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# *Brief Calling Scale*: proprietà psicometriche della versione italiana in studenti universitari

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## Sommario

La presente ricerca esamina le proprietà psicometriche della *Brief Calling Scale* (BCS)-versione italiana, in 101 studenti universitari italiani. La *Mokken scale analysis*, secondo l'approccio *Item Response Theory* (IRT), è stata utilizzata per testare l'omogeneità della scala tramite i coefficienti di Loevinger. Per valutare l'affidabilità, sono stati calcolati i coefficienti alfa di Cronbach. La validità concorrente è stata esaminata attraverso le correlazioni con il *Calling and Vocational Questionnaire* (CVQ). Sia i valori degli item che i punteggi complessivi della BCS hanno mostrato buoni coefficienti di Loevinger. Inoltre, le alfa di Cronbach sono risultate essere alte. Lo studio ha confermato la validità concorrente del BCS con il CVQ, stabilendo così, che la versione italiana del BCS è uno strumento affidabile per la valutazione del calling in studenti universitari italiani.

## Parole chiave

Calling, *Brief Calling Scale* (BCS), Proprietà psicometriche, Studenti universitari.

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# *Brief Calling Scale*: Psychometric Properties of the Italian Version in University Students

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## Abstract

The current investigation examines the psychometric properties of the *Brief Calling Scale* (BCS)- Italian version, in 101 Italian university students. *Mokken scale analysis* according to the *item response theory* (IRT) approach was employed to test the homogeneity of the scale via Loevinger's coefficients. For assessing reliability, Cronbach's alpha coefficients were calculated. Concurrent validity was examined through correlations with the *Calling and Vocational Questionnaire* (CVQ). Both item scores and overall scores of the BCS showed good Loevinger's coefficients. Furthermore, the Cronbach's alphas were high. The study confirmed the concurrent validity of the BCS with the CVQ, thereby establishing that the Italian version of the BCS is a reliable tool for the evaluation of calling in Italian university students.

## Keywords

Calling, *Brief Calling Scale* (BCS), Psychometric properties, University students.

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## Introduction

In line with the most widely accepted definition put forth by Dik and Duffy (2009), calling is «a transcendent summons, experienced as originating beyond the self, to approach a particular life role in a manner oriented toward demonstrating or deriving a sense of purpose or meaningfulness and that holds other-oriented values and goals as primary sources of motivation» (p. 427). This definition integrates three pivotal elements: a) transcendent summons, b) purposeful work, and c) prosocial orientation.

Moreover, Dik and colleagues (2012) delineated two main facets of calling: presence and search, both encompassing the aforementioned three pivotal elements. From this viewpoint, while certain individuals may already recognize their calling (termed «presence»), others might not presently sense a calling and are active in its pursuit (referred to as «search»). To develop a highly efficient and short instrument to assess both presence and search for calling, Dik et al. (2012) introduced the *Brief Calling Scale* (BCS) as a psychometrically sound instrument for assessing individuals' presence of and search for a calling. The BCS encompasses four items, with half addressing the presence of calling (BCS Presence) and the remaining focusing on the search for calling (BCS Search), offering two scores for the two dimensions.

Numerous findings have shown that, in university students, BCS scores of perceiving a calling are associated with beneficial career outcomes such as career decision self-efficacy, career maturity, and vocational self-clarity (Duffy & Dik, 2013). A study involving over 3,000 first-year university students revealed a positive association between perceiving a calling and career choice comfort, career decidedness, and choice-work salience (Duffy & Sedlacek, 2007).

Subsequent investigations have indicated that BCS perceiving a calling has a moderate relationship with occupational self-efficacy (Domene, 2012), and it is associated with positive work attitudes, positive work-related outcome expectations, and intrinsic work motivation (Dik et al., 2008; Steger et al., 2010). Concerning indicators of well-being, a large array of studies has indicated that the presence of calling has a positive correlation with life satisfaction, academic satisfaction, and life meaning (Duffy et al., 2012; Duffy et al., 2011, 2014; Duffy & Sedlacek, 2010; Steger et al., 2010). Moreover, in the study by Praskova et al. (2014), an early recognition of career calling was identified as a predictor for subsequent life meaning and career adaptability in emerging adults.

