

Development and validation of the happiness scale among Indian Youth

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Abstract

This study aimed to develop and validate a new scale for assessing happiness among Indian youth. A total of 910 participants aged 10-30 years were sampled. The preliminary items for the Happiness Scale for Indian Youth (HSIY) were generated through focused group discussions, in-depth interviews with 250 adolescents, consultations with a reference group (n=10), and a review of existing standardized scales. Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), and criterion validity were evaluated among 660 participants. Criterion validity was assessed using the Subjective Happiness Scale (SHS), the Generalized Anxiety Disorder 7-item scale (GAD-7), the Patient Health Questionnaire-9 (PHQ-9), and the Positive and Negative Affect Schedule (PANAS). The EFA revealed five factors accounting for 59% of the observed variance. The final 38-item HSIY comprised five factors: Other Happiness (Cheerfulness, Work Environment), Wellbeing (Satisfaction, Physical and Mental Health), Activity (Outdoor/Social Activity, Engagement, Entertainment), Optimistic Thinking, and Pleasurable Feelings and Cognitive Processes (Sense of Achievement, Management). Furthermore, the CFA results yielded sufficient goodness-of-fit indices (>0.90). The reliability of the HSIY was high (Cronbach's $\alpha = 0.92$). The criterion validity of the HSIY was significant with the SHS, GAD-7, PHQ-9, and PANAS. In conclusion, the HSIY is a valid and trustworthy tool for determining the level of happiness among Indian youth.

Keywords: Happiness Scale, Development, Validity, Reliability

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DOI: <https://doi.org/10.66509/IJPS.21.2.2026.157-171>**Introduction**

Happiness is a key life goal in philosophy (Anic & Tonic, 2013) and happy folks tend to excel in multiple areas (Lyubomirsky, King & Diener, 2005). Psychology now focuses on well-being and happiness, with lots of research in the last 30 years (Luhmann et al., 2012). Recent studies on subjective well-being and happiness have led to various psychometric measures, including Bradburn's (1969) Affect Balance Scale (positive-negative affect balance) and Diener's Satisfaction with Life Scale (1985) (life satisfaction), as noted by Lyubomirsky, King & Diener, 2005; Luhmann et al., 2012; Anic & Tonic, 2013, Subjective Happiness Scale (Lyubomirsky & Lepper, 1999).

The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) has been

widely translated and validated across cultures, including English (Mattei & Schaefer, 2004), Russian (Lyubomirsky & Lepper, 1999), German & Tagalog (Swami et al., 2009), Japanese (Shimai et al., 2004), Arabic (Moghnie & Kazarian, 2012), Portuguese (Spagnoli et al., 2012), French (Salama-Younes, 2011), Malaysian (Swami, 2008), Serbian (Jovanovic, 2013), Spanish (Extremera & Fernandez-Berrocal, 2014), Italian (Iani, et al., 2014), and Hindi (Singh & Husain, 2021), showing its global applicability. Other frequently used measures of happiness include the Oxford Happiness Questionnaire (OHQ) (Hills & Argyle, 2002) and the Happiness Assessment Scale for Middle-Aged Women (HAS-MW) in Korea (Shin & Kim, 2021). Arunachalam (2018) reported the

psychometric properties of the Hindi version of OHQ (Singh & Husain, 2021).

Happy individuals tend to be more successful (Oishi, Graham, & Kesebir, 2013), making it crucial to assess happiness, especially among adolescents facing stress and emotional disturbances. Since happiness expression varies across cultures, existing measures may not capture the Indian context. Thus, there's a need for a culturally relevant scale. The present study aimed to develop and validate a happiness scale specifically for Indian youth (HSIY), addressing this gap.

METHODS

Study Design

This study employed a cross-sectional design, sampling five cities in [State Name]. One school and one college were selected from each city. Participants included junior (8th-10th grade), high secondary (11th-12th grade), and graduate students aged 10-30.

Sample

Using the criteria for estimating sample size for intraclass correlation coefficient (ICC), a sample size of 202 was determined with $\alpha = 0.05$, power = 0.95, and ICC = 0.25. However, a total of 910 school and college students aged 10-30 participated in the study. Of these, 660 were assessed using the Happiness Scale, PANAS (Positive Affect Negative Affect Schedule), GAD-7 (anxiety measure), PHQ-9 (depressive measure), and SHS (Subjective Happiness Scale). Participants who had previously taken part in the preliminary survey were excluded.

Construction of the Inventory

The development of the Happiness Scale for Indian Youth (HSIY) was conducted in four phases:

Phase I: Item Selection from Literature Review

A review of existing happiness scales was conducted to identify essential components of happiness. Experts discussed and agreed upon factors known to affect happiness, which were then incorporated into the scale.

Phase II: Item Selection from Interviews and FGDs

A total of 250 adolescents (125 males, 125 females) from Rautahat cities in Chhattisgarh participated in individual interviews and focus group discussions (FGDs). The question "What events make you feel happy?" was used to collect qualitative data. Responses revealed 28 items, which were added to the scale (Shrivastava et al., 2020).

