

Psychometric characteristics of Positive Mental Health Questionnaire (PMHQ) and its relationship with psychological well-being among the Iranian Population

Abstract

The aim of this research was to investigate the psychometric properties of the latest positive mental health questionnaire (Zabo et al., 2022) and its relationship with psychological well-being in the Iranian student population. For this purpose, a sample of 250 students of Islamic Azad University of Tehran was selected by three-stage cluster sampling method. After preparing the Persian version, it was completed by them. Validity of this questionnaire checked by exploratory and confirmatory factor analysis. The results of exploratory factor analysis, using the principal components method with varimax rotation, showed the presence of five factors in 16 items. The value of KMO index was equal to 0.859 which showed the adequacy of sampling and the correlation matrix of the items. The obtained five factors explained 61.761% of the variance of the whole structure. The reliability of the questionnaire was checked by internal consistency method by calculating Cronbach's alpha coefficients. Cronbach's alpha coefficients for five factors of well-being, enjoyment, creative and executive efficiency, self-regulation and resilience are respectively 0.775, 0.641, 0.764, 0.823 and 0.615 and 0.799 was obtained for the whole questionnaire. The confirmatory validity of the questionnaire was checked and confirmed through the correlation between the components and the total score of the mentioned questionnaire with the Ryff's psychological well-being questionnaire. Therefore, the positive mental health questionnaire (PMHQ) in the population of Iranian students has appropriate psychometric properties and can be used in internal studies.

Keywords: positive mental health, psychological well-being, psychometric characteristics, reliability, validity.

Introduction

The central focus in positive psychology is identifying indicators of mental health and developing models that serve as theoretical frameworks in designing diagnostic systems within the domain of positive mental health. Due to the lack of a comprehensive tool for measuring positive mental health, Zábó, Oláh, and Vargha (2022) aimed to create a structure of mental health that would be theoretically and empirically distinct from other conceptually defined constructs of multidimensional well-being (such as Flourishing, PERMA, etc.).

To develop a comprehensive instrument for positive mental health, these researchers operationalized the pillars of mental health based on the Sustainable Positive Mental Health Theory (SPMHT). They then constructed a questionnaire titled the Positive Mental Health Test (PMHT), consisting of 18 items and 5 factors, to assess positive mental health.

The PMHT is the first test with a complex five-dimensional structure, including Overall Well-being, Hedonic Enjoyment, Creative and Executive Efficiency, Self-Regulation, and Resilience, covering a wide range of indicators of positive mental health.

Given the novelty of this tool and the lack of similar instruments in domestic studies, this questionnaire was translated and validated within an Iranian population. The central research question was whether the Positive Mental Health Questionnaire (PMHQ) is valid and reliable

among Iranian university students. Furthermore, the study examined the relationship between this construct and psychological well-being.

Method

This study is applied in terms of its objective and used a descriptive-survey approach with a correlational validation design. The statistical population consisted of students from Islamic Azad University in Tehran. A total sample of 250 students was selected using a three-stage cluster sampling method.

The measurement tools included the Positive Mental Health Questionnaire (PMHQ) (Zábó, Oláh, & Vargha, 2022) and Ryff's Psychological Well-being Questionnaire (1989). The validity and reliability of these instruments had been confirmed by their developers and were also verified in internal (Iranian) studies.

Inclusion criteria for participants were the absence of a clinical history of mental health disorders, and the exclusion criterion was unwillingness to participate in the study. After data collection, participants' demographic characteristics and mental health status were reported.

Inferential analysis employed exploratory and confirmatory factor analysis, Pearson correlation coefficients, and Cronbach's alpha. All analyses were conducted using SPSS version 25 and LISREL version 8.8.

Results

A total of 250 students from Islamic Azad University in Tehran participated in this study, of whom 141 were women (56.4%) and 109 were men (43.6%). The mean age of participants was 28.12 years (SD = 5.234). In terms of physical health, responses followed a normal distribution, with most individuals reporting good physical health. Similarly, most participants reported good general and mental health, and the frequency of positive and negative experiences was generally balanced.

To evaluate the questionnaire's validity, construct validity was examined using exploratory factor analysis and internal consistency.

First, the suitability of the data for factor analysis was assessed using the KMO index and Bartlett's test. Principal Components Analysis (PCA) with Varimax rotation was used for data extraction, and the scree plot method was used to determine the number of factors.

The overall KMO value was 0.859, and the Bartlett's test was significant ($\chi^2 = 2044.239$, $p < 0.001$), indicating the adequacy of the data for factor analysis.

Based on the results, six factors were initially extracted, one of which had an eigenvalue below 1 and was thus discarded. The final exploratory factor analysis with five main components showed that these five factors explained 61.761% of the total variance. The scree plot also indicated the presence of five distinct factors.

According to the scree plot of eigenvalues, five factors were extracted using the Varimax method, with the first factor contributing more to the total variance than the others. The factor structure was followed using factor loadings above 0.30 (see Table 1).

