, marital status, self-rated health, and living arrangement.				

marital status, self-rated health, and living arrangement.

3.3. Mediation Analysis

Mediation analyses were conducted using PROCESS macro Model 4 with 5,000 bootstrap resamples. The results are presented in Table 3 and Fig. 1.

Most personality traits showed consistent patterns of association with perceived emotional needs: extraversion, agreeableness, and conscientiousness were positively associated, whereas neuroticism was negatively associated (all $p < 0.05$). Extraversion was significantly associated with perceived emotional needs ($\beta = 0.29$, $p < 0.001$), which were in turn associated with social participation ($\beta = 0.36$, $p < 0.001$). After perceived emotional needs were included in the model, the direct association between extraversion and social participation was attenuated but remained statistically significant ($\beta = 0.12$, $p < 0.01$), indicating partial mediation. Similar indirect associations were observed for agreeableness (indirect effect = 0.10, 95% CI [0.03, 0.15]), conscientiousness (indirect effect = 0.09, 95% CI [0.02, 0.13]), and neuroticism (indirect effect = -0.08, 95% CI [-0.15, -0.02]). No statistically significant indirect effect was observed for openness. These results suggest that perceived emotional needs may partially mediate the associations between several personality traits and social participation.

Table 3
Indirect effects of perceived emotional needs in the association between personality traits and social participation

Predictor	Direct Effect	Indirect Effect	95% CI
Extraversion	0.12**	0.11**	[0.04, 0.18]
Agreeableness	0.08*	0.10**	[0.03, 0.15]
Conscientiousness	0.06*	0.09**	[0.02, 0.13]
Neuroticism	-0.09*	-0.08*	[- 0.15, - 0.02]
Openness	0.05	0.03	[- 0.01, 0.08]

Note: Values are standardized coefficients. All analyses were adjusted for demographic and health-related covariates. **p < 0.01, *p < 0.05.

The results provided partial support for the proposed hypotheses. Extraversion, agreeableness, conscientiousness, and neuroticism were significantly associated with social participation and perceived emotional needs, whereas openness showed weaker and non-significant associations in the multivariable and mediation models.

4. Discussion

4.1. Principal Findings

This study examined the associations among Big Five personality traits, perceived emotional needs, and social activity participation in a large sample of community-dwelling older adults in China. The results showed that several personality traits were significantly associated with social participation and that perceived emotional needs partially mediated these associations. Specifically, extraversion, agreeableness, and conscientiousness were positively associated with social participation, whereas neuroticism was negatively associated with social participation. In addition, perceived emotional needs were positively associated with social participation and significantly mediated the associations between several personality traits and social behavior. These findings suggest that personality traits are associated with social participation both directly and indirectly through perceived emotional needs. However, because the data were cross-sectional, the proposed mediation pathway should be interpreted as a theoretically informed association rather than as evidence of causal mediation. Overall, these findings provide empirical support for an association-based pathway linking personality traits, emotional motivation, and behavioral engagement in later life [23, 25].

4.2. Personality Traits and Social Participation

The present findings are broadly consistent with previous research indicating that personality traits are associated with social engagement among older adults [18, 19]. Extraversion showed the strongest positive association with social participation, which is consistent with its well-established links to sociability, positive affect, and interpersonal activity [19, 20]. Older adults with higher levels of extraversion may be more

inclined to initiate and maintain social interactions, which may contribute to greater participation in community activities.

Agreeableness and conscientiousness were also positively associated with social participation. Individuals with higher agreeableness tend to value harmonious interpersonal relationships and are more likely to engage in cooperative and prosocial behaviors, which may facilitate involvement in social contexts [17]. Conscientiousness, which is characterized by self-discipline and goal-directed behavior, may contribute to more regular and sustained participation in structured social activities [34].

In contrast, neuroticism was negatively associated with social participation, consistent with previous studies linking neuroticism to emotional instability, anxiety, and social withdrawal [35, 36]. Individuals with higher levels of neuroticism may perceive social situations as stressful or threatening, which may be associated with reduced willingness to engage in social activities.

Openness was not significantly associated with social participation in the multivariable model. Although openness is often related to curiosity and willingness to experience new things, its association with actual social behavior in later life may be constrained by contextual factors, such as physical health or limited access to social opportunities [19]. This finding suggests that not all personality traits are equally associated with observable social participation among older adults.

