**Migration Letters**

Volume: 21, No: S3 (2024), pp. 433-446

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)

www.migrationletters.com

# Validation Of Multi-Domain Satisfaction Scales From The Well-Being Inventory On Ex-Servicemen From Indian Armed Forces

Anirudh Shastri Shidganesh[1] and Ram Manohar Singh[2]

## Abstract

*This study evaluates the cross-cultural validity and reliability of the scales measuring multi-domain satisfaction from the Well-being Inventory. An online cross-sectional survey was conducted using convenience sampling to collect data from 412 Ex-Servicemen of the Indian armed forces. The confirmatory factor analysis results using robust maximum likelihood estimation on Mplus 8.1 provides acceptable model fit indices for the first-order six-factor model RMSEA= 0.03, SRMR =0.0[1]6, CFI = 0.96 and TLI = 0.96,. The average variance extracted for factors in the model ranges between 0.53 – 0.67. The construct reliability for sub-domains ranges between 0.80-0.93. The model shows acceptable discriminant and convergent validity using the Fornell-Larcker criterion and Heterotrait-Monotrait approach. The first order six-factor model shows good composite reliability having Omega = 0.91. The principal component analysis for sub-domains confirms the unidimensional factor structure of each sub-domain. Each sub-domain scale possesses adequate internal consistency reliability with Cronbach alpha ranging between 0.78 to 0.92. The results of Pearson's correlation between each sub-domain and Satisfaction with Life Scale ranges between 0.36-0.58 with p<0.001, indicating a significant positive correlation. The comprehensive summated score shows a moderate positive correlation with SWLS (r = 0.60). The multi-domain scales are valid tools for comprehensive and segregate measurement of satisfaction for Ex-Servicemen from the Indian armed forces in work, finance, health, intimate partner relationship, parenting, and broader social domains of life.*

***Keywords:*** *Satisfaction, Well-being Inventory, Ex-servicemen, Indian Armed Forces, Subjective Well-being*

## Introduction

Well-Being assessment is essential to study human behaviour. Since ancient times, the conceptualisation of well-being has taken place across various cultures, i.e. Aristotle in Greece, Hindu texts from India (Fowers, 2012; Salagame, 2013). The current literature on psychology broadly studies well-being from hedonic and eudemonic approaches. Eudemonic well-being focuses on an individual's growth and excellence in functioning, while hedonic well-being focuses on pleasure-seeking and reducing affect distress (Huta & Waterman, 2014).

[1] Research Scholar, Department of Humanities and Social Sciences, Indian Institute of Technology Roorkee. ORCID ID-0000-0001-6298-7822

[2] Assistant Professor, Department of Humanities and Social Sciences, Indian Institute of Technology Roorkee. ORCID ID-0000-0002-2973-7888

Hedonic well-being is also known as subjective well-being. Subjective well-being consists of the affect balance of positive-negative emotions and the cognitive evaluation of subjective satisfaction (Diener, 1984). Satisfaction is the cognitive evaluation of an individual's various life domains and complete life based on pleasure obtained by fulfilling his/her needs. Satisfaction has been measured as an indicator of well-being across different nations having diverse demographic variations (Biswas-Diener et al., 2005; Vittersø et al., 2005).

Globally, the well-being of Ex-servicemen (ESM) has been an essential concern for government and society for over a century (Burtin, 2020; Englander, 1991; Indian Soldier's Board, 1931; Sovani, 1951). Researches on ESM encompass well-being assessment (Thompson et al., 2017). Various studies have used satisfaction to measure the well-being of ESMs (Maharajan & Krishnaveni, 2017; Robertson & Brott, 2013, 2014; Spiegel & Shultz, 2003; Verma & Singh, 2016).

Most researchers have measured the well-being of ESM using assessment tools developed for populations other than ESM (Kankaraš & Moors, 2010; Verma & Singh, 2016). There is a need to develop and validate the existing tools developed for ESM to measure the satisfaction of ESM from the Indian armed forces.

**Well Being Inventory (WBI)**

It is a multi-domain self-report tool developed as a part of The Veteran Metric Initiative (TVMI) to measure the well-being of US Military veterans broadly in the life domains of Vocation, Finance, Health, and Social life (Vogt, Perkins, et al., 2018). It measures three constructs, i.e., the status, functioning, and satisfaction for the seven sub-domains, i.e., work (Items in section A, B, C), education (Items in section D, E, F), finance (Items in section G, H, I), health (Items in section J, K, L), intimate partner relationship (Items in section M, N, O), parenting (Items in section P, Q, R) and broad social (Items in section S, T, U) sub-domains of life. The Instrument was developed and validated in two stages in Study 1 (N = 301,286) and Study 2 (N = 9566, 7342).

