vol. LXXX September-December 2022
N° 295

Four-monthly Journal
ISSN 0006-6761

# BPA

3/3

Bollettino di Psicologia Applicata
APPLIED PSYCHOLOGY BULLETIN
Indexed in PsycINFO® – Scopus Bibliographic Database

Research

Experiences & Tools

GIUNTI PSYCHOMETRICS

# CONTENTS

## ⬢ Research



## ▲ Experiences & Tools

DOI: 10.26387/bpa.2022.00006

# Preliminary validation of the Satisfaction with Work Scale

*Francesco Marcatto, Lisa Di Blas, Donatella Ferrante*

*Department of Life Sciences, University of Trieste, Trieste, Italy*

*fmarcatto@units.it*

*ABSTRACT.* Il presente studio descrive i risultati della validazione preliminare della *Satisfaction with Work Scale* (*SWWS*), una nuova misura sviluppata per misurare la valutazione generale della propria soddisfazione lavorativa, modellata sulla base della popolare *Satisfaction with Life Scale* (*SWLS*). I due studi condotti hanno dimostrato che la nuova scala possiede caratteristiche psicometriche più che adeguate, in termini di affidabilità, validità di costrutto, validità concorrente e convergente. Nel complesso, i risultati indicano che la SWWS è uno strumento valido e affidabile per misurare la soddisfazione lavorativa.

*SUMMARY. The present study describes the results of a preliminary validation of the Satisfaction with Work Scale (SWWS), a new measure designed to assess an individual's general evaluation of job satisfaction, modelled after the popular Satisfaction with Life Scale (SWLS). Two studies were conducted to test the psychometric properties of this new scale in terms of reliability, as well as construct, concurrent and convergent validity. In the first study (N = 194), the exploratory factor analysis suggested a single-factor structure of the scale, consistent with its development, and showed a high level of reliability (α = .91), as well as a moderate to strong correlation with concurrent and convergent measures. The confirmatory factor analysis conducted in the second study (N = 221) clearly supported the single-factor structure. Overall, the results of this preliminary validation indicate that the newly developed SWWS is a valid and reliable instrument to evaluate global job satisfaction.*

**Keywords:** *Job satisfaction, Satisfaction with Work Scale, Satisfaction with Life Scale, Perceived occupational stress, Turnover intention*

# INTRODUCTION

The *Satisfaction with Life Scale* (*SWLS*; Diener, Emmons, Larsen & Griffin, 1985) is possibly the most widely used scale to measure global life satisfaction. The SWLS focuses on the cognitive appraisal of individual well-being, that is, a conscious evaluative judgment of one's life using own personal criteria (Diener et al., 1985). More specifically, the SWLS is composed of five items, with a single factor explaining 66% of the variance, and it has been validated in numerous studies in different languages and has exhibited strong evidence of acceptability, reliability and validity (Checa, Perales & Espejo, 2018).

In the present article, we report the results of a preliminary validation of the *Satisfaction with Work Scale* (*SWWS*), which is a new measure modelled after the SWLS designed to assess an individual's global evaluation of job satisfaction, a particularly meaningful construct due to its association with other important outcomes including job performance (Judge, Thoresen, Bono & Patton, 2001), physical and mental wellbeing (Faragher, Cass & Cooper, 2005), absenteeism (Farrell & Stamm, 1988), and turnover (Griffeth, Hom & Gaertner, 2000). Although many different measures of job satisfaction exist, from single-item measures to long and complex multi-dimensional scales, to our knowledge there's a lack of multi-item scales specifically focused on measuring the cognitive appraisal of workers' global job satisfaction. Similar to life satisfaction, the cognitive appraisal of global job satisfaction can be defined as a conscious cognitive judgment of one's job, which depends on a comparison of actual job conditions and one's own standards and expectations (Bowling & Zelazny, 2021).

To fill this gap in the literature and to provide scholars and practitioners with a short and reliable instrument for assessing a global judgment evaluation of workers' personal job satisfaction, we developed the SWWS as a modified version of the SWLS in which the word "life" is replaced by the word "job" in each of the five original items (with the exception of item 5, which has been slightly reworded; see Table 1). As in the SWLS, the items of the SWWS are global in nature rather than specific, allowing workers to weigh aspects of their job according to their own values and experiences.

The SWWS consists of five items answered on a 7-point Likert-type scale (from 1 = strongly disagree to 7 = strongly agree), making the possible range of global job satisfaction from 5 (lowest satisfaction) to 35 (highest satisfaction).

Two studies were conducted to test the psychometric properties of the SWWS. The first study aimed at evaluating the scale's construct validity (using exploratory factor analysis), reliability, as well as concurrent and convergent validity. We hypothesised that the SWWS would be composed of a single factor and that it should display high reliability (Cronbach's alpha ≥.80) and at least moderate correlations with the concurrent and convergent measures ($r \geq .40$).

# STUDY 1

## Study 1: Methods

Data collection took place between spring and summer 2021, therefore we employed a convenience sampling procedure to reach workers under COVID-19 containment measures. Participants were recruited through the personal contacts, mailing lists and social networks of the authors, with the survey link sent to potential participants by email. Informed consent was achieved on the first page of the questionnaire, on which the project was summarized and the anonymity of the collected data and the right of the participant to withdraw from the study at any time were emphasized.

After three weeks, a total of 198 questionnaires were collected. Four participants failed to fill out significant parts of the questionnaire, so their data were discarded from the analysis. The final sample therefore consisted of 194 participants (135 females, 70%), aged between 21 and 67 ($M$ = 43.10, $SD$ = 11.55). In total, 175 (90%) were employees, 12 (6%) were self-employed, and 4 (2%) were both employees and self-employed (missing cases = 2%). Most participants worked full-time ($N$ = 165, 85%) rather than part-time ($N$ = 29, 15%).