4.3. The Mediating Role of Emotional Needs

One of the main contributions of this study is the identification of perceived emotional needs as a potential mediating factor in the association between personality traits and social participation. This finding is consistent with theoretical perspectives suggesting that behavior is associated not only with stable personality characteristics but also with underlying motivational processes [25, 37].

From the perspective of need-to-belong theory, the desire for interpersonal connection is a fundamental human motivation [23]. In later life, perceived emotional needs, such as belonging, support, and interpersonal connection, may become more salient because of retirement, reduced social networks, and an increased risk of loneliness [21, 22]. These needs may act as important motivational factors associated with social behavior.

The results of this study suggest that personality traits may be associated with the extent to which perceived emotional needs are experienced and expressed. For example, individuals with higher extraversion may report stronger needs for social interaction, which may be associated with greater social participation. Conversely, individuals with higher neuroticism may experience emotional insecurity or fear of negative evaluation, which may be associated with lower motivation to engage socially [35].

By identifying this potential mediating pathway, the present study extends previous research that has primarily focused on direct associations between personality traits and social outcomes [18]. The findings suggest that perceived emotional needs may represent a proximal pathway through which personality traits are associated with social behavior, providing a more nuanced understanding of social engagement among older adults.

An important interpretive issue concerns the meaning of perceived emotional needs in later life. Perceived emotional needs may reflect both a motivational desire for interpersonal connection and, in some cases, unmet emotional support or emotional deprivation. In the present study, stronger perceived emotional needs were positively associated with social participation, suggesting that the measure may have primarily captured connection-oriented motivation rather than emotional deprivation. Future studies should further distinguish among perceived emotional needs, perceived emotional support, loneliness, and unmet emotional care needs.

4.4. Cultural Context

This study was conducted among community-dwelling older adults in Dongguan, an urban Chinese setting in which family support, neighborhood-based interaction, and community-organized activities may jointly shape social participation in later life. In this context, perceived emotional needs may be expressed not only through family relationships but also through community activities, peer groups, and neighborhood networks [30, 31].

Compared with older adults in Western contexts, older adults in China may place greater emphasis on maintaining social relationships and fulfilling social roles within family and community settings. As a result, perceived emotional needs related to belonging and social connection may be particularly relevant to social behavior. This cultural context may partly explain the significant mediating role of perceived emotional needs observed in this study.

These findings highlight the importance of considering cultural factors when examining psychological mechanisms underlying social participation and suggest that associations among personality, motivation, and behavior may vary across sociocultural contexts.

4.5. Practical Implications

The findings of this study have several practical implications. First, interventions aimed at promoting social participation among older adults should consider individual differences in personality. For example, individuals with higher levels of neuroticism may benefit from supportive and less demanding social environments, whereas those with higher levels of extraversion may respond well to group-based activities.

Second, interventions that address perceived emotional needs by strengthening belonging, emotional support, and social connectedness may help promote social engagement among older adults [24]. Addressing these psychological needs may provide a feasible approach to improving social participation.

Finally, community-based programs should incorporate psychological factors into their design rather than relying solely on structural or environmental strategies. Tailoring interventions to both personality traits and perceived emotional needs may improve their effectiveness in promoting active and healthy aging.

4.6. Limitations and Future Directions

Several limitations should be noted. First, the cross-sectional design limits the ability to draw causal conclusions. Although the findings are consistent with the proposed mediation model, longitudinal studies are needed to examine the temporal associations among personality traits, perceived emotional needs, and

social participation. Second, because all key variables were measured by self-report at a single time point, the findings may be affected by common method bias and reverse causality. For example, older adults who participate more frequently in social activities may develop stronger perceived emotional connectedness or report lower emotional insecurity over time. Future research could incorporate objective measures or data from multiple sources to validate the findings. Third, the sample was drawn from a single urban area in China, which may limit the generalizability of the findings. Future studies should examine these associations in different regions and cultural contexts. Fourth, perceived emotional needs and social activity participation were measured using adapted self-report instruments. Although these measures showed acceptable internal consistency or were based on prior research, future studies should further evaluate their psychometric properties and distinguish perceived emotional needs from related constructs such as loneliness, perceived social support, and unmet emotional care needs.

In addition, future research could examine other potential mediating factors, such as self-efficacy, perceived social support, and social identity, to further clarify the mechanisms through which personality traits are associated with social participation in later life.

5. Conclusions

This study examined the associations among Big Five personality traits, perceived emotional needs, and social activity participation among community-dwelling older adults in China. The findings indicate that several personality traits are significantly associated with social participation, both directly and indirectly through perceived emotional needs. These results highlight perceived emotional needs as a potential motivational mechanism through which personality traits are associated with social behavior. However, due to the cross-sectional design, these findings should be interpreted as association-based evidence rather than proof of causal pathways.