The work satisfaction scale comprises six items, i.e. C1, C2 (unpaid work) and C3, C4, C5 C6 for (paid work), having Cronbach alpha of 0.89 and 0.90, respectively. The educational satisfaction scale comprised four items, i.e. F1, F2, and F3, with a Cronbach alpha of 0.88. The financial satisfaction scale comprises four items, i.e. I1, I2, I3, and I4, with a Cronbach alpha of 0.88. The health satisfaction scale comprises three items, i.e. L1, L2, and L3, with a Cronbach alpha of 0.82. The intimate partner relationship satisfaction scale comprises six items, i.e. O1, O2, O3, O4, O5 and O6, having a Cronbach alpha of 0.89. The parental satisfaction scale comprises three items, i.e. R1, R2 and R3, with a Cronbach alpha of 0.85. The broader social satisfaction scale comprises four items, i.e. U1, U2, U3 and U4, with a Cronbach alpha of 0.87(Vogt et al., 2019). The scale's factor structure was assessed for three models, i.e. first-order single-factor model, first-order seven-factor model, and higher-order single latent factor model. The first-order single-factor model for measurement of satisfaction was rejected due to poor fit indices with CFI = 0.536, 0.500, RMSEA = 0.138 with chi-square values 52751.73, df = 377 at $p < 0.001$ level. The confirmatory factor analysis (CFA) showed a good fit for the first-order seven-factor model and the higher-order single latent factor model. The first-order seven-factor model provided best representation of the factor structure with the model fit indices of CFI = 0.94 TLI = 0.93 and RMSEA = 0.05 with chi-square values 6901.56, df = 356 at $p<0.001$ level (Vogt, Tavern, et al., 2018). The scores of satisfaction with life scale show moderate positive scores with the paid work satisfaction (r = 0.63), financial Satisfaction (r = 0.62), health satisfaction (r = 0.70), intimate relationship satisfaction (r = 0.63), parental satisfaction (r = 0.48), broader social satisfaction (r = 0.70).

The psychometric properties of the Well Being Inventory confirmed it as a reliable and valid tool to measure Status, Functioning, and Satisfaction independently and comprehensively in the seven sub-domains for the ESM population in the United States (Vogt et al., 2019).

**Present study**

This study investigates the psychometric properties of the comprehensive multi-domain life satisfaction consisting of scales measuring satisfaction in work, finance, health, intimate partner relationship, parenting, and broader social sub-domains from the WBI for ESM from the Indian armed forces using the following objectives-

1) To examine the best model fit among first-order single-factor model (Figure A), first-order six-factor model (Figure B) and higher-order single latent factor model (Figure C).
2) To confirm the discriminant and convergent validity of the best fitting model.
3) To examine the unidimensional structure of the independent sub-domain scales.
4) To examine internal consistency reliability of the scales measuring work, finance, health, intimate partner relationship, parenting, broad social satisfaction and composite reliability of the comprehensive scale.
5) To examine the relationship between unidimensional measurement of global life satisfaction with multi-domain measures of life satisfaction.

## Method

### Instruments and Variables

Demographic Details

The demographic details consisted of age, branch of the Indian armed forces, rank, marital status, parenting status, work status, years of service, and retirement year.

Well-being Inventory

WBI and its manual were obtained from the first author for non-commercial academic research. The survey in this study consisted of the following scales to measure satisfaction in work, finance, health, intimate partner relationship, parenting, and broader social domain. ESM pursue diverse educational and vocational skill training from private and public organisations. Due to the heterogeneity in training sources and teaching facilities, the scale measuring satisfaction in the education sub-domain was excluded from this study. Both the paid and unpaid work scales were used to assess the work satisfaction of re-employed ESM. The responses for items were forward scored on a 5 point Likert scale, i.e. 1=Very Dissatisfied, 2=Dissatisfied, 3=Neither Satisfied nor Dissatisfied, 4=Satisfied and 5=Very Satisfied.

Satisfaction with Life Scale (SWLS)

It is a 5 item unidimensional scale with 7 points Likert response to measure the global life satisfaction of an individual (Diener et al., 1985). The responses were forward scored for 1= Strongly Disagree to 2 = Strongly Agree. The scale is available for non-commercial and academic purposes (Diener, 2020). It has been used cross-culturally across the globe and found to be valid and reliable for measuring satisfaction (Pavot & Diener, 2008). The scale has also been validated on the Indian adult population and found to be a valid and reliable tool (Dahiya & Rangnekar, 2020). Responding to SWLS was not obligatory.

### Procedure for Data Collection

The study is conducted using a cross-sectional online survey. It employs a convenience sampling method for data collection. The questionnaire was circulated to members of ESM organisations through google forms across different states in India (Kumar & Naik, 2016). The form consisted of demographic details, six satisfaction scales from the WBI and the SWLS.