Other than the SWWS, the online questionnaire contained the following measures to test its concurrent and convergent validity:

- *Satisfaction with Job – General* (*SJ-G*; Dubinsky & Hartley, 1986), a unidimensional measure of job satisfaction composed of five items (Cronbach's alpha = .79);
- *Job Satisfaction Questionnaire* (*JSQ*; Faraci & Valenti, 2016), a 27-item questionnaire which measures six dimensions of job satisfaction (professional development and skills use, economic earnings, working conditions, job usefulness, relations with colleagues, recognition of results). It also produces a composite score of job satisfaction (Cronbach's alpha values ranged from .81, in

the economic earnings subscale, to .91, in the professional development and skills use subscale);

- *Perceived Occupational Stress* (*POS*; Marcatto, Di Blas, Luis, Festa & Ferrante, 2021), a four-item scale of perceived job stressfulness (Cronbach's alpha = .90);
- *Employees Turnover Intention* (*ETI*; Yin-Fah, Foon, Chee-Leong & Osman, 2010), a measure of the intention of leaving the current job, composed of three items (Cronbach's alpha = .92).

Statistical analyses included a principal axis factor analysis with a parallel analysis applied to define the optimal number of factors to extract, Cronbach's alpha to estimate the reliability of the scale, Pearson correlation coefficients to examine the association with the external correlates, and standard inferential tests (*t*-test and ANOVA) to analyze whether the SWWS scores differed across the participants' age groups, genders, and workgroups. Statistical analyses were conducted using IBM SPSS Statistics 23 (IBM Corporation, USA).

## Study 1: Results

An exploratory factor analysis was conducted to assess the underlying structure of the five items of the SWWS. The Kaiser-Meyer-Olkin (KMO) value was .86, higher than the conventional threshold of .70, indicating that the sample was adequate, and Bartlett's test of sphericity ($\chi^2_{(10)} = 737.90, p < .001$) indicated that the inter-item correlations were large enough and, therefore, data were suitable for factor analysis. The parallel analysis supported a single-factor solution, coherent with the development of the scale, which accounted for 75 per cent of the total variance. The observed eigenvalues and those generated by the parallel analysis, item-factor loadings, and item-total correlations are reported in Table 1. Cronbach's alpha coefficient of the SWWS was .91, and the mean score was 22.26, with a standard deviation of 7.61. Skewness and kurtosis were −.53 and −52, respectively.

No significant differences emerged across the participants when they were compared in terms of age, gender, type of

**Table 1** – Factor analysis eigenvalues, parallel analysis eigenvalues (average and 95$^{th}$ percentile), and factor loadings of the Satisfaction with Work Scale

| SWWS items | Actual eigenvalues | Average eigenvalues | 95$^{th}$ percentile eigenvalues | Factor loadings |
|---|---|---|---|---|
| 1. In most ways my job is close to my ideal. (*Per molti versi il mio lavoro è vicino al mio ideale.*) | 3.76 | 1.20 | 1.29 | .84 |
| 2. My job conditions are excellent. (*Le mie condizioni di lavoro sono eccellenti.*) | .56 | 1.08 | 1.15 | .77 |
| 3. I am satisfied with my job. (*Sono soddisfatto/a del mio lavoro.*) | .31 | 1.00 | 1.05 | .94 |
| 4. So far I have gotten the important things I want in my job. (*Finora ho ottenuto le cose importanti che desidero nel mio lavoro.*) | .22 | .91 | .96 | .89 |
| 5. If I could choose another job, I wouldn't change what I do now. (*Se potessi scegliere un altro lavoro, non cambierei quello che svolgo ora.*) | .14 | .82 | .88 | .70 |

*Note.* The original Italian language items are reported in italics.

work (employees *vs* self-employed) and working time (full-time *vs* part-time) (all values of $p>.05$).

Correlations between the SWWS and the other measures are shown in Table 2. As for the concurrent validity, the SWWS was strongly correlated with the SJ-G, the other unidimensional measure of job satisfaction ($r = .78$, $p<.001$), and moderately with the composite score of the JSQ ($r = .63$, $p<.001$). Correlations with the subscales of the JSQ ranged from weak (with recognition of results, $r = .30$, $p<.001$) to moderate (with professional development and skills use, $r = .64$, $p<.001$). Regarding the convergent validity, the SWWS displayed moderate correlations with both POS ($r = -.42$, $p<.001$) and ETI ($r = -.62$, $p<.001$).

## STUDY 2

A second study was conducted to further test the internal structure of the SWWS through confirmatory factor analysis (CFA).

## Study 2: Methods

Using the same sampling procedure of the previous study, a sample of 221 workers was collected (142 females, 64%, mean age = 38.60, *SD* = 12.01). In total, 180 (81%) were employees, 24 (11%) were self-employed, and 12 (5%) were

**Table 2** – Correlations between the SWWS and other measures

| | **SWWS *r* (95% CI)** |
|---|---|
| SJ-G | .78 (.72, .83) |
| JSQ CS | .63 (.54, .71) |
| JSQ PDSU | .64 (.59, .70) |
| JSQ EE | .43 (.37, .56) |
| JSQ WC | .41 (.59, .70) |
| JSQ JU | .32 (.17, .45) |
| JSQ RC | .33 (.17, .47) |
| JSQ RR | .30 (.17, .43) |
| POS | –.42 (–.54, –.29) |
| ETI | –.62 (–.72, –.52) |

*Note.* 95% Confidence intervals in brackets. All correlations are statistically significant with $p<.01$.