By integrating personality and motivational perspectives, this study contributes to a more comprehensive understanding of social engagement in later life. From a practical perspective, the findings suggest that interventions aimed at promoting active aging may consider both individual differences in personality and perceived emotional needs, while future longitudinal and intervention studies are needed to verify the proposed pathways.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from the Ethics Committee of Guangdong Medical University (Approval No. YS2022092). Written informed consent was obtained from all participants prior to participation.

Conflicts of Interest

The authors declare no competing interests.

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Author Contribution

Conceptualization, Y.L. and C.W.; methodology, H.C., X.D., and J.H.; software, X.D. and X.Y.; validation, X.S., J.H., and Q.C.; formal analysis, X.D. and J.H.; investigation, Y.L., X.Y., and C.W.; resources, Y.L. and X.S.; data curation, X.Y.; writing—original draft preparation, Y.L. and X.Y.; writing—review and editing, Q.C. and H.C.; supervision, Q.C. and H.C.; funding acquisition, Y.L. All authors have read and approved the final version of the manuscript.

Data Availability

The datasets generated and/or analysed during the current study are not publicly available due to privacy and ethical restrictions involving human participants and because participants did not provide consent for the public release of raw individual-level data, but are available from the corresponding author on reasonable request.

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Figures

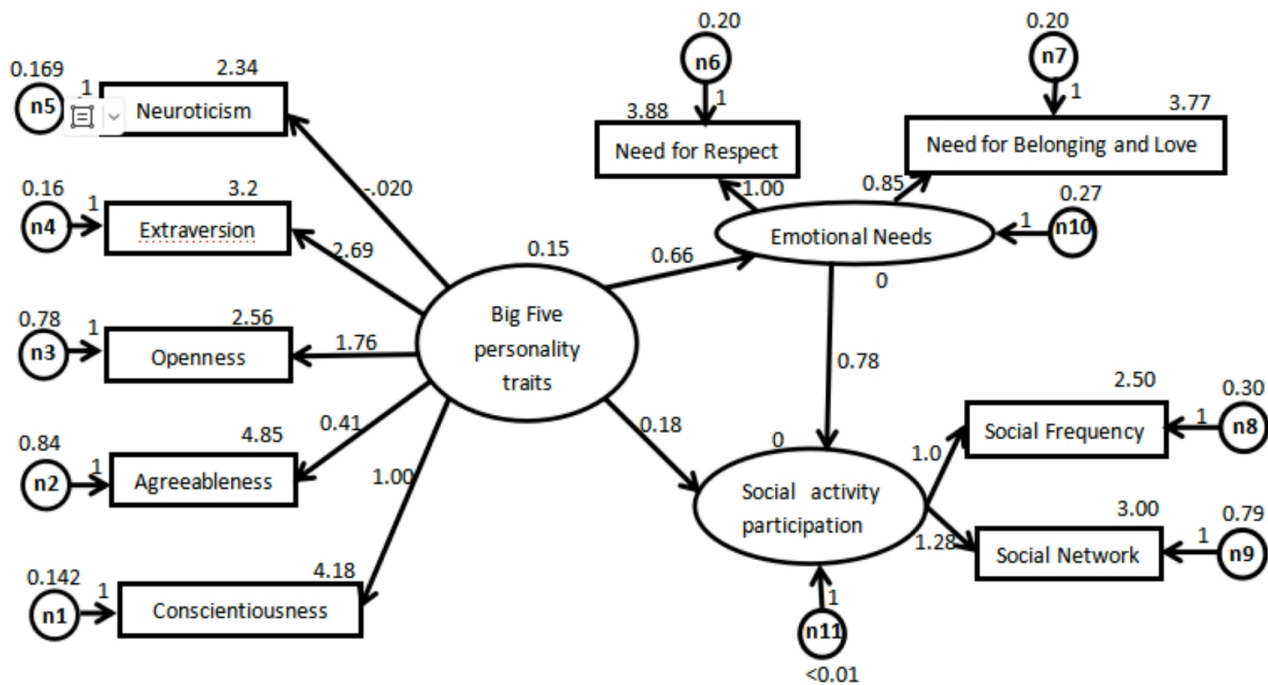


Figure 1

Mediation model of perceived emotional needs in the association between personality traits and social participation.