**Participants**

439 ESM participants voluntarily responded through the google form. 12 forms re-submitted by the participants were discarded. 3 Responses mentioning the age of children more than the years of marriage were considered invalid and discarded. 11 responses with the age of joining less than 15 years and more than 28 years were removed. 1 female participant was removed, considering the underrepresentation of the sample for gender.

| Demographic Variable | Category | WBI Responses | Valid % | SWLS Responses |
|---|---|---|---|---|
| **Branch** | | | | |
| | Army | 169 | 41.02 | 71 |
| | Air Force | 134 | 32.52 | 126 |
| | Navy | 109 | 26.46 | 102 |
| **Rank** | | | | |
| | Sepoy and NCO | 167 | 40.53 | 96 |
| | JCO | 122 | 29.61 | 82 |
| | Officers | 123 | 29.85 | 121 |
| **Marital Status** | | | | |
| | Married | 404 | 98.06 | 292 |
| | Widowed | 7 | 1.70 | 6 |
| | Bachelor | 1 | 0.24 | 1 |
| **Parenting Status** | | | | |
| | Parent | 407 | 98.79 | 294 |
| | Non-parents | 5 | 1.21 | 4 |
| **Employment Status** | | | | |
| | Own a Business | 55 | 13.35 | 48 |
| | Salaried Employee | 203 | 49.27 | 154 |
| | Unemployed | 72 | 17.48 | 30 |
| | Retired | 82 | 19.90 | 67 |
| **Re-employment Status** | | | | |
| | Working | 258 | 62.62 | 202 |
| | Non-Working | 154 | 37.38 | 97 |

**Table 1 - Demographic details of Sample (N=412)**

The 412 responses of participant ESM were used as the sample for this study after filtering the data (Topp & Pawloski, 2002). 412 valid responses were obtained on financial satisfaction, social satisfaction and health satisfaction, 407 valid responses on parenting satisfaction, 404 responses for Intimate partner relationship satisfaction and 258 responses for work satisfaction according to demographic differences between the participants. The mean age of participants

was 55.70 years (minimum age = 33 years and maximum age = 85 years), retired between 1971 to 2020 from the Indian Army, Navy and Air Force. The military service of participants in the Indian armed forces ranges between 1 year to 39 years, with a mean of 22.80 years. Table 1 describes the demographic details of the sample.

**Data Analysis and results -**

Confirmatory factor analysis(CFA) was performed on Mplus 8.1 using the robust maximum likelihood estimation method for comparing the first-order single-factor model (Figure A), first-order six-factor model (Figure B) and higher-order single latent factor model (Figure C) (Vogt, Perkins, et al., 2018).

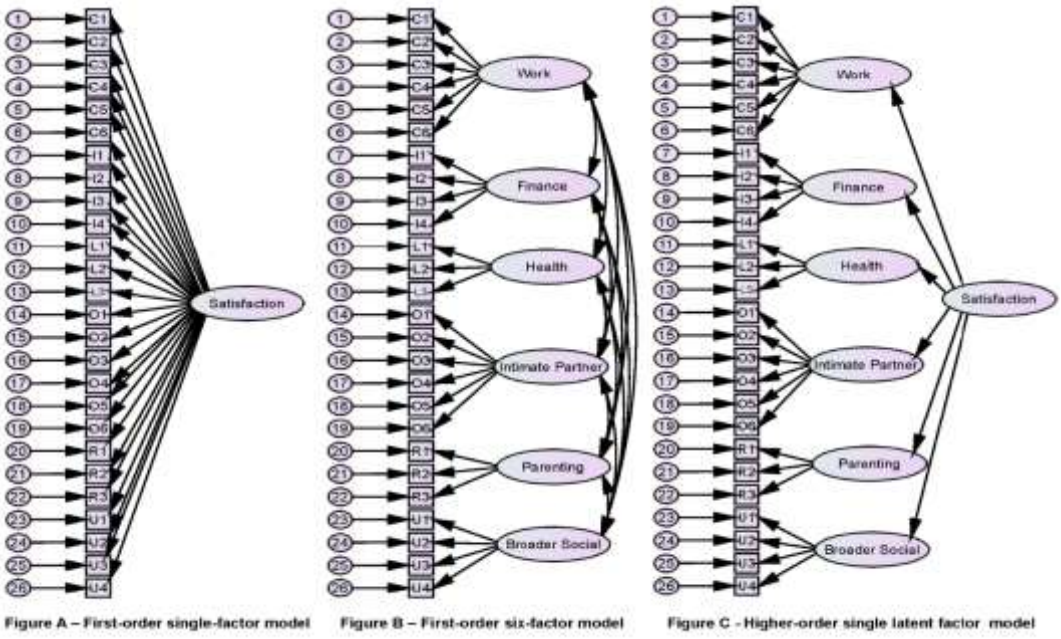


Figure A – First-order single-factor model Figure B – First-order six-factor model Figure C - Higher-order single latent factor model

The sample size (N>250) was adequate for CFA (Hu & Bentler, 1999). The CFI>0.95, TLI>0.95, RMSEA<0.06, SRMR <0.08 and lower values of Chi square/df, AIC, BIC are used as the cut-off for assessment of good model fit (Schreiber et al., 2006). The results of CFA in Table 2 indicate that the first-order six-factor model is the best fitting model with chi sq./df = 1.47, CFI = 0.96, TLI = 0.96, RMSEA = 0.03, SRMR = 0.06, AIC = 22417.98, BIC = 22791.93.