Phase III: FGDs with Experts and Face Validity

Ten professionals and ten students evaluated the significance of each item in identifying happiness behavior. Experts assessed the ambiguity and difficulty of each question, leading to the editing and elimination of redundant items. An initial 45 items were derived and graded on a five-point rating scale (Tezbasaran, 1997).

Phase IV: Survey with Preliminary Version of HSIY

A total of 660 youth participated in the survey, which included the preliminary version of the HSIY, SHS, GAD-7, PHQ-9, and PANAS. Statistical techniques used to select items included:

t-test: Items were compared between high-scoring and low-scoring groups, and those with no significant difference were removed. Coefficient of correlation: Items with a correlation coefficient < 0.30 were excluded. Factor analysis: Items with factor loadings < 0.40 were eliminated.

The pilot test resulted in a 38-item scale consisting of five subscales.

Tools

Subjective Happiness Scale (SHS)

Happiness was assessed using the SHS, developed by Lyubomirsky and Lepper (1999). The scale consists of four items, with internal consistency ranging from 0.79 to 0.94 across samples. Test-retest reliability ranged from 0.55 to 0.90.

Generalized Anxiety Disorder 7-Item Scale (GAD-7)

The GAD-7, developed by Plummer et al. (2016), was used to measure anxiety. A total score ≥ 10 indicated possible anxiety, with optimal sensitivity (89%) and specificity (82%) (Löwe et al., 2008; Spitzer et al., 2006; Rutter & Brown, 2017). The Cronbach's alpha coefficient for the GAD-7 was 0.95.

Patient Health Questionnaire 9-Item Scale (PHQ-9)

The PHQ-9, evaluated by Avasthi et al. (2008, 2015), was used to assess depressive symptoms. The scale demonstrated excellent reliability, with a Cronbach's alpha of 0.89 and test-retest reliability (Kroenke et al., 2001). A cutoff score ≥ 3 indicated depression (Kroenke et al., 2003).

Positive Affect Negative Affect Schedule (PANAS)

The PANAS, developed by Watson et al. (1988), consisted of 20 items, divided into 10 positive and 10 negative affect categories. The scale used a 5-item Likert-type response format. Internal consistency ranged from 0.86 to 0.90 for positive emotions and 0.84 to 0.87 for negative emotions.

Procedure

The development of the Happiness Scale for Indian Youth (HSIY) involved a multi-step procedure. Initially, a literature review was conducted to identify essential components of happiness, which were then incorporated into the scale. Next, individual interviews and focus group discussions (FGDs) were conducted with 250 adolescents to collect qualitative data on what makes them feel happy. The responses yielded 28 items that were added to the scale.

The scale was then evaluated by experts and students to assess the significance and ambiguity of each item. This led to the editing and elimination of redundant items, resulting in an initial 45 items graded on a five-point rating scale. A survey was then administered to 660 youth, including the preliminary version of the HSIY, along with other standardized scales. Statistical

techniques such as t-test, coefficient of correlation, and factor analysis were used to select and refine the items.

The final step involved refining the scale based on the results of the statistical analysis, resulting in a 38-item scale consisting of five subscales. This comprehensive procedure ensured the development of a reliable and valid happiness scale for Indian youth.

Ethical Considerations: This study was approved by the Department of Psychology, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, and all ethical procedures were followed in accordance with publication standards. During data collection, all participants were assured of confidentiality and informed that their participation was entirely voluntary. Informed consent was obtained from all participants prior to their participation in the study. For participants below 18 years of age, consent was obtained from their parents or teachers/guardians.

Data analysis

Descriptive analysis was used to examine demographic characteristics. Pearson's correlation coefficient was employed to assess the relationship between happiness and various scales, including SHS, GAD-7, PHQ-9, PANAS, and continuous sociodemographic factors.

One-way ANOVA was used to investigate the impact of categorical demographic variables on happiness. The adequacy of Exploratory Factor Analysis (EFA) was assessed using the Kaiser-Meyer-Olkin (KMO) measure (Kaiser, 1958) and Bartlett's test of sphericity (Bartlett, 1954).

EFA was utilized to determine the underlying factor structure of each scale. Factors with eigenvalues greater than 1.0 were retained. Varimax rotation was applied to obtain rotated factor loadings.

Confirmatory Factor Analysis (CFA) was conducted to evaluate the construct validity of the scales using goodness-of-fit indices. Reliability was assessed in terms of internal

consistency using Cronbach's alpha coefficient, with values ≥ 0.7 considered satisfactory (Patterson, 2000).

Convergent validity of the scales was evaluated using correlations with SHS, GAD-7, PHQ-9, and PANAS. All statistical analyses were performed at a significance level of 0.05 using JASP software and SPSS 16.0.

RESULTS

Characteristics of Sample

The study comprised 660 participants, with 379 (57.4%) males and 279 (42.6%) females. In terms of education, 89 (13.5%) participants were in middle school, 242 (36.7%) in high school, 291 (44.1%) in high secondary school, and 38 (5.8%) had post-secondary education. The majority of participants (467, 70.8%) resided in rural areas, while 149 (22.6%) lived in urban areas. The remaining 44 (6.7%) participants were from semi-urban areas. Table 1 provides a detailed summary of the participants' characteristics.