*Legenda.* SWWS = *Satisfaction with Work Scale*; SJ-G = *Satisfaction with Job – General;* JSQ CS = *Job Satisfaction Questionnaire Composite Score*; JSQ PDSU = *Job Satisfaction Questionnaire Professional Development and Skills Use*; JSQ EE = *Job Satisfaction Questionnaire Economic Earnings*; JSQ WC = *Job Satisfaction Questionnaire Working Conditions*; JSQ JU = *Job Satisfaction Questionnaire Job Usefulness*; JSQ RC = *Job Satisfaction Questionnaire Relations with Colleagues*; JSQ RR = *Job Satisfaction Questionnaire Recognition of Results*; POS = *Perceived Occupational Stress*; ETI = *Employees Turnover Intention*.

both employees and self-employed (missing cases = 2%). Most participants worked full-time ($N$ = 189, 81%) rather than part-time ($N$ = 29, 13%; missing cases = 1%).

Participants were asked to fill out the SWWS and demographic items. CFA was conducted using IBM Amos 23 (IBM Corporation, USA), and the following criteria for goodness-of-fit indices were adopted: Tucker-Lewis Index (TLI) ≥.95, Comparative Fit Index (CFI) ≥.95, Root Mean Square Error of Approximation (RMSEA) ≤.06, and Standardized Root Mean Square Residual (SRMR) ≤.08 (Hu & Bentler, 1999).

## Study 2: Results

Similarly to Study 1, the Cronbach's alpha coefficient of the SWWS was .89, with a mean score of 21.80 ($SD$ = 7.96). Skewness and kurtosis were −.38 and −.98. Again, no significant differences emerged across the participants when they were compared in terms of age, gender, type of work, and working time (all values of $p$>.05).

The single-factor solution model was tested, and the fit indices clearly suggested a good fit: TLI = .99, CFI = .99, RMSEA = .06 (LO90 = .01, HI90 = .12), SRMR = .02.

# CONCLUSIONS

Overall, the results of this preliminary validation indicate that the SWWS possesses more than adequate psychometric properties, in terms of internal consistency, and construct, concurrent and convergent validity. Specifically, the hypothesized single-factor solution was clearly supported by both exploratory and confirmatory factor analyses and turned out to be highly reliable. The SWWS also displayed a strong correlation with another measure of job satisfaction, the SJ-G. Since the internal structure and reliability of the SJ-G scale are currently up for debate, at least for the Italian version (Barbaranelli, Bortone & Di Matteo, 2010), it could be more advantageous to use the SWWS when a brief, unidimensional measure of the cognitive appraisal of job satisfaction is required. The SWWS was also substantially correlated with the composite score of the JSQ. Inspection of the correlations with subscales showed that although the SWWS was significantly associated with all the JSQ subscales, the strongest correlations were with the "professional development and skills use", "economic earnings", and "working conditions" dimensions. It is therefore conceivable that workers weigh these specific aspects of work as more important when evaluating their global job satisfaction. Lastly, the SWWS was moderately correlated with perceived occupational stress, one of the main antecedents of job satisfaction (Marcatto & Ferrante, 2021), and with turnover intention, which is known to be strongly influenced by job satisfaction (Griffeth et al., 2000).

Limitations of the current study include the sample size, which should be increased and balanced by gender and type of work in future studies to obtain a normative sample. Moreover, the adopted sampling procedure produced a convenience sample, therefore we cannot exclude the possibility of selection bias. Future research should further consolidate the psychometric properties of the SWWS, test its measurement invariance by relevant variables such as gender, age, and type of work, and conduct longitudinal studies to explore the effectiveness of the SWWS in predicting organisational and/or individual outcomes, such as physical/mental wellbeing and actual turnover rates.

In summary, the evidence presented in this study suggests that the newly developed SWWS is a valid and reliable instrument to briefly evaluate global job satisfaction, similarly to its well-known "big sister", the *Satisfaction with Life Scale*, from which it is derived.

**Acknowledgements.** The authors thank Marta Romor for her support in data collection.

## References


BARBARANELLI, C., BORTONE, I. & DI MATTEO, F. (2010). The measure of job satisfaction: an empirical contribute. *Italian Journal of Psychology*, *37* (1), 159-180.

BOWLING, N. & ZELAZNY, L. (2021). Measuring general job satisfaction: Which is more construct valid-global scales or facet-composite scales? *Journal of Business and Psychology*. https://doi.org/10.1007/s10869-021-09739-2.

CHECA, I., PERALES, J. & ESPEJO, B. (2019). Measurement invariance of the Satisfaction with Life Scale by gender, age, marital status and educational level. *Quality of Life Research*, *28* (4), 963-968.

DIENER, E.D., EMMONS, R.A., LARSEN, R.J. & GRIFFIN, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49* (1), 71-75.

DUBINSKY, A.J. & HARTLEY, S.W. (1986). A path-analytic study of a model of salesperson performance. *Journal of the Academy of Marketing Science*, *14* (1), 36-46.

FARACI, P. & VALENTI, G. (2016). Measuring job satisfaction: Development of a multidimensional scale. *Italian Journal of Occupational Medicine and Ergonomics*, *38* (1), 30-41.

FARAGHER, E.B., CASS, M. & COOPER, C.L. (2005). The relationship between job satisfaction and health: A meta-analysis. *Occupational and Environmental Medicine*, *62*, 105-112.

FARRELL, D. & STAMM, C.L. (1988). Meta-analysis of the correlates of employee absence. *Human Relations*, *41* (3), 211-227.

GRIFFETH, R.W., HOM, P.W. & GAERTNER, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management*, *26* (3), 463-488.

HU, L.T. & BENTLER, P.M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6* (1), 1-55.