| Model | Chi-Sq. | Df | Sig. | Chi-sq./df | RMSEA | SRMR | CFI | TLI | AIC | BIC |
|---|---|---|---|---|---|---|---|---|---|---|
| **First order single-factor** | 1805.01 | 299 | 0.001 | 6.04 | 0.11 | 0.12 | 0.55 | 0.51 | 24330.36 | 24644.00 |
| **First order six-factor** | 417.31 | 284 | 0.001 | 1.47 | 0.03 | 0.06 | 0.96 | 0.96 | 22417.98 | 22791.93 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Higher-order single latent factor** | 491.54 | 293 | 0.001 | 1.68 | 0.04 | 0.09 | 0.94 | 0.94 | 22507.25 | 22845.02 |

**Table 2 – Model fit Indices of Confirmatory factor analysis models**

The construct reliability (CR), Heterotrait-Monotrait ratio using the arithmetic mean (HTMT), and Heterotrait-Monotrait ratio using geometric mean (HTMT2), average variance extracted (AVE), maximum shared variance (MSV), average shared variance (ASV) were calculated using MS Excel 2016. Table 3 and Table 4 shows the standardised loadings (0.54 to 0.91), MSV (0.40 to 0.51), ASV (0.23 to 0.36), AVE (0.53 to 0.67) and CR (0.80 to 0.93) are adequate for the first-order multi-domain model. The square root of AVE for each factor is greater than its correlation with other factors, indicating good discriminant validity. The CR (<0.70) and AVE (<0.50) for each sub-domain indicate adequate convergent validity as shown in Table 3. CR is greater than AVE, and AVE is greater than MSV and ASV.

The HTMT (0.28 to 0.77) and HTMT2 ratios (0.27 to 0.78) shown in Table 4 also indicate good discriminant validity. The first order six-factor model for scale displays good convergent and discriminant validity according to the Fornell-Larcker criterion and HTMT approach (Fornell & Larcker, 1981; Hair et al., 2014; Henseler et al., 2015; Raykov, 1997; Roemer et al., 2021).

Principal component analysis with varimax rotation to retain factors above the eigenvalue one was performed to examine the sub-domain's unidimensional structure. The sample size was adequate for performing principal component analysis of scales in each sub-domain. Bartlett's test of sphericity $p < 0.001$ level and KMO measure of sampling adequacy ranging between 0.65-0.92 for all the sub-domains. The factor loadings are above 0.6 and extracted communalities above 0.4 for each item in every domain. The results confirm an underlying unidimensional component for each scale measuring work, finance, health, intimate partner relationship, parenting and broad social satisfaction, as shown in Table 5.

| **Sub-domain** | **Item** | **Standardized Estimates** | **Construct Reliability** | **Average Variance Extracted** |
|---|---|---|---|---|
| **Work** | C1 | 0.63 | 0.87 | 0.54 |
| | C2 | 0.74 | | |
| | C3 | 0.84 | | |
| | C4 | 0.76 | | |
| | C5 | 0.76 | | |
| | C6 | 0.65 | | |
| **Finance** | I1 | 0.73 | 0.82 | 0.53 |
| | I2 | 0.74 | | |
| | I3 | 0.81 | | |
| | I4 | 0.61 | | |

| | | | | |
|---|---|---|---|---|
| **Health** | L1 | 0.77 | 0.80 | 0.57 |
| | L2 | 0.86 | | |
| | L3 | 0.61 | | |
| **Intimate partner relationship** | O1 | 0.88 | 0.93 | 0.67 |
| | O2 | 0.89 | | |
| | O3 | 0.81 | | |
| | O4 | 0.83 | | |
| | O5 | 0.75 | | |
| | O6 | 0.75 | | |
| **Parenting** | R1 | 0.84 | 0.84 | 0.65 |
| | R2 | 0.91 | | |
| | R3 | 0.64 | | |
| **Broader Social** | U1 | 0.54 | 0.81 | 0.53 |
| | U2 | 0.75 | | |
| | U3 | 0.80 | | |
| | U4 | 0.79 | | |

**Table 3 – Convergent validity of First-order six-factor model**

| **Inter Factor-Correlation** | **Work** | **Finance** | **Health** | **Intimate partner** | **Parenting** | **Broad Social** |
|---|---|---|---|---|---|---|
| **Work** | 1 | | | | | |
| **Financial** | 0.63 | 1 | | | | |
| **Health** | 0.54 | 0.47 | 1 | | | |
| **Intimate partner relationship** | 0.56 | 0.30 | 0.42 | 1 | | |
| **Parenting** | 0.50 | 0.24 | 0.34 | 0.65 | 1 | |
| **Broader Social** | 0.71 | 0.60 | 0.71 | 0.45 | 0.46 | 1 |
| **Maximum Shared Variance** | 0.50 | 0.40 | 0.51 | 0.42 | 0.42 | 0.51 |
| **Average Shared Variance** | 0.35 | 0.23 | 0.26 | 0.24 | 0.21 | 0.36 |
| **Square root of AVE** | 0.73 | 0.73 | 0.75 | 0.82 | 0.80 | 0.73 |