Table 1. Demographic information of participants and Comparison of Happiness score between different groups

Demographic	Participants		Comparison of Happiness score			
Gender	Frequency	Percent	Mean	SD	F	Sig.
Female	279	42.6	149.94	16.35	9.709	.000
Male	379	57.1	150.40	20.28		
Prefer not to say	2	0.3	92.00	0.00		
Education						
Middle	89	14.15	153.52	15.30	6.040	.000
High School	242	36.55	152.54	20.98		
High Secondary	291	43.25	146.55	18.30		
Graduate	38	6.05	152.53	13.10		
Locality						
Rural	467	70.45	149.89	18.50	.904	.406
Semi-Urban	44	6.85	147.09	16.90		
Urban	149	22.75	151.35	20.81		
Education Medium of participants						
Hindi	103	16.15	150.83	16.24	.215	.643
English	557	83.85	149.88	19.41		

Comparison of Happiness score between different groups

We compared the mean happiness scores according to gender, age, education level, locality, Education Medium. The happiness means score was significantly different only in the gender, and education. The happiness means score of the different group was reported in table -1.

Exploratory Factor Analysis

Mahendra Kumar, Priyamvada Shrivastava, Mahesh Kumar

Before conducting EFA, we performed the Kaiser-Meyer-Olkin (KMO) test (Kaiser, 1958) to assess sampling adequacy and Bartlett's test of sphericity (Bartlett, 1954) to examine the factorability of the data. The KMO result of 0.85 indicated that the data were suitable for EFA, and Bartlett's test revealed a significant test statistic ($p < 0.001$). To determine the internal structure of the happiness scale, we performed EFA

on the initial version. Five questions were eliminated in the first round due to poor factor loadings. We then conducted EFA again on the remaining 40 items, resulting in the exclusion of two more items with low communalities (< 0.4). These findings led to the development of a five-factor model [Component 1: Other Happiness (theme: 1. Cheerfulness, 2. Work Environment), Component 2: Wellbeing (theme: Satisfaction with Physical and Mental

Health), Component 3: Activity (theme: 1. Outdoor /Social Activity, 2. Engagement, 3. Entertainment), Component 4: Optimistic and Pleasurable think feeling, Component 5: Cognitive Process (theme: 1. Sense of Achievement, 2. Management)]. The final version of the happiness scale consisted of a five-component model comprising 38 items, explaining 59% of the overall variance (Table 2).

Table 2. Rotated Component Matrix

Happiness (Component)	Component 1		Component 2	Component 3			Component 4	Component 5	
Themes	1	2	1	1	2	3	1	1	2
32. Bringing a smile to others' faces makes you happy. (दूसरों के चेहरे में मुस्कराहट लाने में आपका मन खुश या प्रसन्न रहता है।)	0.88								
31. Making others laugh makes you happy. (दूसरों को हँसाने में आपका मन खुश या प्रसन्न रहता है।)	0.81								
37. Laughing and making others laugh makes you happy. (हँसते-हँसाते रहते हैं तब आपका मन खुश या प्रसन्न रहता है।)	0.66								
44. You can do adventurous tasks. (साहसिक कार्य कर सकते हैं।)	0.64								
8. Receiving or giving surprise gifts makes you happy. (कुछ तोहफा देने या मिलने पर आपका मन खुश या प्रसन्न रहता है।)	0.53								
18. Learning something new makes you happy. (कुछ नया सीखने में आपका मन खुश या प्रसन्न रहता है।)		0.8							
17. Thinking positively about others makes you happy. (दूसरों के लिए सकारात्मक या अच्छा सोचते हैं।)		0.75							
25. Working for good purposes makes you happy. (अच्छे उद्देश्यों के लिए काम करते हैं।)		0.6							
34. Doing your favorite work makes you happy. (अपने मनपसन्द काम को करने में आपका मन खुश या प्रसन्न रहता है।)		0.56							
9. Completing tasks makes you happy. कार्य को पूर्ण करने पर आपका मन खुश या प्रसन्न रहता है।		0.55							
36. You are generally happy. (आपका मन खुश या प्रसन्न रहता है।)			0.8						
14. Your life is going well. (आपका जीवन अच्छा चल रहा है।)			0.68						
20. The world seems like a good place to you. (दुनिया आपके लिए अच्छी लगती है।)			0.66						
35. You are satisfied with your life. (जीवन से संतोष या संतुष्ट हैं।)			0.65						
39. Having fun with people makes you happy. (लोगों के साथ मोज़-मस्ती करने में आपका मन खुश या प्रसन्न रहता है।)			0.65						
5. You have good health. (आपका स्वास्थ्य अच्छा रहता है।)			0.57						
2. You are free from stress and tension. (तनाव, टेंशन या चिंता से दूर हैं।)			0.55						
6. Happy memories of the past make you happy. अतीत (Past) के सुखद यादों से आपका मन खुश या प्रसन्न रहता है।			0.54						
38. You are mentally peaceful. (मानसिक रूप से शांत रहते हैं।)			0.43						
16. Festivals make you happy. त्योहार में आपका मन खुश या प्रसन्न रहता है।				0.78					
4. Being in an atmosphere of joy and excitement makes you happy. आनंद और उत्साह के माहौल में आपका मन खुश या प्रसन्न रहता है।				0.76					
13. Doing outdoor activities makes you happy. घर के बाहरी कार्य करने में आपका मन खुश या प्रसन्न रहता है।				0.65					
42. Music or dance makes you happy. संगीत या नृत्य (Dance) में आपका मन खुश या प्रसन्न रहता है।				0.64					
26. Traveling makes you happy यात्रा करने में आपका मन खुश या प्रसन्न रहता है।				0.56					
11. Shopping makes you happy. खरीददारी करने में आपका मन खुश या प्रसन्न रहता है।					0.81				
12. Enjoying food makes you happy. रुचिकर खान-पान या भोजन में आपका मन खुश या प्रसन्न रहता है।					0.77				
43. Public events or programs make you happy. सार्वजनिक समारोह या कार्यक्रम में आपका मन खुश या प्रसन्न रहता है।						0.48			
15. Watching TV or movies makes you happy. टेलीविजन या सिनेमा देखने में आपका मन खुश या प्रसन्न रहता है।						0.87			
21. Being physically healthy, or having enough energy, makes you happy. शारीरिक रूप से स्वस्थ, या पर्याप्त ऊर्जा, स्फूर्ति महशूस करते हैं।							0.8		
23. Imagining a bright or good future makes you happy. सुनहरे या अच्छे भविष्य की कल्पना करते हैं।							0.73		
22. Looking at natural scenery makes you happy. प्राकृतिक दृश्य देखने में आपका मन खुश या प्रसन्न रहता है।							0.68		
24. You often entertain yourself. अक्सर आप मनोरंजन करते हैं।							0.64		
19. When you look good or attractive, you feel happy. जब अच्छे या आकर्षक दिखते हैं तब आपका मन खुश या प्रसन्न रहता है।							0.58		
7. Studying makes you happy. अध्ययन करने में आपका मन खुश या प्रसन्न रहता है।								0.73	
30. When your decisions turn out to be good or successful, you feel happy. जब आपके द्वारा लिया गया निर्णय अच्छा या सफल साबित होने पर आपका मन खुश या प्रसन्न रहता है।								0.71	
28. Achieving academic success or receiving social recognition makes you happy. शैक्षणिक उपलब्धि (Achievement) या समाज में सम्मान मिलने पर आपका मन खुश या प्रसन्न रहता है।								0.69	
29. You can make decisions easily or plan something. आसानी से निर्णय लेते हैं या कोई योजना बना लेते हैं।									0.81
27. Everything in your life is going according to your plans or is under your control. जीवन में सब कुछ आपके हिसाब से या नियंत्रण में चल रहा है।									0.8