In summary, the BCS is a popular instrument used to assess calling, also in university students (Duffy et al., 2015), and the BCS scores have been linked to a broad range of positive well-being and career-related variables (Duffy et al., 2014; Duffy et al., 2018). Additionally, the traditional accountability principles for career research and interventions have advocated for the use of short scales to

maintain the equilibrium between efficacy and resource implementation (Whiston, 2001), as well as the current parsimonious perspective (Duffy et al., 2023) recommended to reduce participant strain by employing trustworthy and brief instruments. Recently, Di Fabio and Svicher (2023) studied the psychometric properties of the BCS in Italian workers via item response theory (IRT) Mokken scale analysis, highlighting the good homogeneity of the scale, the trustworthiness of the BCS Presence and Search scores, and the concurrent validity with the *Calling and Vocational Questionnaire* (CVQ).

However, the study of the psychometric properties of the BCS-Italian version (Di Fabio & Svicher, 2023) in university students remains unexplored. Therefore, the present research aims to investigate the psychometric properties of the BCS among Italian university students. According to Di Fabio and Svicher (2023), IRT Mokken scale analysis was employed to test the homogeneity of the scale. The BCS's reliability was investigated using Cronbach's alphas and concurrent validity was assessed through correlations with the CVQ.

## Methods

### *Participants and Procedure*

One hundred and one university students from Tuscany (Central Italy) participated in the study. They were 72.3% female ( $n = 73$ ) and 27.7% male ( $n = 28$ ), with a mean age of 21.61 ( $DS = 3.55$ ) years. All the participants adhered on a voluntary basis and signed informed consent in line with Italian privacy laws (DL-196/2003; EU 2016/679).

### *Measures*

The *Brief Calling Scale* (BCS) (Dik et al., 2012)-Italian version (Di Fabio & Svicher, 2023) is a 4-item self-report questionnaire with Likert responses rated on 5-points, from (1) «not at all true for me» to (5) «totally true for me». Two items measure the presence of calling (BCS Presence) and two items measure the search for calling (BCS Search). This tool has been applied in several prior investigations involving university students (e.g., Duffy & Dik, 2013; Duffy et al., 2015; Eley et al., 2022; Shen et al., 2021) and has shown satisfactory reliability (Dik et al., 2012). The BCS-Italian version for workers showed good psychometric properties with Cronbach's alphas for BCS Presence of .86 and for BCS Search of .91.

The *Calling and Vocation Questionnaire* (CVQ) (Dik et al., 2012)-Italian version (Di Fabio & Svicher, 2022) is a self-report tool measuring the presence and search for calling on 24 items. Responses are rated on a Likert scale on four

points, ranging from 1 («Not at all true for me») to 4 («Absolutely true for me»). The Italian version showed a two-bifactor model with six factors. Three factors assess the presence of calling (CVQ-Presence): (1) Presence-Transcendent Summons (PTS); (2) Presence-Purposeful Work (PPW); and (3) Presence-Prosocial Orientation (PPO). Three factors evaluate the Search for calling (CVQ-search): (4) Search-Transcendent Summons (STS); (5) Search-Purposeful Work (SPW); and (6) Search-Prosocial Orientation (SPO). For the present investigation, the CVQ-presence and CVQ-search scores were used. Cronbach's alphas were  $\alpha = .83$  for CVQ-Presence and  $\alpha = .90$  for CVQ-Search.

### *Data analysis*

The BCS was assessed using the item response theory Mokken scale analysis (Sijtsma & Verweij, 1992). We ran two analyses: one for the BCS Presence items and another one for the BCS Search items. Loevinger's coefficient Hij of scalability for items and total scores were calculated. A weak scale is constituted of  $3 \leq \text{Hij} < 4$ ; a medium scale is constituted of  $4 \leq \text{Hij} < 5$ ; a strong scale is composed of  $5 \leq \text{Hij} < 10$  (Sijtsma & Verweij, 1992). Furthermore, the reliability of BCS-Presence and BCS-Search scores were assessed via Cronbach's alphas. Alphas  $\geq .70$  were judged adequate. The concurrent validity of BCS Presence and BCS Search was assessed using Pearson's correlations with CVQ-Presence and CVQ-Search. R studio 2022.12.0 for Macintosh was used to implement the *mokken* 3.0.6 and *psych* 2.3.3 packages.

