

*Short Version of the Basic Psychological Need Satisfaction Scale:
A Study With Higher Education Students in Portugal*

Maria Odília Teixeira, University of Lisbon, Portugal
Márcia Laranjeira, University of Lisbon, Portugal

The Barcelona Conference on Education 2024
Official Conference Proceedings

Abstract

The Self-Determination Theory proposes autonomy, competence, and relatedness as three psychological needs that are intrinsically linked to the mental health, well-being, and academic success of higher education students. This study aimed to validate a shortened version of the Basic Psychological Need Satisfaction Scale for the population of higher education students in Portugal. Participants ($N = 800$) were recruited online and responded to the 12 items of the scale along with a sociodemographic questionnaire. The sample was randomly divided into two sub-samples for exploratory factor analysis (EFA; $n = 380$) and confirmatory factor analysis (CFA; $n = 420$). The EFA results suggested a 3-factor structure, corresponding to the needs for autonomy, competence, and relatedness. The adequacy of this structure was supported by the CFA results. All subscales demonstrated adequate internal consistency ($\alpha = .68$ to $.85$) and moderate correlations ($r = .63$ to $.68$) with subjective well-being, confirming the convergent validity of the measure. The findings support the use of the scale in psychoeducational interventions in higher education and in research, particularly in identifying institutional factors that contribute to enhancing students' positive functioning.

Keywords: Basic Psychological Needs, Scale Adaptation, Higher Education, Subjective Well-being

iafor

The International Academic Forum
www.iafor.org

Introduction

In the field of Positive Psychology (e.g., Seligman, 2011), well-being and the satisfaction of psychological needs are fundamental dimensions of positive psychological functioning, strongly linked to academic success. The concept of basic psychological needs is central to Self-Determination Theory, which connects psychological functioning to the characteristics and opportunities of various contexts. According to the Self-Determination Theory (SDT), all human beings have psychological needs for competence, autonomy, and relatedness. These three needs form integral components of the human organism's adaptive design: engaging in meaningful activities (autonomy), exercising skills (competence), and creating and maintaining social connections (relatedness) (Deci & Ryan, 1985; 2000). These needs are innate and universal, requiring continuous satisfaction for healthy development and functioning. Satisfying these needs fosters autonomous motivation, well-being, and effective performance (Ryan & Deci, 2017). Within this framework, psychological needs are viewed as inherent tendencies of the human organism toward growth, integration, and flourishing.

According to SDT, the satisfaction of basic psychological needs directly influences well-being, with each need making an independent contribution (Deci & Ryan, 1985, 2000). The effects of specific behaviors or events on well-being depend on how they support or hinder the satisfaction of these needs (Ryan, 2009). Importantly, the satisfaction or frustration of basic psychological needs can yield positive or negative outcomes, respectively, with corresponding effects on health and well-being. Well-being thus reflects both individual success and the quality of the social and academic environment that fosters development. For instance, research confirms that inclusive environments positively affect well-being (Marcionetti et al., 2017; Laranjeira & Teixeira, 2024).

In this context, psychological assessment serves as a powerful tool for addressing the complex challenges of development, well-being, and academic success at both the individual student level and within the educational community. Effective psychological assessment relies on accurate and valid instruments that measure students' psychological functioning and provide insights into contextual factors influencing success and development.

This study aims to examine the psychometric properties of the Basic Psychological Need Satisfaction Scale (BPNSS; Deci & Ryan, 2003; Gagné, 2003), focusing on internal consistency and validity indicators. For validity, particular emphasis is placed on the scale's internal structure as evidence of construct validity and its relationship with well-being as a criterion for evaluating convergent validity. This criterion is especially relevant in the context of higher education.

Method

Participants and Procedures

A convenience sample of 800 higher education students (65% female; 87% national) from several Portuguese universities participated in the study. Participants' ages ranged from 18 to 75 years (Med = 24, IQR = 20). About 70% were undergraduates, 24% were master's students, and 6% were Ph.D. students. The full sample was randomly divided into two independent subsamples, enabling the conduct of exploratory factor analysis (EFA) on the first subsample ($n = 380$) and confirmatory factor analysis (CFA) on the second subsample ($n = 420$).

The study received approval from the Ethics Committee of the Faculty of Psychology, University of Lisbon. Program coordinators from 73 higher education institutions nationwide were contacted to assist in distributing the online survey link via email. The survey was conducted using Qualtrics. After providing informed consent, students voluntarily and anonymously completed the questionnaires, which required approximately 10 minutes.

Instruments

Basic Psychological Need Satisfaction Scale.

The Basic Psychological Need Satisfaction Scale (BPNSS; Deci & Ryan, 2000; Gagné, 2003) consists of 21 items designed to assess the satisfaction of three core psychological needs: autonomy, competence, and relatedness. In this study, only the 12 positively phrased items were used, resulting in a shortened version. The scale measures the extent to which individuals perceive their psychological needs as being fulfilled in general. Respondents rate each item on a seven-point Likert scale, ranging from 1 (*Not at all true*) to 7 (*Very true*). The items were translated into Portuguese by a team of four researchers in Educational Psychology. Each researcher initially translated the items individually, after which the team met to discuss and agree on the best translation for each item.

Flourishing Scale.

The Flourishing Scale (FS; Diener et al., 2009) includes eight items that assess different aspects of positive functioning, such as positive relationships, feelings of competence, and a sense of meaning and purpose in life (e.g., “I am engaged and interested in my daily activities”). This unidimensional scale is designed to measure the overall construct of subjective well-being. Participants rate each item on a seven-point Likert scale, ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). The Portuguese version of the FS has shown strong internal consistency ($\alpha \geq 0.78$) and high convergent validity with similar scales (Silva & Caetano, 2013).