Confirmatory Factor Analysis (CFA)

A second order confirmatory factor analysis (CFA) was evaluated. The CFA results look solid, with the SRMR at 0.046 and NFI at 0.933, indicating a good fit. The other indices also look great - CFI, IFI, and RNI are all at 0.938, GFI is at 0.930, and MFI is

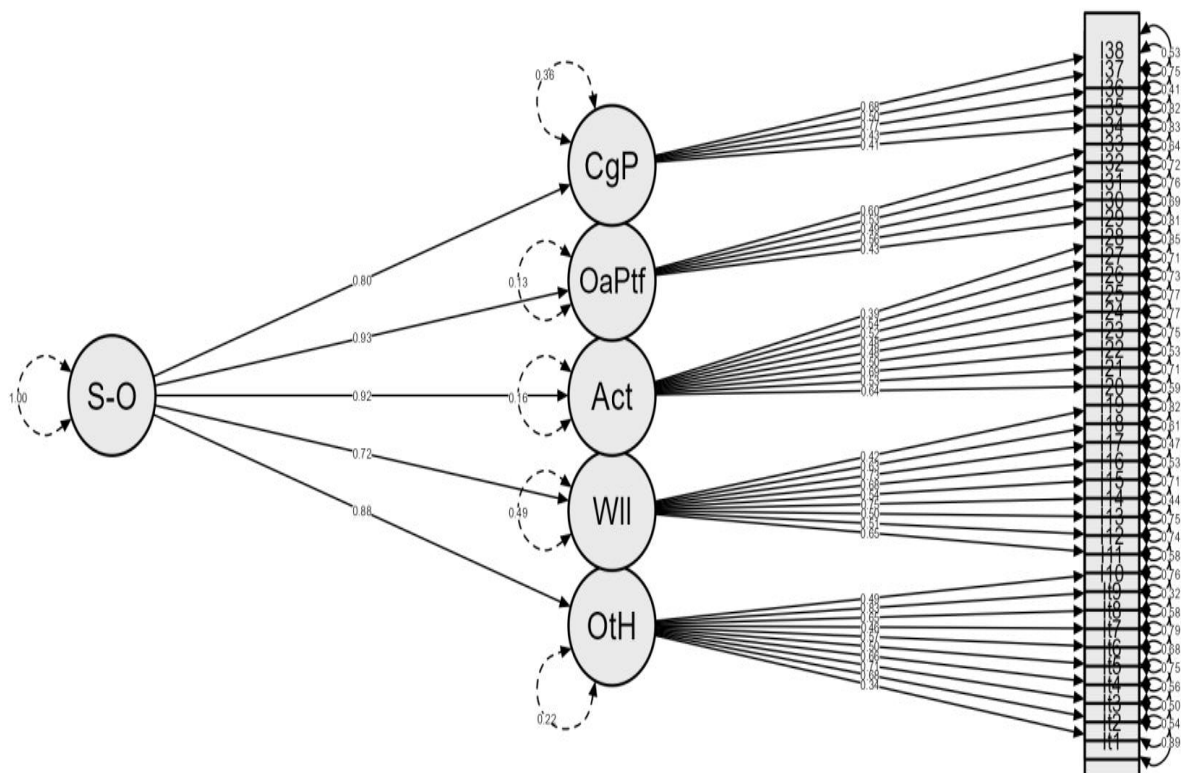
Mahendra Kumar, Priyamvada Shrivastava, Mahesh Kumar