JUDGE, T.A., THORESEN, C.J., BONO, J.E. & PATTON, G.K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, *127* (3), 376-407.

MARCATTO, F., DI BLAS, L., LUIS, O., FESTA, S. & FERRANTE, D. (2021). The Perceived Occupational Stress Scale: A brief tool for measuring workers' perceptions of stress at work. *European Journal of Psychological Assessment*, advance online publication. https://doi.org/10.1027/1015-5759/a000677

MARCATTO, F. & FERRANTE, D. (2021). Beyond the assessment of work-related stress risk: The management standards approach for organizational wellbeing. *Italian Journal of Occupational Medicine and Ergonomics*, *43* (2), 126-130.

TARIS, T.W., KESSLER, S.R. & KELLOWAY, E.K. (2021). Strategies addressing the limitations of cross-sectional designs in occupational health psychology: What they are good for (and what not). *Work & Stress*, *35* (1), 1-5.

YIN-FAH, B.C., FOON, Y.S., CHEE-LEONG, L. & OSMAN, S. (2010). An exploratory study on turnover intention among private sector employees. *International Journal of Business and Management*, *5* (8), 57-64.

DOI: 10.26387/bpa.2022.00007

# A further contribution to the Italian validation of the Burnout Assessment Tool: Measurement invariance in teachers and employees

*Carmela Buono[1], Claudio Giovanni Cortese[2], Paola Spagnoli[1]*

*[1] Department of Psychology, University of Campania "Luigi Vanvitelli", Caserta, Italy*
*[2] Department of Psychology, University of Turin, Turin, Italy*

*Carmela.buono@unicampania.it*

*ABSTRACT*. Questo studio aveva l'obiettivo di indagare le caratteristiche psicometriche della versione italiana del *Burnout Assessment Tool* (*BAT*) e di contribuire alla validazione della scala BAT testando l'invarianza di misura tra due campioni italiani (insegnanti e impiegati) e la validità concorrente esaminando la correlazione tra burnout e depressione. I risultati indicano che la versione italiana della BAT presenta buone proprietà psicometriche oltre ad essere valida e affidabile e può quindi essere utilizzata per valutare la sindrome del burnout nel contesto italiano per insegnanti e impiegati.

*SUMMARY. The Burnout Assessment Tool proposed by Schaufeli, De Witte and Desart (2019) is a recent instrument for assessing the burnout syndrome. This study aims to investigate the psychometric characteristics of the Italian version of the Burnout Assessment Tool (BAT) and to contribute to the validation of the BAT scale by testing measurement invariance across two Italian samples, teachers and employees and concurrent validity examining the correlation between burnout and depression. Reliability was also examined. Confirmatory factorial analysis (CFA) was used to test factorial validity on a sample of 554 employees and 226 teachers. Measurement invariance was tested using Multi-groups confirmatory factorial analysis (MCGFA). Results supported the factorial validity of the second-order factor model of the BAT. Reliability and concurrent validity were also supported. Finally, the results confirmed that the Italian version of the BAT was invariant across the samples. Results showed that the BAT is a valid and reliable tool to measure the burnout syndrome in the Italian context for teachers and employees. Limitations and suggestions for further research are also discussed.*

**Keywords:** *Burnout Assessment Tool, Psychometric properties, Measurement invariance*

# INTRODUCTION

Burnout is defined as a consequence of chronic job-related stress (Maslach, Schaufeli & Leiter, 2001) and it is included in the 11th revision of the International Classification of Diseases (ICD-11; WHO, 2019) as an occupational phenomenon. It is defined in ICD-11 as a syndrome characterized by feelings of energy depletion, increased mental distance from one's work and reduced professional effectiveness. Among the mental health consequences of burnout, depression plays an important role (Armon, Melamed, Toker, Berliner & Shapira, 2014; Bianchi, Schonfeld & Laurent, 2015). The association between depression and burnout can be explained considering the Conservation of Resource Theory (COR; Hobfoll, 2002): the stress occurs when resources are lost, and the loss of resources predicts affective states of anxiety and depression (Lane & Hobfoll, 1992). Another health consequence associated with burnout is insomnia (Armon, Shirom, Shapira & Melamed, 2008): insomnia can reduce resources for coping with stress, exacerbate symptoms of mental and physical fatigue and thus, lead to the development of burnout (Armon et al., 2008). Burnout is also associated with physical complaints, including headaches, gastrointestinal disorders, and respiratory infections (Kim, Ji & Kao, 2011), cardiovascular disease (Toker, Melamed, Berliner, Zeltser & Shapira, 2012), reduced immunity to infectious diseases, type 2 diabetes (Melamed, Shirom, Toker & Shapira, 2006). At the organizational level, burnout causes absenteeism and turnover (Eaton, 2019). In addition, literature showed that burnout is associated with long-term sick leave (Salvagioni, Mesas, Melanda, González & de Andrade, 2022), reduced job satisfaction (Molero Jurado, Pérez-Fuentes, Atria, Oropesa Ruiz & Gázquez Linares, 2019), lower commitment to organizations (Akdemir, 2019), and reduced employee desire to remain in the organization (Cho, Rutherford, Friend, Hamwi & Park, 2017). In conclusion, research over the past few decades (Salvagioni et al., 2017) has shown that burnout has serious negative consequences for workers and organizations.

Typically, burnout was identified as an occupational risk that can occur in people-oriented professions such as human services, teaching, health care (Maslach et al., 2001). Subsequently, other studies have established that burnout also exists in other occupations such as among white-collar workers, blue-collar workers and managers (Schaufeli, Leiter & Maslach, 2009).