| **HTMT using Arithmetic mean** | **Work** | **Finance** | **Health** | **Intimate partner** | **Parenting** | **Broad Social** |
|---|---|---|---|---|---|---|
| **Work** | - | | | | | |
| **Financial** | 0.54 | - | | | | |
| **Health** | 0.48 | 0.49 | - | | | |
| **Intimate partner relationship** | 0.52 | 0.29 | 0.44 | - | | |
| **Parenting** | 0.55 | 0.28 | 0.38 | 0.65 | - | |
| **Broader Social** | 0.66 | 0.63 | 0.77 | 0.44 | 0.54 | - |

| **HTMT2 using Geometric mean** | **Work** | **Finance** | **Health** | **Intimate partner** | **Parenting** | **Broad Social** |
|---|---|---|---|---|---|---|
| **Work** | - | | | | | |
| **Financial** | 0.52 | - | | | | |
| **Health** | 0.47 | 0.48 | - | | | |
| **Intimate partner relationship** | 0.52 | 0.28 | 0.43 | - | | |
| **Parenting** | 0.55 | 0.27 | 0.38 | 0.66 | - | |
| **Broader Social** | 0.66 | 0.63 | 0.78 | 0.42 | 0.54 | - |

**Table 4 – Discriminant validity of First-order six-factor model**

The composite reliability (Omega), internal consistency reliability (Alpha), the correlation between factors, and correlation between items and principal component analysis were calculated using SPSS 28 Trial version. The analysis for Omega was performed for 254 participants as the data for work satisfaction is missing for non-working participants. The results indicate good composite reliability for the first order six-factor model having an Omega value of 0.91 (Hayes & Coutts, 2020). All the sub-domain scales were unidimensional, and hence internal consistency reliability was estimated by Cronbach alpha (Cronbach, 1951). Table 5 shows that each sub-domain possesses adequate internal consistency reliability with Cronbach alpha ranging between 0.78 to 0.92. Every item significantly contributes to each sub-domain as indicated by the corrected item-total correlation values above 0.40 (Cureton, 1966).

| **Item** | | | **Internal Consistency** | | **Factor analysis** | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Item** | **Mean** | **SD** | **Corrected Item-Total** | **Cronbach Alpha** | **Communality** | **Factor Loading** | **KMO** | **Bartlett's test** | **Variance extracted** |
| **Work Satisfaction** | | | | | | | | | |
| **C1** | **4.19** | **1.06** | 0.55 | 0.85 | 0.46 | 0.68 | 0.88 | Chi sq. 594.84 Df 15 P<0.001 | 58.02 % |
| **C2** | **4.07** | **1.18** | 0.65 | | 0.59 | 0.77 | | | |
| **C3** | **4.33** | **1.00** | 0.74 | | 0.71 | 0.84 | | | |
| **C4** | **4.35** | **1.04** | 0.66 | | 0.61 | 0.78 | | | |
| **C5** | **4.14** | **1.08** | 0.67 | | 0.62 | 0.79 | | | |
| **C6** | **4.46** | **0.95** | 0.56 | | 0.48 | 0.70 | | | |
| **Financial Satisfaction** | | | | | | | | | |
| **I1** | **4.12** | **1.25** | 0.64 | 0.81 | 0.65 | 0.81 | 0.78 | Chi sq. 552.81 | 64.20% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **I2** | **3.89** | **1.33** | 0.66 | | 0.68 | 0.82 | | Df 6 P<0.001 | |
| **I3** | **3.97** | **1.24** | 0.69 | | 0.71 | 0.84 | | | |
| **I4** | **3.83** | **1.31** | 0.54 | | 0.53 | 0.73 | | | |
| **Health Satisfaction** | | | | | | | | | |
| **L1** | **4.20** | **1.10** | 0.67 | 0.78 | 0.76 | 0.87 | 0.67 | Chi sq. 388.26 Df 3 P<0.001 | 70.03% |
| **L2** | **4.36** | **1.02** | 0.67 | | 0.76 | 0.87 | | | |
| **L3** | **4.16** | **1.13** | 0.52 | | 0.58 | 0.76 | | | |
| **Intimate partner relationship Satisfaction** | | | | | | | | | |
| **O1** | **4.61** | **0.85** | 0.83 | 0.92 | 0.79 | 0.89 | 0.92 | Chi sq. 1713.44 Df 15 P<0.001 | 72.48% |
| **O2** | **4.55** | **0.86** | 0.84 | | 0.79 | 0.89 | | | |
| **O3** | **4.55** | **0.87** | 0.77 | | 0.71 | 0.84 | | | |
| **O4** | **4.39** | **0.95** | 0.79 | | 0.74 | 0.86 | | | |
| **O5** | **4.77** | **0.66** | 0.73 | | 0.66 | 0.81 | | | |
| **O6** | **4.57** | **0.78** | 0.72 | | 0.65 | 0.81 | | | |
| **Parenting Satisfaction** | | | | | | | | | |
| **R1** | **4.72** | **0.70** | 0.69 | 0.82 | 0.77 | 0.88 | 0.65 | Chi sq. 531.28 Df 3 P<0.001 | 74.30% |
| **R2** | **4.66** | **0.75** | 0.78 | | 0.85 | 0.92 | | | |
| **R3** | **4.58** | **0.83** | 0.57 | | 0.61 | 0.78 | | | |
| **Broader Social Satisfaction** | | | | | | | | | |
| **U1** | **4.30** | **1.05** | 0.47 | 0.80 | 0.43 | 0.66 | 0.76 | Chi sq. 572.94 Df 6 P<0.001 | 63.49% |
| **U2** | **4.14** | **1.09** | 0.68 | | 0.70 | 0.84 | | | |
| **U3** | **4.15** | **1.05** | 0.69 | | 0.73 | 0.85 | | | |
| **U4** | **4.31** | **0.99** | 0.65 | | 0.68 | 0.82 | | | |