at 0.923. RMSEA is slightly on the higher side at 0.079, but overall the model seems to fit well. The five-factor structure is preserved in the adolescent sample, which is great news for the scale's structural validity. The second order CFA carried out to test whether the five factors of happiness

belonged to a single latent factor of happiness. The second order CFA results suggested a good fit as depicted in Figure-1.

Figure- 1. Second-order factor loadings

In addition, the results showed significant correlations between the latent factors (See table-3).



[CgP (Cognitive Process), OaPtf (Optimistic and Pleasurable think feeling), Act (Activity), Wll (Wellbeing), OtH (Other Happiness)]

Table-3. Parameter estimates of Factor Covariance's

Factors		Estimate	Std. Error	z-value	p	Std. Est. (all)
Other Happiness	Wellbeing	0.584	0.043	13.445	0.000	0.584
Other Happiness	Activity	0.815	0.030	27.374	0.000	0.815
Other Happiness	Optimistic and Pleasurable think feeling	0.831	0.037	22.585	0.000	0.831
Other Happiness	Cognitive Process	0.767	0.042	18.185	0.000	0.767
Wellbeing	Activity	0.677	0.041	16.498	0.000	0.677
Wellbeing	Optimistic and Pleasurable think feeling	0.800	0.040	20.160	0.000	0.800
Wellbeing	Cognitive Process	0.915	0.034	27.150	0.000	0.915
Activity	Optimistic and Pleasurable think feeling	0.842	0.040	21.008	0.000	0.842
Activity	Cognitive Process	0.854	0.041	21.000	0.000	0.854
Optimistic and Pleasurable think feeling	Cognitive Process	0.941	0.047	19.879	0.000	0.941

Reliability

The Cronbach's alpha of the happiness scale was 0.910 and split half was 0.91 suggesting a high degree of internal consistency (table-4).

Table 4: Item-Total Statistics

Item Number	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbac's Alpha if Item Deleted
1.	145.8497	407.815	.511	.921
2.	144.2717	422.262	.567	.920
3.	144.9133	421.830	.400	.922
4.	144.8382	416.658	.432	.922
5.	145.0462	417.598	.469	.921
6.	144.4624	428.307	.359	.922
7.	144.1503	430.053	.513	.922
8.	144.4913	425.375	.396	.922
9.	144.2659	427.512	.422	.922
10.	145.0694	417.213	.505	.921
11.	145.4277	406.019	.598	.920
12.	144.4277	423.330	.428	.922
13.	144.2948	422.388	.582	.920
14.	144.4624	432.609	.339	.922
15.	144.3410	424.063	.512	.921
16.	144.2890	430.119	.335	.922
17.	145.2601	413.051	.493	.921
18.	145.2486	407.190	.596	.920
19.	144.1272	431.416	.390	.922
20.	144.1965	429.190	.410	.922
21.	144.8150	415.212	.552	.920
22.	144.5202	416.958	.673	.919
23.	144.5318	418.569	.439	.922
24.	146.2139	409.502	.474	.922
25.	144.3006	423.596	.523	.921
26.	145.3295	419.236	.436	.922
27.	144.2775	427.633	.435	.922
28.	144.3064	425.059	.495	.921
29.	144.2312	423.970	.547	.921
30.	144.0983	430.535	.428	.922
31.	145.4335	407.087	.560	.920
32.	145.0694	408.308	.662	.919
33.	144.4451	421.767	.538	.921
34.	145.3873	409.652	.545	.920
35.	144.4046	423.813	.489	.921
36.	144.6012	425.945	.380	.922
37.	144.7919	423.493	.403	.922
38.	144.6936	423.320	.457	.921

Criterion validity

The correlations of happiness with PHQ-9, GAD-7, Negative affect, Positive affect and SHS were analyzed. The Pearson's correlation coefficient of the happiness scale with PHQ-9 ($r = -.508$), GAD-7 ($r = -.534$)

and Negative affect ($r = -.450$) scores was significant suggesting strong negative correlation. The Pearson's correlation coefficient of the happiness scale with positive affect scores was $r = 0.210$ ($P < 0.001$), suggesting positive correlation. The Pearson's correlation coefficient of the

happiness scale with SHS scores was $r = 0.358$ ($P < 0.001$), suggesting strong positive correlation.