## **Results**

Table 1 illustrates Mokken coefficients of scalability. All coefficients were found to be strong for all the items and the two total scores (BCS Presence and BCS search). Table 1 also illustrates Cronbach alphas, which were found to be good for both BCS Presence and BCS search. Table 2 reports the correlation between the BCS and the CVQ. BCS Presence and CVQ-Presence were found to be positively and statistically significantly associated, and BCS Search and CVQ-Search were found to be positively and statistically significantly associated (Table 2).

## **Discussion**

Based on our best knowledge, this is the first study that has evaluated the psychometric properties of the BCS-Italian version (Di Fabio & Svicher, 2023)

in university students. The BCS Presence and BCS Search displayed strong Loevinger’s  $H_{ij}$  coefficients, underling the good homogeneity of the scale. The total scores also indicated good reliability, evidenced by good Cronbach’s alphas. Moreover, BCS Presence and BCS Search exhibited statistically significant and positive correlations with their respective CVQ counterparts, underling the concurrent validity of the BCS-Italian version also in university students. The results were in accordance with those observed by Di Fabio and Svicher (2023) in workers and in line with Dik et al.’s (2012) model of calling. One limitation of the present research is the examination of university students from Central Italy, thereby not reflecting a group that is representative of university students also from the North and South of Italy. Despite this, our work is the first investigation of Dik et al.’s (2012) BCS-Italian version (Di Fabio & Svicher, 2023) among Italian university students.

Future studies might extend this exploration to other targets of students, such as high school students, and also consider other IRT models to provide specific metrics, such as difficulty and discrimination parameters, as well as item information and test information functions (Embretson & Reise, 2000). Despite this, the BCS-Italian version (Di Fabio & Svicher, 2023) showed good psychometric properties, suggesting its application in research and intervention to assess the calling of university students consistently with Dik et al.’s (2012) model.

**Table 1**

*Brief Calling Scale: Item Response Theory Mokken Scale Analysis and Cronbach’s Alpha (n = 101)*

Item	$H_{ij}$ (SE)	Cronbach’s Alpha
BCS Presence Item 1	.814 (.041)	-
BCS Presence Item 2	.812 (.044)	-
BCS Presence Total Score	.813 (.042)	.84
BCS Search Item 1	.832 (.043)	-
BCS Search Item 2	.835 (.045)	-
BCS Search Total Score	.833 (.042)	.87

BCS = *Brief Calling Scale*;  $H_{ij}$  = Loevinger’s coefficient of scalability.

**Table 2**

Pearson's Correlation between the *Brief Calling Scale* and the *Calling and Vocation Questionnaire* ( $n = 101$ )

Item	CVQ-Presence	CVQ-Search
BCS Presence Total Score	.54**	.17
BCS Search Total Score	.12	.39**

BCS = *Brief Calling Scale*; CVQ = *Calling and Vocation Questionnaire*. \*\*  $p < 0.01$