**Table 5 – Reliability and Validity of each sub-domains**
****Principal Component analysis (1 factor extracted with eigenvalue greater than 1, no rotation required)**

The response to SWLS was optional; hence, Pearson's correlation was performed with pairwise deletion to examine the relationship between the scores of SWLS and domains of WBI.

| | **Satisfaction with Life Scale** | | | |
|---|---|---|---|---|
| | **Number of respondents** | **Pearson's correlation** | **p value** | **95% C.I. (LL-UL)** |
| **Work Satisfaction** | 202 | 0.48 | <0.001 | 0.37 - 0.58 |
| **Financial Satisfaction** | 299 | 0.51 | <0.001 | 0.42 - 0.59 |
| **Health Satisfaction** | 299 | 0.50 | <0.001 | 0.41 - 0.58 |
| **Intimate partner relationship Satisfaction** | 292 | 0.37 | <0.001 | 0.26 - 0.46 |
| **Parenting Satisfaction** | 294 | 0.36 | <0.001 | 0.25 - 0.45 |
| **Broader Social Satisfaction** | 299 | 0.58 | <0.001 | 0.50 - 0.65 |
| **Summated Comprehensive Satisfaction** | 198 | 0.60 | <0.001 | 0.50 - 0.68 |

**Table 6 – Correlation between WBI and SWLS**

The relationship between scores of unidimensional SWLS and multi-domain sub-domains of life satisfaction from the WBI was calculated by Pearson's correlation coefficient, as shown in Table 6. The summated scores of Intimate partner relationship satisfaction (r = 0.37), parenting satisfaction (r = 0.36) and work satisfaction (r = 0.48) show a low positive correlation while financial satisfaction (r = 0.51), broader social satisfaction (r = 0.59), health satisfaction (r = 0.50) show a moderately positive correlation with SWLS (Mukaka, 2012). The comprehensive score of six domains (r = 0.60) shows a moderate positive correlation with SWLS.

**Discussion**

This study investigated the psychometric properties of scales measuring satisfaction in work, finance, health, intimate partner relationship, parenting and broad social domains of life from the WBI among ESM from the Indian Armed forces.

This study used six sub-domains instead of the original seven-factor model (Vogt et al., 2019). Educational satisfaction was excluded from this study. The work satisfaction was measured only for re-employed ESM by using unpaid and paid work satisfaction items. The results of CFA show a poor model fit for the first-order single-factor model, a good model fit for the first-

order six-factor model and an acceptable fit for the higher-order single latent factor model. The results support the multi-domain conception of the scale. The construct reliability (>0.70), average variance extracted (>0.50), HTMT and HTMT2 ratios (>0.85) display adequate convergent and discriminant validity for the independent six domains in the first-order six-factor model (Fornell & Larcker, 1981; Hair et al., 2014; Henseler et al., 2015; Raykov, 1997; Roemer et al., 2021). The comprehensive scale shows adequate construct validity for measuring multi-domain satisfaction.

Further, the psychometric properties of each sub-domain were examined. The parenting satisfaction and health satisfaction consist of three indicators causing a Heywood case during CFA leading to model-misfit (Hair et al., 2014). Post-hoc, Principal component analysis confirmed that each scale measures a single latent variable. The independent sub-domain scales are structurally valid for research on ESM. The reliability was examined by estimating the internal consistency reliability of independent sub-domains and composite reliability of the comprehensive scale. The results indicate that both independent and comprehensive scales possess adequate reliability (>0.70) (Hayes & Coutts, 2020; Nunnally & Bernstein, 1994). The standardised loadings (>0.50), factor loadings (>0.60), communalities (>0.40) and corrected item-total correlation (>0.40) indicate that each item contributes significantly to each sub-domain and overall scale.