Results

Exploratory Factor Analysis

EFA was conducted using Principal Axis Factoring with oblimin rotation. The Kaiser-Meyer-Olkin measure indicated excellent sampling adequacy ($KMO = .92$). Three factors were extracted based on eigenvalues greater than 1, explaining around 52.09% of the total variance. The first factor, relatedness, included items 2, 6, 9, 12, 14, and 21, accounting for 43.72% of the variance. The second factor, competence, encompassed items 5, 10, and 13, explaining 5.15% of the variance. Finally, the third factor, autonomy, was represented by items 1, 8, and 17, explaining 3.21% of the variance. All factor loadings exceeded $|.50|$.

Confirmatory Factor Analysis

The factor structure identified in the EFA was tested using CFA in a first-order model. Model fit indices indicated a good fit ($\chi^2 = 160.72$, $df = 51$, $p < .001$, $\chi^2/df = 3.15$; CFI = .94; TLI = .92; RMSEA = .07; SRMR = .05). All factor loadings were statistically significant, ranging from $\lambda = .56$ to $.81$, supporting the adequacy of the measurement model.

Descriptive Statistics and Reliability

Table 1 displays the descriptive statistics of the study variables. The range of scores indicates variability in participants' responses. Mean values suggest that participants perceived their three psychological needs as moderately satisfied.

Internal consistency for the psychological needs subscales was assessed using Cronbach's alpha coefficients, ranging from $\alpha = .68$ to $.85$, indicating adequate to good reliability.

Convergent Validity

Convergent validity was examined through correlations with subjective well-being, with all correlations being positive and moderate, ranging from $r = .63$ to $.68$ (Table 1). Additionally, the correlations among the three psychological needs were also significant and moderate.

Table 1: Descriptive Statistics, Internal Consistency and Correlations

Variable	Range	<i>M</i> (<i>SD</i>)	1	2	3
1. Autonomy	1-7	5.29 (1.22)	$\alpha = .74$		
2. Competence	1-7	5.20 (1.12)	.58***	$\alpha = .68$	
3. Relatedness	1-7	5.46 (1.02)	.59***	.58***	$\alpha = .85$
4. Well-Being	1-7	5.46 (1.14)	.64***	.68***	.62***

Note. *** $p < .001$

Conclusion

The psychometric properties of the shortened Portuguese version of the BPNSS were thoroughly assessed in this study. The results from the EFA revealed a three-factor structure corresponding to the three theoretically expected psychological needs. The CFA also supported the three-factor model, demonstrating a good fit. Cronbach's alpha coefficients indicated adequate to good reliability for the subscales. Convergent validity was examined through correlations with subjective well-being, which were all significant and moderate.

These findings align with those obtained using the original scale (Deci & Ryan, 2000; Gagné, 2003). Despite its shortened format, the three-factor structure was replicated in the Portuguese adaptation of the scale. The relationships among the three variables align with theoretical expectations and appear unaffected by sample characteristics or the study context. Evidence suggests a clear distinction among the three need factors, reinforcing the multidimensional nature of the construct. Studies focusing on the psychometric analysis of psychological need satisfaction measures are scarce, highlighting the importance of developing and adapting tools that conceptualize autonomy, competence, and relatedness as three distinct factors rather than dimensions of a higher-order factor. Such a hierarchical conceptualization could imply the simultaneous satisfaction of all three needs, which is inconsistent with Self-Determination Theory (Johnston & Finney, 2010).

Overall, the findings support the Portuguese version of the BPNSS as a reliable and valid tool for measuring psychological need satisfaction among higher education students. The scale can be valuable in students' psychological assessment and has the potential to guide interventions and policies that foster autonomy, competence, and relatedness, thereby enhancing student well-being and academic success.

References

- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. Springer Science & Business Media. <https://doi.org/10.1007/978-1-4899-2271-7>
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Diener, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D., & Oishi, S. (2009). New measures of well-being. In E. Diener (Ed.), *Assessing Well-Being: The collected works of Ed Diener* (pp. 247–266). Springer. https://doi.org/10.1007/978-90-481-2354-4_12
- Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, *27*(3), 199–223. <https://doi.org/10.1023/A:1025007614869>
- Johnston, M. M., & Finney, S. J. (2010). Measuring basic needs satisfaction: Evaluating previous research and conducting new psychometric evaluations of the Basic Needs Satisfaction in General Scale. *Contemporary educational psychology*, *35*(4), 280-296. <https://doi.org/10.1016/j.cedpsych.2010.04.003>
- Laranjeira, M., & Teixeira, M. O. (2024, November 12-16). The key role of inclusive higher education environments in students' psychological needs satisfaction and well-being [Poster presentation]. *The 5th Barcelona Congress on Education*, Barcelona, Spain.
- Marcionetti, J., Castelli, L., & Crescentini, A. (Eds.). (2017). *Well-being in education systems*. Hogrefe Editore.
- Ryan, R. (2009). Self-determination theory and wellbeing. *Social Psychology*, *84*, 822-848.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. The Guilford Press. <https://doi.org/10.1521/978.14625/28806>
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.
- Silva, A. J., & Caetano, A. (2013). Validation of the flourishing scale and scale of positive and negative experience in Portugal. *Social Indicators Research*, *110*(2), 469-478. <https://doi.org/10.1007/s11205-011-9938-y>

Contact email: moteixeira@psicologia.ulisboa.pt