Moreover, the recent pandemic exacerbated the occurrence of burnout since workplaces have been characterized by fear of contagion or, in the case of remote working, by social isolation and technostress (Spagnoli, Manuti, Buono & Ghislieri, 2021). In particular, among workers who have been remotely working boundaries between work and private life were often overlapped triggering role-conflict conditions. This conflict requires energy and resource (Bakker, Demerouti & Dollard, 2008) and this, in turn, can increases the likelihood of developing burnout. Considering the diffusion of burnout, there is a clear need for reliable tools able to detect and to prevent this phenomenon. A new *Burnout Assessment Tool* (*BAT*), which conceptualized the burnout as a multidimensional construct, was recently developed by Schaufeli and colleagues (Schaufeli, De Witte & Desart, 2019) to detect burnout and its manifestations. Preliminary Italian studies adaptation and validation of the BAT were provided by Angelini and colleagues (2021) and Consiglio, Mazzetti and Schaufeli (2021). However, despite these studies provided satisfactory results on the psychometric properties of the Italian version of the BAT, the issue related to its validity in different target of workers samples is still open. In particular, since teachers are one of the professional categories where burnout is particularly present, research still need to clarify if the BAT can be properly used on teachers, as well as on other more generic target of workers, which is employees. Thus, a measurement invariance study is needed to robustly examine this issue, and the current study aimed to fill this gap.

## The Burnout Assessment Tool

Most research on burnout (approximately 88%) has used the *Maslach Burnout Inventory* (*MBI*; Maslach & Jackson, 1981) to assess burnout (Schaufeli et al., 2019). The MBI defines burnout as a syndrome characterized by three subdimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment. A high score on emotional exhaustion and depersonalization, and a low score on personal accomplishment, are indicative of burnout. Another tool developed to measure burnout is the *Copenhagen Burnout Inventory* (*CBI*; Kristensen, Hannerz, Høgh & Borg, 2005). It consists of three sub-scales: personal (the personal burnout dimension addresses physical and psychological weakness and emotional exhaustion experienced in daily life, independently from their work

environment), work-related (the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work) and client-related burnout (the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to his/her work with clients). The three separate parts of the questionnaire are designed to be applied in different domains. The CBI has been developed with the aim of overcoming some of the problems encountered in the use of MBI. For example, according to Kristensen and colleagues, Maslach's definition focuses on workers engaged in personal services, which makes the model reductive to other categories of workers. In addition, the authors found an inconsistency between the definition of burnout and the MBI, because theoretically burnout would be characterized by the co-presence of the three dimensions, but, in practice, these dimensions in the MBI are measured independently.

Very recently Schaufeli and colleagues (2019) argued other critical points in the conceptualization of burnout, in the psychometric properties of the scale, and the practical application of the BAT. In fact, according to Schaufeli ad colleagues (2019) the MBI does not produce a single burnout score but three separate and distinct scores for each subscale and this indicates that the MBI was created to investigate the three dimensions separately and not burnout as an overall syndrome. Thus, in order to provide a new, update and reliable measure of burnout conceptualized as a syndrome, Schaufeli and colleagues (2019) proposed the BAT considering recent evidence on the complex picture of workers' burnout experience. The BAT conceptualizes burnout as a state of occupational exhaustion that occurs among employees, characterized by exhaustion, emotional and cognitive impairment, and mental distance. These four main dimensions of burnout are associated with secondary symptoms: psychological and psychosomatic complaints (Schaufeli et al., 2019). The following four dimensions constitute the core of burnout:

- exhaustion, assessed with 8 items (example item "I feel mentally exhausted at work"), which refers to a severe loss of energy;
- cognitive impairment, assessed with 5 items (example item "At work, I have difficulty staying focused"), which is manifested by memory problems, attention and concentration deficits, and poor cognitive" performance;
- emotional impairment, measured with 5 items (example item "At work, I feel unable to control my emotions"), which manifested by intense emotional reactions;
- mental distance, measured with 5 items (example item "I struggle to find any enthusiasm for my work"), which refers to a psychological distancing from work.

In addition, BAT includes two secondary symptoms:

- psychological distress, measured with 6 items (example item "I feel anxious and/or suffer from panic attacks"), which refers to non-physical symptoms that are the result of a psychological problem such as sleep problems and anxious;
- psychosomatic complaints, measured with 5 items (example item "I suffer from palpitations or chest pains"), which refer to physical complaints that are consequences of some psychological problem (palpitations and chest pains).

Responses for each dimension are given on a 5-point Likert scale ranging from 1 = never to 5 = always. Schaufeli and colleagues proposed two versions of the BAT: a general version intended to assess those who have not worked for a longer time (for a few months) and a standard version intended to assess those who do work.

The BAT first showed good evidence of validity in Belgium, and the Netherlands (Schaufeli et al., 2019). Then, De Beer and colleagues (2020) tested validity of the BAT in 7 countries (Belgium, the Netherlands, Austria, Germany, Finland, Ireland and Japan) and results showed that it is a valid tool to assess employee's burnout in those countries. Recently, Angelini and colleagues (2021) and Consiglio and colleagues (2021), have translated this instrument into Italian and examined its psychometric properties in the Italian context with good results.

## The current study

In the present study, the psychometric characteristics of the Italian version of the BAT will be analyzed by examining its factor structure as proposed by Schaufeli and colleagues (2019), and previous Italian adaptations of the scale (Angelini et al., 2021; Consiglio et al., 2021). Angelini and colleagues (2021) using the confirmatory factorial analysis on a sample of teachers, tested two model: a first-order model with 6 factors correlated and a second-order model in which burnout is considered a syndrome that includes a core and secondary dimension. Authors accepted the second-order model, although the first-order model presented slightly better fit indices.