The study was completed by examining the correlation between separate sub-domains and the summated comprehensive score with the SWLS. The SWLS is used in the original scale for concurrent validity (Dahiya & Rangnekar, 2020; Vogt, Tavern, et al., 2018). The results in this study and the original study provide empirical evidence for a significant positive correlation between sub-domains and comprehensive scores from WBI and SWLS (Diener, 1984; Vogt, Tavern, et al., 2018). Although the results indicate a significant relationship, the magnitude of the correlation between scores in the present study is lesser than the original study. It provides valuable information to researchers for selecting between unidimensional or multi-domain approaches while designing studies on ESM. The scale is helpful for researchers, policymakers interested in exploring the comprehensive life satisfaction of ESM with the help of distinct components of work, finance, intimate partner relationship, parenting, health and broader social satisfaction. The present study contributes to the field of well-being and veteran studies. It supports the existing literature of WBI. It provides scientific evidence for cross-cultural validity and reliability on satisfaction scales from WBI to measure satisfaction among the ESM population.

**Limitation and Suggestions**

The present study has excluded female, bachelor, divorced, separated and non-parent ESMs due to lesser participants in the sample. Future studies should consider validation on ESM from excluded demographic categories. The parenting and health satisfaction scales displayed the Heywood case. Future researches using these scales should consider the possibility of a model misfit in measurement during independent CFA of these scales. The present study is based in India. India is a multi-lingual country. The scale is in the English language, translation and adaptation of the scale into official Indian languages can provide a wider audience for large scale utilisation of the tool. Future studies can address the translation and adaptation of WBI.

**Conclusions**

This study explored the construct validity, composite reliability, construct reliability, discriminant validity, convergent validity using the Fornell-Larcker criterion & HTMT approach of the comprehensive scale. It explored each subdomain's unidimensionality, internal consistency reliability and concurrent validity with the SWLS. The present study provides empirical proof for cultural fairness of satisfaction scale from WBI for measuring hedonic well-

being (Biswas-Diener et al., 2005). The present study provides empirical evidence of adequate psychometric properties for scales measuring satisfaction domain comprising work, finance, health, intimate partner relationship, parenting, and broader social sub-domains from the WBI. It is a reliable and valid tool for measuring multi-domain life satisfaction and individual sub-domain satisfaction among ESM from the Indian armed forces.

**Conflict of interest**

The authors declare no conflict of interest

**Ethical Considerations**

The Ethical approval for the study was taken for the study from the Institute Human Ethics Commiteee numbered IHEC No: BT/IHEC-IITR/2020/7004.

**Conflict of Interest**

No conflict of interest.

**Data availability**

The data will be available on request from the author.

## References

Biswas-Diener, R., Vittersø, J., & Diener, E. (2005). Most people are pretty happy, but there is cultural variation: The Inughuit, the Amish, and the Maasai. Journal of Happiness Studies (Vol. 6, Issue 3). https://doi.org/10.1007/s10902-005-5683-8

Burtin, O. (2020). The History of veterans ' policy in the United States. Historical Social Research 45(2(172)), 239–260. https://www.jstor.org/stable/10.2307/26897907

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16(3), 297–334. https://doi.org/10.1007/BF02310555

Cureton, E. E. (1966). Corrected item-test correlations. Psychometrika, 31(1), 93–96. https://doi.org/10.1007/BF02289461

Dahiya, R., & Rangnekar, S. (2020). Validation of satisfaction with life scale in the Indian manufacturing sector. Asia-Pacific Journal of Business Administration. https://doi.org/10.1108/APJBA-03-2019-0045

Diener, E. (1984). Subjective well-being. Psychological Bulletein, 95(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E. (2020). Permissions to use satisfaction with life scale. https://eddiener.com/scales

Diener, E., Emmons, R. A., 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

Englander, D. (1991). The National Union of Ex-Servicemen and the Labour Movement, 1918-1920. History, 76(246), 24–42. https://doi.org/10.1111/j.1468-229X.1991.tb01532.x

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50. https://www.jstor.org/stable/3151312

Fowers, B. J. (2012). An Aristotelian framework for the human good. Journal of Theoretical and Philosophical Psychology, 32(1), 10–23. https://doi.org/10.1037/a0025820

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Multivariate data analysis (7th ed.). Pearson Education Limited.

Hayes, A. F., & Coutts, J. J. (2020). Use Omega rather than Cronbach's Alpha for estimating reliability. But…. Communication Methods and Measures, 14(1), 1–24. https://doi.org/10.1080/19312458.2020.1718629

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 1–55. https://doi.org/10.1080/10705519909540118

Huta, V., & Waterman, A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. Journal of Happiness Studies, 15(6), 1425–1456. https://doi.org/10.1007/s10902-013-9485-0

Indian Soldier's Board. (1931). Report for the year ending the 31st March 1931. https://dspace.gipe.ac.in/xmlui/bitstream/handle/10973/33011/GIPE-009395-09.pdf?sequence=3

Kankaraš, M., & Moors, G. (2010). Researching measurement equivalence in cross-cultural studies. Psihologija, 43(2), 121–136. https://doi.org/10.2298/PSI1002121K

Kumar, K., & Naik, L. (2016). How to create an online survey using google forms. International Journal of Library and Information Studies, 6(3), 118–126. https://www.ijlis.org/articles/how-to-create-an-online-survey-using-google-forms.pdf

Maharajan, K., & Krishnaveni, R. (2017). Inclusive management of ex-servicemen in India: Satisfaction of air force veterans from resettlement facilities with special reference to Tamil Nadu. IIMB Management Review, 29(1), 5–17. https://doi.org/10.1016/j.iimb.2016.11.001

Mukaka, M. M. (2012). Statistics corner: A guide to appropriate use of correlation coefficient in medical research. Malawi Medical Journal, 24(3), 69–71. http://www.ncbi.nlm.nih.gov/pubmed/23638278

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (3rd ed.). McGraw-Hill,Inc.