DISCUSSION

This study developed and validated the first happiness scale specifically designed for Indian school students. The initial item pool was created through focus group discussions and an extensive literature review of existing scales. The psychometric properties of the scale were investigated using both classical and modern test theories in a sample of 660 representative individuals from the youth group. This comprehensive study provides empirical support for the validity and reliability of the HSIY. The development of the HSIY was based on data gathered from 910 individuals living in both rural and urban areas through common component analysis.

Ten professionals were included in focus group discussions to assess the significance of each item in identifying happiness behavior. This study suggested that 3-20 experts should be consulted for adaptation and development studies. Research also emphasized the importance of scope validity, ensuring that the measurement tool adequately represents the target behavior in terms of both quantity and quality.

Items of the scale have good psychometric properties, which contribute to reducing polarization concerns. In order to investigate item quality we established item intercorrelations. The study revealed that the correlations between each item ranged from $r = 0.33$ to $r = 0.68$. According to studies, internal consistency analysis requires that a scale's item-total score correlations should be at least 0.20 and not negative. Item-total score correlation analysis of internal consistency for the HSIY was positive for all items, as such, they were included for final HSIY. Item-total score correlation is an indicator whether an item measures target property and it should be at least 0.20 (Sökmen, 2015). Accordingly, item-total score correlation of HHS ranged from $r =$

0.33 to $r = 0.68$, which were acceptable. This is indicating the good construct validity of the scale.

Bartlett test and the Kaiser-Meyer-Olkin (KMO) test we calculated. The KMO of the HSIY was 0.843 and the Bartlett test result was highly significant at 0.05 levels. A KMO score greater than 0.6 suggests that EFA will be beneficial. Overall KMO values $\geq .70$ are desired but values less than .50 are generally considered unacceptable (Kaiser, 1974), indicating that the correlation matrix is not factorable. As described by Kaiser, et al., (1974), KMO values “in the .90s, marvelous; in the 80s, meritorious; in the .70s, middling; in the .60s, mediocre; in the .50s, miserable; below .50, unacceptable. Overall, these findings show that the distribution of the data is normal. According to these results, the sample size is suitable and sufficient for factor analysis. The split half reliability and internal consistency of the scales were both high. To be more precise, the scale's Cronbach Alpha index was $\alpha = 0.910$. The study revealed that we could increase the scale's reliability to $\alpha = 0.922$ by removing a few items. Due to structure and factorial validity we decided to not proceed with the deletion of the item. Moreover, we thought that reducing a 38-item scale to a 20-item scale would negatively impact the scale's psychometric properties. According to Mishra, Srivastava & Kumar (2023) a Cronbach Alpha coefficient in the range of 0.60 to 0.80 is considered to be quite reliable, while a coefficient in the range of 0.80 to 1.00 is considered highly reliable. This indicates that the excellent reliability of scales.

EFA and CFA we analyzed to examine the factorial validity of the HSIY. Factors with an Eigen value over 1 are generally considered to be acceptable. In this study Eigen values greater than 1.0 were used to select factors. According to the exploratory factor analysis there seems to be five principal factors in the scale which explains 59% of the variable variance: Other

Happiness (Cheerfulness, Work Environment), Wellbeing (Satisfaction, Physical and Mental Health), Activity (Outdoor/Social Activity, Engagement, Entertainment), Optimistic and Pleasurable think feeling and Cognitive Process (Sense of Achievement, Management). To ascertain the acceptability of factors included in the scale with an Eigen value should be greater than one. In the present study, factor loads of HHS ranged from 0.429 to 0.878 which is appropriate structural validity. Minimum value for acceptable factor loads recommended by Mishra, Srivastava & Kumar (2023) was between 0.30 and 0.40. The same result was found also in the CFA. The RMSEA in the present study was lower than the reference value (Hair et al. 1998). In addition, the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI), comparative fit index (CFI) and normed fit index (NFI) are acceptable according to the criteria of acceptance suggested in study of Bryne (2010), Hair et al., (2010), and Kline (2011).

The study also reported criterion validity for the HSIY. As predicted, the HSIY showed a positive correlation with Subjective Happiness and Positive Affect, while it demonstrated a negative correlation with measures of Depression and Anxiety. All criterion validity correlations were statistically significant. However, the correlation between happiness and positive affect, although positive, was relatively weak and therefore requires careful interpretation. This may be because positive effects are generally conceptualized as a relatively stable dispositional characteristic, whereas happiness is often understood as a broader and more dynamic subjective state influenced by multiple contextual and cognitive factors. Thus, although related, these constructs may not always show strong overlap. This finding is consistent with previous validity analyses reported by Sökmen (2015), which also highlighted variations in the strength of associations

across related psychological constructs. Overall, these results support the validity of the HSIY and indicate that the scale is an appropriate and valid measure of happiness among Indian youth.

Although the weaker correlation with Positive Affect suggests that this construct captures only one specific emotional dimension of happiness, it does not weaken the overall robustness of the scale, as the consistent pattern of significant associations with Subjective Happiness, Depression, and Anxiety provides strong evidence for the multidimensional validity and psychometric soundness of the HSIY.

The limitations of the research were: we used the Cronbach Alpha to generate reliability indices rather than employing test-retest technique due to time and logistical constraints. The absence of temporal stability assessment restricts conclusions regarding the scale's stability across time. Future studies are recommended to establish test-retest reliability.