Consiglio and colleagues (2021) after an exploratory factor analysis, performed a series of confirmatory factor analyses testing 4 models on an heterogenous sample of workers: a unidimensional first-order factorial model, in which all items loaded on a latent factor; a first-order factorial model in which items that assess the main symptoms loaded on the corresponding dimension and items that assess the secondary symptoms loaded on a second dimension; a first-order model with 6 factors correlated and a second-order model. The results of the exploratory factor analysis showed the presence of the 4 factors concerning the main symptoms and the 2 factors concerning the secondary symptom. The confirmative factorial analysis showed that the second-order model was the one that best fits the Italian data. In addition, authors compared the scores obtained with the BAT in the Italian sample to the scores obtained by De Beer and colleagues (2020) in 7 countries: the results showed that the Italian sample reported a higher mean score in the core symptoms of burnout compared to Finland, Austria, Germany and the Netherlands and a lower mean score compared to Belgium, Ireland, and Japan samples.

Thus, according to previous Italian validation of the BAT, the present study aims to test two factorial models:

– a first-order model with six correlated factors, corresponding to model 6 of the original study;
– a second-order model including a central and a secondary dimension, corresponding to model 8 of the original study.

In view of the above-mentioned studies, the first hypothesis of the study is:

$H_1$ - a second-order factorial structure including a central and a secondary dimension will show satisfactory fit indices in the Italian context.

In addition, this study aimed to test measurement invariance in two occupational samples: teachers and employees. Measurement invariance is a statistical technique essential to making comparisons between groups (Vandenberg & Lance, 2000). Measurement invariance implies that the same scale in different groups measures the same construct (Chen, 2008). This second purpose represents the added value of the present study, since previous Italian validation studies did not consider testing measurement invariance between teachers and employees. Burnout among teachers has attracted considerable attention (Kyriacou, 2001). In fact, literature showed that teachers have high levels of burnout and emotional exhaustion (Hakanen, Bakker & Schaufeli, 2006; Maslach et al., 2001). Many authors have studied the negative consequences of burnout on psychological well-being (Hakenen et al., 2006), mental health (Schonfeld & Bianchi, 2016), and job satisfaction (Robinson, Bridges, Rollins & Schumacker, 2019) in the teacher sample. Among teachers, burnout has also been correlated with high rates of absenteeism, and turnover (Ingersoll & May, 2012). However, burnout can occur among all occupational levels (Schaufeli et al., 2009), indeed many studies have also focused on employees (e.g., Dylag, Jaworek, Karwowski, Kożusznik & Marek, 2013; Mäkikangas, Leiter, Kinnunen & Feldt, 2020; Mohren et al., 2003). In addition, today the work is characterized by a role intensification (Kubicek, Paškvan & Korunka, 2015) due to technological acceleration (Rosa, 2010) and the use of work devices that has created the expectation that workers are available all the time, 24 hours a day 7 days a week (Ayyagari, Grover & Purvis, 2011). These factors are correlated positively with burnout and, with emotional exhaustion (Kubicek et al., 2015). It should be noted that the data used for this first study were collected during the Covid-19 period. The Covid-19 pandemic has profoundly changed the work environment and remote work has become a necessary solution to safeguard health. Both employees and teachers have experienced new work conditions caused by the pandemic, with significant consequences. Thus, it is of utmost interest to examine if the BAT can be applied in the same way on these two targets in order to adopt this tool for assessing the burnout syndrome.

Thus, in view of the above, the second hypothesis of the study is:

$H_2$ - the second-order factorial structure of the BAT is invariant across teachers and employees.

Finally, in order to test concurrent validity, the correlation between burnout and depression will be examined. In fact, many studies showed that there is a positive correlation between burnout and depression (e.g., Bianchi et al., 2015; Schaufeli & Enzmann, 1998) and that they are different but overlapping dimensions. Some studies showed that the burnout and depression can vary together over time (Bianchi et al., 2015): for example, an increase or decrease in burnout levels over time might be associated with an increase or decrease in symptoms of depression. Thus, in view of the above, in the current study concurrent validity was assessed by performing the correlation analysis between burnout and depression.

# METHODS

## Participants and procedure

The study involved 780 Italian workers: employees ($N$ = 554) and teachers ($N$ = 226). The sub-sample of employees consisted in 292 (52.7%) women and 262 (47.3%) men, age ranging from 19 to 67 years ($M$ = 37.26; $SD$ = 11.92). Education was distributed as follows: 1.8% had a middle school diploma, 38.1% had a high school diploma, 60.1% had a bachelor's or master's degree. They were employed in the private sector (77.1%) and public sector (22.9%). The sub-sample of teachers consisted in 182 (80.5%) women and 44 (19.5%) men. Their ages ranged from 21 to 67 years ($M$ = 46.34; $SD$ = 11.81). Their educational level was distributed as follows: the majority of participants had a bachelor's or master's degree (81%), and the remaining had a high school diploma (19%). Only the 9.4% was employed in the private sector, while the 90.7% was employed in the public sector. The present cross-sectional study was conducted in Italy, using convenience sampling method using the contacts of the bachelor students in work and organizational psychology. Data were collected through an online anonymous questionnaire. All volunteer participants were informed via email about the research objectives and clear instructions for the compilation of the self-report questionnaire was given to them as well as the informed consent to the use of the data for research purpose. The procedure was conducted in line with the Italian data protection law (Legislative Decree no. 196/2003) and in line with the European General Data Protection Regulation (GDPR, 2016/679).