## References

- Di Fabio, A., & Svicher, A. (2022). Calling and Vocation Questionnaire. Psychometric properties of the Italian version. *Counseling. International Journal of Research and Intervention*, 15(3), 71-79. <http://dx.doi.org/10.14605/CS1532206>
- Di Fabio, A., & Svicher, A. (2023). Psychometric properties of the Italian version of the Brief Calling Scale. *Counseling. International Journal of Research and Intervention*, 16(2), 103-111. <http://dx.doi.org/10.14605/CS1532206>
- Dik, B. J., & Duffy, R. D. (2009). Calling and vocation at work: Definitions and prospects for research and practice. *The Counseling Psychologist*, 37(3), 424-450. <http://dx.doi.org/10.1177/0011000008316430>
- Dik, B. J., Eldridge, B.M., Steger, M. F., & Duffy, R. D. (2012). Development and validation of the Calling and Vocation Questionnaire (CVQ) and Brief Calling Scale (BCS). *Journal of Career Assessment*, 20(3), 242-263. <http://dx.doi.org/10.1177/1069072711434410>
- Domene, J. F. (2012). Calling and career outcome expectations: The mediating role of self-efficacy. *Journal of Career Assessment*, 20(3), 281-292. <http://dx.doi.org/10.1177/1069072711434413>
- Duffy, R. D., & Dik, B. J. (2013). Research on calling: What have we learned and where are we going? *Journal of Vocational Behavior*, 83(3), 428-436. <http://dx.doi.org/10.1016/j.jvb.2013.06.006>
- Duffy, R. D., Allan, B.A., & Bott, E. M. (2012). Calling and life satisfaction among undergraduate students: Investigating mediators and moderators. *Journal of Happiness Studies*, 13(3), 469-479. <http://dx.doi.org/10.1007/s10902-011-9274-6>
- Duffy, R. D., Allan, B. A., & Dik, B. J. (2011). The presence of a calling and academic satisfaction: Examining potential mediators. *Journal of Vocational Behavior*, 79(1), 74-80. <http://dx.doi.org/10.1016/j.jvb.2010.11.001>
- Duffy, R. D., Autin, K. L., Allan, B. A., & Douglass, R. P. (2015). Assessing work as a calling: An evaluation of instruments and practice recommendations. *Journal of Career Assessment*, 23(3), 351-366. <https://doi.org/10.1177/1069072714547163>
- Duffy, R. D., Choi, Y., Kim, H. J., & Park, J. (2023). Recommendations for conceptualizing and measuring constructs within psychology of working theory. *Journal of Career Assessment*, 0(0). <https://doi.org/10.1177/10690727231179196>
- Duffy, R. D., Douglass, R. P., Autin, K. L., & Allan, B. A. (2014). Examining predictors and outcomes of a career calling among undergraduate students. *Journal of Vocational Behavior*, 85(3), 309-318. <https://doi.org/10.1016/j.jvb.2014.08.009>
- Duffy, R. D., Dik, B. J., Douglass, R. P., England, J. W., & Velez, B. L. (2018). Work as a call-

- ing: A theoretical model. *Journal of Counseling Psychology*, 65(4), 423-439. <https://doi.org/10.1037/cou0000276>
- Duffy, R. D., & Sedlacek, W. E. (2010). The Salience of a career calling among college students: Exploring group differences and links to religiousness, life meaning, and life satisfaction. *The Career Development Quarterly*, 59(1), 27-41. <https://doi.org/10.1002/j.2161-0045.2010.tb00128.x>
- Eley, D. S., Leung, J., & Cloninger, K. M. (2022). A longitudinal cohort study observed increasing perfectionism and declining resilience, ambiguity tolerance and calling during medical school which is not explained by student personality. *BMC Medical Education*, 22(1), 784. <https://doi.org/10.1186/s12909-022-03850-5>
- Embretson, S. E., & Reise, S. P. (2000). *Item response theory for psychologists*. Mahwah, NJ, Lawrence Erlbaum Associates Publishers.
- Praskova, A., Hood, M., & Creed, P. A. (2014). Testing a calling model of psychological career success in Australian young adults: A longitudinal study. *Journal of Vocational Behavior*, 85(1), 125-135. <http://dx.doi.org/10.1016/j.jvb.2014.04.004>
- Shen, X., Gu, X., Chen, H., & Wen, Y. (2021). For the future sustainable career development of college students: Exploring the impact of core self-evaluation and career calling on career decision-making difficulty. *Sustainability*, 13(12), 6817. <https://doi.org/10.3390/su13126817>
- Sijtsma, K., & Verweij, A. C. (1992). Mokken Scale Analysis: Theoretical considerations and an application to transitivity tasks. *Applied Measurement in Education*, 5(4), 355-373. [https://doi.org/10.1207/s15324818ameo504\\_5](https://doi.org/10.1207/s15324818ameo504_5)
- Steger, M. F., Pickering, N. K., Shin, J. Y., & Dik, B. J. (2010). Calling in work: Secular or sacred? *Journal of Career Assessment*, 18(1), 82-96. <http://dx.doi.org/10.1177/1069072709350905>
- Whiston, S. C. (2001). Selecting career outcome assessments: An organizational scheme. *Journal of Career Assessment*, 9(3), 215-228. <https://doi.org/10.1177/106907270100900301>