Furthermore, to assess the validity we used criterion method; we could estimate validity measures throughout time and with relation to future outcomes. The HSIY should be only used to evaluate the level of happiness rather than to screen a GAD and depressive disorders. The study should be conducted with higher standard of validation in a further study.

This research will provide valuable insights for future studies regarding the use of the happiness scale in youth populations and it could also improve the quality of research in positive psychology. We believe that in future study the psychometric evaluation of happiness scale could more focus in exploring the cultural differences between different populations regarding happiness experiencing for the Indian youth population. In conclusion, the HSIY can be used as a reliable and valid psychometric tool for the measurement of happiness feelings in the Indian population. The scales meet psychometric standards, and can serve

as a reliable tool to measure the happiness among Indian youth.

References

- Anić, P., & Tončić, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psihologijske Teme*, 22(1), 135–153.
<https://psycnet.apa.org/record/2013-16345-007>.
- Arunachalam, T. (2019). An investigation on the factor structure of Hindi version of Oxford Happiness Questionnaire (OHQ). *Universitas Psychologica*, 18(1), 1–11.
<https://doi.org/10.11144/javeriana.upsy18-1.ifsh>
- Avasthi, A., Grover, S., Bhansali, A., Kate, N., Kumar, V., Das, E. M., & Sharma, S. (2015). Presence of common mental disorders in patients with diabetes mellitus using a two-stage evaluation method. *The Indian journal of medical research*, 141(3), 364–367.
<https://doi.org/10.4103/0971-5916.156580>.
- Avasthi, A., Varma, S. C., Kulhara, P., Nehra, R., Grover, S., & Sharma, S. (2008). Diagnosis of common mental disorders by using PRIME-MD Patient Health Questionnaire. *The Indian journal of medical research*, 127(2), 159–164.
<https://pubmed.ncbi.nlm.nih.gov/18403794/>.
- Bartlett, M. S. (1954). A Note on the Multiplying Factors for Various χ^2 Approximations. *Journal of the Royal Statistical Society Series B (Statistical Methodology)*, 16(2), 296–298.
<https://doi.org/10.1111/j.2517-6161.1954.tb00174.x>.
- Bradburn, N. M. (1969). The structure of psychological well-being.
https://openlibrary.org/books/OL5687853M/The_structure_of_psychological_well-being.
- Byrne, B.M. (2016). Structural Equation Modeling With AMOS: Basic Concepts, Applications, and Programming, Third Edition (3rd ed.). Routledge.
<https://doi.org/10.4324/9781315757421>.
- Diener, E., Emmons, R. a. H., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49(1), 71–75.
https://doi.org/10.1207/s15327752jpa4901_13.
- Extremera, N., & Fernández-Berrocal, P. (2013). The Subjective Happiness Scale: Translation and preliminary psychometric evaluation of a Spanish version. *Social Indicators Research*, 119(1), 473–481.
<https://doi.org/10.1007/s11205-013-0497-2>.
- Mishra, A., Srivastava, P., & Kumar, M. (2023). Assessing The Psychometric Properties of The Internet Addiction Test (IAT) Among Indian School Students. *National Journal of Community Medicine*. 14. 485-490.
 10.55489/njcm.140820233024.
- Hair, J., Anderson, R., Babin, B. & Black, W. (2013). *Multivariate Data Analysis*. (7th ed.). Pearson International.
<https://elibrary.pearson.de/book/99.150005/9781292035116>.
- Hills, P., & Argyle, M. (2002). The Oxford Happiness Questionnaire: a compact scale for the measurement of psychological well-being. *Personality and Individual Differences*, 33(7), 1073–1082.
[https://doi.org/10.1016/s0191-8869\(01\)00213-8](https://doi.org/10.1016/s0191-8869(01)00213-8).
- Iani, L., Lauriola, M., Layous, K., & Sirigatti, S. (2013). Happiness in Italy: translation, factorial

- structure and norming of the subjective happiness scale in a large community sample. *Social Indicators Research*, 118(3), 953–967.
<https://doi.org/10.1007/s11205-013-0468-7>.
- Jovanovic, V., & Zuljevic, D. (2011). Psychometric evaluation of the Serbian version of the multidimensional students' life satisfaction scale. *Social Indicators Research*, 110(1), 55–69.
<https://doi.org/10.1007/s11205-011-9916-4>.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31–36.
<https://doi.org/10.1007/bf02291575>.
- Kline, R. B. (2011). Principles and practice of structural equation modeling, 3rd ed. *The Guilford Press*
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2003). The Patient Health Questionnaire-2. *Medical Care*, 41(11), 1284–1292.
<https://doi.org/10.1097/01.mlr.0000093487.78664.3c>.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9. *Journal of General Internal Medicine*, 16(9), 606–613.
<https://doi.org/10.1046/j.1525-1497.2001.016009606.x>.
- Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and standardization of the Generalized Anxiety Disorder screener (GAD-7) in the general population. *Medical Care*, 46(3), 266–274.
<https://doi.org/10.1097/mlr.0b013e318160d093>.
- Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2011). Subjective well-being and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology*, 102(3), 592–615.
<https://doi.org/10.1037/a0025948>.
- Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: preliminary reliability and construct validation. *Social Indicators Research*, 46(2), 137–155.
<https://doi.org/10.1023/a:1006824100041>.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131(6), 803–855.
<https://doi.org/10.1037/0033-2909.131.6.803>.
- Mattei, D., & Schaefer, C. E. (2004). An investigation of validity of the subjective happiness scale. *Psychological Reports*, 94(1), 288–290.
<https://doi.org/10.2466/pr0.94.1.288-290>.
- Moghnie, L., & Kazarian, S. S. (2011). Subjective happiness of Lebanese college youth in Lebanon: factorial structure and invariance of the Arabic subjective happiness scale. *Social Indicators Research*, 109(2), 203–210.
<https://doi.org/10.1007/s11205-011-9895-5>.
- Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (third edition). McGraw-Hill.
- Oishi, S., Graham, J., Kesebir, S., & Galinha, I. C. (2013). Concepts of happiness across time and cultures. *Personality and Social Psychology Bulletin*, 39(5), 559–577.