## Measures

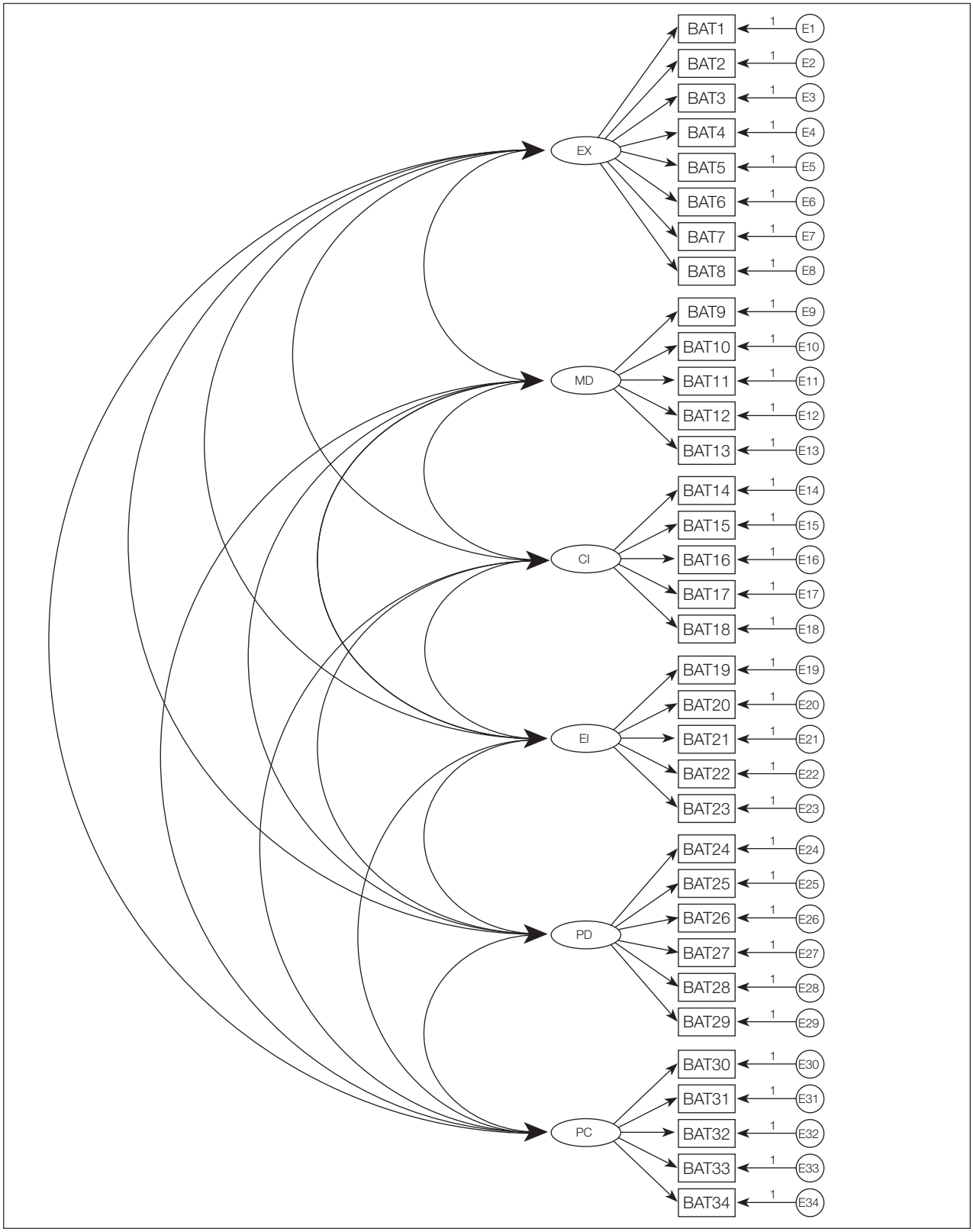
We used the *Burnout Assessment Tool* (*BAT*) by Schaufeli and colleagues (2019). The BAT includes 34 items: 23 items measuring four core dimensions (exhaustion with 8 items, mental distance with 5 items, emotional impairment with 5 items and cognitive impairment with 5 items) and 11 items measuring two secondary dimensions (psychological distress with 6 items and psychosomatic complaints with 5 items). All items were scored on a five-point Likert scale, ranging from "never" (1) to "always" (5). For the Italian version of BAT, we considered the version proposed by Consiglio and colleagues (2021).

To test the concurrent validity, the *Depression Anxiety Stress Scale-21* (*DASS*) by Lovibond and Lovibond (1995) was used. The DASS measured the levels of depression, anxiety and stress with 7 items each. In the current study, only the depression scale (a sample of item is "I felt wasn't worth much as a person") was considered. Responses to items are recorded on a 4-point Likert scale from 1 = Did not apply to me at all, to 4 = Applied to me very much, or most of the time.