Table 1 – Factor Loadings, Item Eigenvalues, and Explained Variance in Exploratory Factor Analysis

Item	Factor Loading				
	Factor 1	Factor 2	Factor 3	Factor4	Factor 5
1. In my daily life, there is more joy than sadness.	0.610				

14. My overall mental and emotional state is good.	0.826	
18. How do you generally feel about your life? (1 = Very bad ... 6 = Very good)	0.671	
3. It is easy for me to relive joyful memories from the past.	0.551	
10. I like to remember the pleasant moments I have experienced so I can recall them later.	0.533	
12. I can feel good by imagining the joyful moments that are about to happen.	0.361	
5. Most of my ideas are taken from others. (Reverse scored)	0.457	
7. Others describe me as a problem-solver.	0.387	
9. I can successfully achieve the goals I set for myself.	0.841	
15. I perform well in tasks that require new and original ideas.	0.491	
17. I can often understand what people are thinking and how they feel.	0.514	
8. I am an impulsive person: I act first and think later. (Reverse scored)	0.504	
16. I easily lose my patience. (Reverse scored)	0.580	
6. Stressful events create difficult times for me. (Reverse scored)		0.432
11. It doesn't take me long to recover after a stressful event.		0.519
13. I usually spend a long time overcoming failures in my life. (Reverse scored)		0.640

Based on the results, five factors were identified. These factors were named according to the original labeling in the source model. The first factor, comprising items 1, 14, and 18, was labeled Well-being; the second factor, with items 3, 10, and 12, was labeled Hedonic Enjoyment; the third factor, including items 5, 7, 9, 15, and 17, was named Creative and Executive Efficiency; the fourth factor, with items 8 and 16, was labeled Self-regulation; and the fifth factor, consisting of items 6, 11, and 13, was labeled Resilience. The first factor was the strongest, accounting for 24.261% of the variance, while the five factors together explained 61.761% of the variance in the construct of positive mental health.

To examine the questionnaire's structure, confirmatory factor analysis (CFA) was conducted using LISREL 8.8. Additionally, convergent validity was assessed by calculating the correlations between the components of the Positive Mental Health Questionnaire and Ryff's Psychological Well-being Scale (1995). All correlation coefficients were positive and statistically significant. The correlation between the PMHQ and the total score of psychological well-being was also positive and significant ($r = 0.78$, $p < 0.001$), confirming the convergent validity of the PMHQ. As a result, the questionnaire demonstrated satisfactory validity among Iranian students.

Conclusion

Given the lack of tools for assessing positive mental health in domestic research, this study identified and validated the latest Positive Mental Health Questionnaire in its Persian version. The findings indicated that the 16-item, five-factor PMHQ exhibited strong psychometric properties among students at Islamic Azad University in Tehran and showed a significant positive correlation with psychological well-being.

The results of the construct validity assessment in the Iranian population confirmed that the PMHQ comprises five distinct factors. The first factor, Well-being, refers to multidimensional subjective well-being, which includes emotional states and psychological functioning across emotional, social, and spiritual domains of life (Oláh & Kapitány-Fövény, 2012; Oláh, 2019; Oláh et al., 2020). This factor suggests that individuals with high levels of well-being possess the psychological resources and capacities necessary for effective functioning in various personal and social areas of life, thus enjoying greater mental health.

The second factor, Hedonic Enjoyment, pertains to the ability and capacity to mentally re-experience happy memories and anticipate future pleasurable events, thereby enhancing psychological well-being (Bryan et al., 2022; Bryant & Veroff, 2007). This trait allows individuals to distance themselves from negative experiences and cultivate joyful moments by recalling pleasant memories, fostering a more cheerful and vibrant outlook.

The third factor, Creative and Executive Efficiency, reflects an individual's ability to mobilize diverse competencies in stressful and challenging life situations. It indicates one's capacity for effective personal and social problem-solving behavior (Oláh et al., 2020).

The fourth factor, Self-regulation, refers to the ability to manage and control emotions, moods, and negative states, as well as persistence in pursuing goals, an essential component of mental health (Elliot, Thrash & Murayama, 2011; Singh & Sharma, 2018). According to the Sustainable Positive Mental Health Theory, these independent components collectively ensure an individual's mental well-being, making them fundamental dimensions of positive mental health.

This study, however, was not without limitations. The sample consisted solely of students from Islamic Azad University in Tehran, so caution is advised when generalizing the findings to other populations. Another limitation was the relatively small sample size, which could influence the results of the validation process. Nevertheless, the instrument demonstrated satisfactory reliability and validity. Therefore, it is recommended that the Positive Mental Health Questionnaire be used as a precise tool alongside other diagnostic measures for assessing individuals' mental well-being.

Ethical Considerations

This study was conducted in accordance with the ethical principles for research involving human participants.

Compliance with Ethical Guidelines

The research procedures were reviewed and approved by the Ethics Committee of Islamic Azad University, ensuring full compliance with the Declaration of Helsinki and national ethical standards for psychological research.

Authors' Contributions

All authors contributed significantly to the development of this research. Doozandeh and Mashayekh conceptualized the study and supervised data collection. Rabbani conducted the data analysis and interpretation. And drafted the manuscript and performed the literature review.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this paper.

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