<https://doi.org/10.1177/0146167213480042>.

Patterson, P. (2000). Reliability, validity, and methodological response to the assessment of physical activity via Self-Report. *Research Quarterly for Exercise and Sport*, 71(sup2), 15–20.

<https://doi.org/10.1080/02701367.2000.11082781>.

Plummer, F., Manea, L., Trepel, D., & McMillan, D. (2015). Screening for anxiety disorders with the GAD-7 and GAD-2: a systematic review and diagnostic meta analysis. *General Hospital Psychiatry*, 39, 24–31.

<https://doi.org/10.1016/j.genhosppsych.2015.11.005>

Rutter, L. A., & Brown, T. A. (2016). Psychometric Properties of the Generalized Anxiety Disorder Scale-7 (GAD-7) in Outpatients with Anxiety and Mood Disorders. *Journal of Psychopathology and Behavioral Assessment*, 39(1), 140–146.

<https://doi.org/10.1007/s10862-016-9571-9>

Salama-Younes, M. (2011). Positive Mental Health, Subjective Vitality and Satisfaction with Life for French Physical Education Students. *World Journal of Sport Sciences*, 4, 90-97.

Sharma, V. K., Lepping, P., Cummins, A. G., Copeland, J. R., Parhee, R., & Mottram, P. (2004). The Global Mental Health Assessment Tool--Primary Care Version (GMHAT/PC). Development, reliability and validity. *World psychiatry*, 3(2), 115–119.

Sharma, V. K., Lepping, P., Cummins, A. G. P., Copeland, J. R. M.,

Parhee, R., & Mottram, P. (2004). The Global Mental Health Assessment Tool-Primary Care Version (GMHAT/ PC). Development, reliability and validity. *World psychiatry*, 3(2), 115–119.

Sharma, V. K., Lepping, P., Krishna, M., Durrani, S., Copeland, J. R., Mottram, P., Parhee, R., Quinn, B., Lane, S., & Cummins, A. (2008). Mental health diagnosis by nurses using the Global Mental Health Assessment Tool: a validity and feasibility study. *British Journal of General Practice*, 58(551), 411–416. <https://doi.org/10.3399/bjgp08x299218>

Shin, H., & Kim, J. (2021). Development and Validation of the Happiness Scale for Middle- Aged Women based on Existence, Relation, and Growth Theory. *Asian Nursing Research*, 15(2), 96–104.

<https://doi.org/10.1016/j.anr.2020.12.002>

Shrivastava, P., Mishra, G. J., & Kumar, M. (2020). Factors of Happiness among Indian Adolescents. *Indian Journal of Public Health Research & Development*, 11(1), 490.

<https://doi.org/10.37506/v11/i1/2020/ijphrd/193869>

Singh, R., Husain, A. (2021). Psychometric Validation of the Hindi Version of Subjective Happiness Scale among Indian Adults. *Indian Journal of Positive Psychology*, 12 (3), 263-267.

Sökmen, S. (2015). Quality of Nursing Work Life Scale: The Psychometric Evaluation of the Turkish Version. *International*

Journal of Caring Sciences, 8 (3), 543

Spagnoli, P., Caetano, A., & Silva, A. (2010). Psychometric properties of a Portuguese version of the subjective happiness scale. *Social Indicators Research*, 105(1), 137–143.

<https://doi.org/10.1007/s11205-010-9769-2>

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder. *Archives of Internal Medicine*, 166(10), 1092.

<https://doi.org/10.1001/archinte.166.10.1092>

Swami, V., Stieger, S., Voracek, M., Dressler, S. G., Eisma, L., & Furnham, A. (2008). Psychometric evaluation of the Tagalog and German subjective happiness scales and a Cross-Cultural comparison. *Social Indicators Research*, 93(2), 393–406.

<https://doi.org/10.1007/s11205-008-9331-7>

Von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., & Vandenbroucke, J. P. (2007). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *The Lancet*, 370(9596), 1453–1457.

[https://doi.org/10.1016/s0140-6736\(07\)61602-x](https://doi.org/10.1016/s0140-6736(07)61602-x)

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063–1070.

<https://doi.org/10.1037/0022-3514.54.6.1063>

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