Pavot, W., & Diener, E. (2008). The Satisfaction with Life Scale and the emerging construct of life satisfaction. The Journal of Positive Psychology, 3(2), 137–152. https://doi.org/10.1080/17439760701756946

Raykov, T. (1997). Estimation of composite reliability for congeneric measures. Applied Psychological Measurement, 21(2), 173–184. https://doi.org/10.1177/01466216970212006

Robertson, H. C., & Brott, P. E. (2013). Male veterans' perceptions of midlife career transition and life satisfaction: A study of military men transitioning to the teaching profession. Adultspan Journal, 12(2), 66–79. https://doi.org/10.1002/j.2161-0029.2013.00016.x

Robertson, H. C., & Brott, P. E. (2014). Military veterans' midlife career transition and life satisfaction. The Professional Counselor, 4(2), 139–149. https://doi.org/10.15241/hcr.4.2.139

Roemer, E., Schuberth, F., & Henseler, J. (2021). HTMT2–an improved criterion for assessing discriminant validity in structural equation modeling. Industrial Management and Data Systems, 121(12), 2637–2650. https://doi.org/10.1108/IMDS-02-2021-0082

Salagame, K. K. K. (2013). Swāsthya and Stithaprajnatva. In Keith K.D. (Eds), The Encyclopedia of Cross-Cultural Psychology. https://doi.org/10.1002/9781118339893.wbeccp525

Schreiber, J. B., Stage, F. K., King, J., Nora, A., & Barlow, E. A. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. Journal of Educational Research, 99(6), 323–338. https://doi.org/10.3200/JOER.99.6.323-338

Sovani, N. V. (1951). Planning of post-war economic development in India. Gokhale Institute of Politics & Economics. https://dspace.gipe.ac.in/xmlui/bitstream/handle/10973/39667/GIPE-026581.pdf?sequence=3

Spiegel, P. E., & Shultz, K. S. (2003). The influence of preretirement planning and transferability of skills on naval officers' retirement satisfaction and adjustment. Military Psychology, 15(4), 285–307. https://doi.org/10.1207/s15327876mp1504_3

Thompson, J. M., Lockhart, W., Roach, M. B., Atuel, H., Bélanger, S., Black, T., Castro, C. A., Cox, D., Cooper, A., de Boer, C., Dentry, S., Hamner, K., Shields, D., & Truusa, T.-T. (2017). Veterans' identities and well-being in transition to civilian life - A resource for policy analysts, program designers, service providers and researchers : Report of the veterans' identities research theme working group. Canadian Institute for Military and Veteran Health Research Forum.

Topp, N. W., & Pawloski, B. (2002). Online data collection. Journal of Science Education and Technology, 11(2), 173–178. https://doi.org/10.1023/A:1014669514367

Verma, R., & Singh, R. (2016). Last held military rank and wellbeing ( psychological distress ) of army ex-servicemen ( non-commissioned officers ). International Journal of Indian Psychology, 3(4), 192–197. https://doi.org/10.25215/0304.135

Vittersø, J., Biswas-Diener, R., & Diener, E. (2005). The divergent meanings of life satisfaction: Item response modeling of the satisfaction with life scale in Greenland and Norway. Social Indicators Research, 74, 327–348. https://doi.org/10.1007/s11205-004-4644-7

Vogt, D., Nillni, Y. I., Taverna, E. C., Tyrell, F. A., Booth, B., Perkins, D. F., Copeland, L. A., Finley, E. P., & Gilman, C. L. (2019). Development and validation of a tool to assess military veterans' status, functioning, and satisfaction with key aspects of their lives. Applied Psychology: Health and Well-Being, 11(2), 328–349. https://doi.org/10.1111/aphw.12161

Vogt, D., Perkins, D. F., Copeland, L. A., Finley, E. P., Jamieson, C. S., Booth, B., Lederer, S., & Gilman, C. L. (2018). The Veterans Metrics Initiative study of US veterans' experiences during their transition from military service. BMJ Open: Vol. 8:e020734. https://doi.org/10.1136/bmjopen-2017-020734

Vogt, D., Tavern, E., Nilini, Y., & Tyrell, F. (2018). Manual for the Well-Being Inventory (WBI): A multidimensional tool for assessing key components of well-being, Boston. MA:National Center for PTSD.