## Data analysis

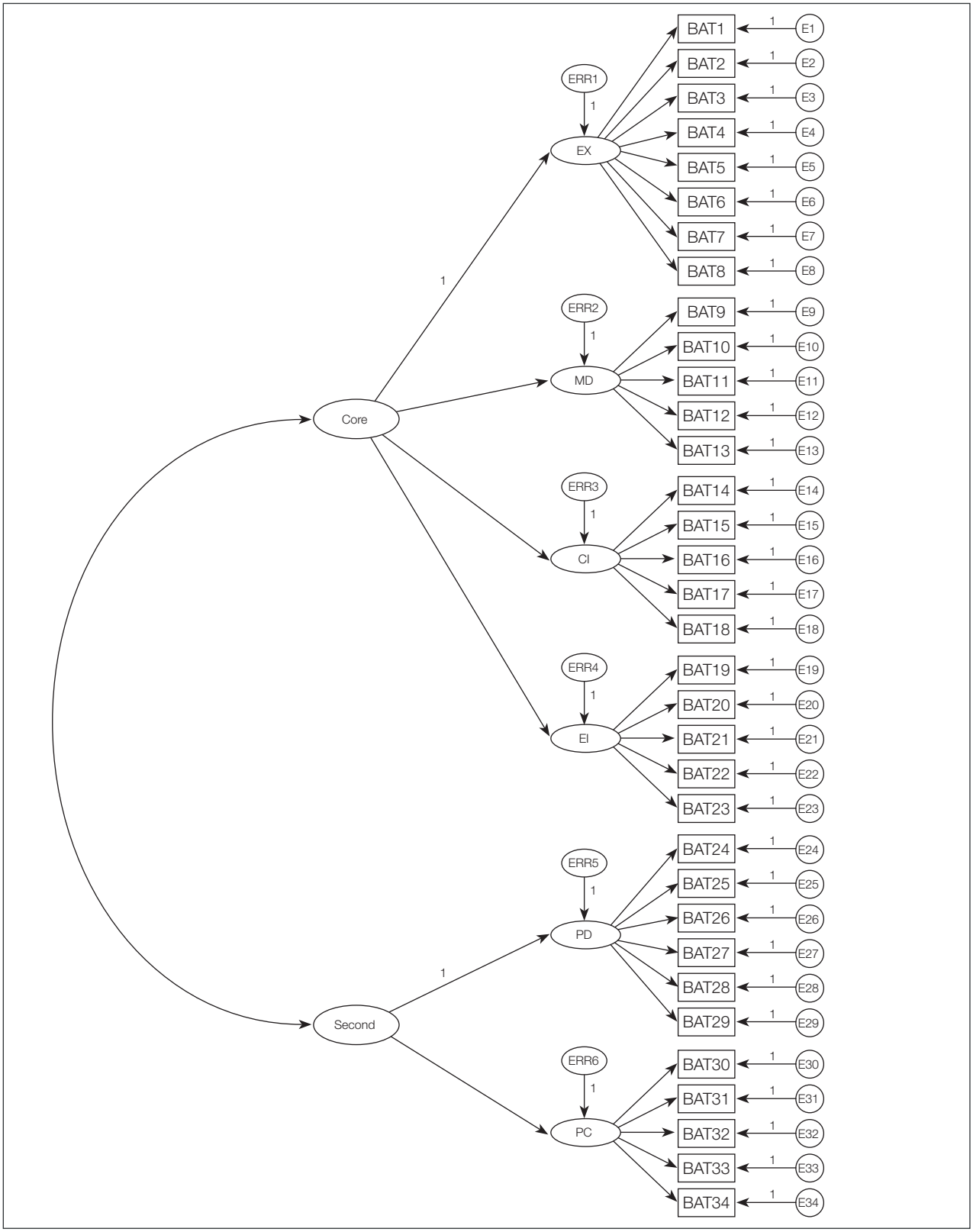
Statistical analyses were conducted using the SPSS 21 and AMOS 22 software. First, an item analysis using SPSS 21 was performed to examine the normality of the BAT items distributions. Then, the factorial structure of the Italian version of BAT was assessed using AMOS 22 through a confirmatory factorial analysis (CFA) on the total sample of the 780 subjects (we used the Maximum Likelihood as an estimation method). As indices of the model fit, the following fit indices were considered: CFI (Comparative Fit Index); RMSEA (Root Mean Square Error of Approximation); $\chi^2$ (chi-square test); Tucker-Lewis Index (TLI) e SRMR (Standardized Root Mean Square Residual). Values higher than .90 for CFI and TLI and lower than .08 for SRMR and RMSEA indicated an acceptable fit to the data. Concerning the chi-square, many researchers tend to ignore this index if the sample size exceeds 200 subjects, because the chi-square is extremely sensitive to sample size (Bentler & Bonett, 1980). Since the number of subjects exceeded 200 in the current study, chi-square was considered as a less relevant fit index. The models that showed better fit indices in the original study by Schaufeli and colleagues (2019) were tested: Model 1 (first-order model), which assumed 6 distinct and correlated latent factors (exhaustion, mental distance, emotional and cognitive impairment, psychological distress and psychosomatic complaints), thus reproducing Model 6 in the original paper; and the Model 2 (second-order model), for which the four core factors refer to a latent construct (the core of burnout) and the secondary symptoms refer to a second and distinct latent factor, thus reproducing Model 8 in the original study. In the second-order model, both core and secondary symptoms refer to burnout as a latent psychological condition. Figure 1 and Figure 2 show a graphical representation of the two models (Model 1 and Model 2). According to Schaufeli and colleagues (2019), the

**Figure 1** – The first-order model of burnout based on the conceptualization of BAT




*Legenda.* EX = Exhaustion; MD = Mental Distance; CI = Cognitive Impairment; EI = Emotional Impairment; PD = Psychological distress; PC = Psychosomatic complaints.

**Figure 2** – The second-order model of burnout based on the conceptualization of BAT




*Legenda.* EX = Exhaustion; MD = Mental Distance; CI = Cognitive Impairment; EI = Emotional Impairment; PD = Psychological distress; PC = Psychosomatic complaints.

Model 8 was closest to the conceptualization of burnout proposed in the BAT, therefore in this study measurement invariance of the second-order model between teachers and employees was tested. To test measurement invariance, a series of multiple-group confirmatory factorial analyses (Brown, 2015; Byrne, 2004) were carried out. Multiple-group confirmatory factorial analyses (MGCFA) consists of simultaneous confirmatory analysis in two or more groups to test the equivalence of measurement models across distinct groups (Brown & Moore, 2012). Configural invariance is achieved when the model fits in all groups included in the analysis. After measurement invariance was tested, which includes both metric and scalar invariance. Metric invariance means that each item contributes to the latent construct to a similar degree across groups, while scalar invariance means that mean differences in the latent construct capture all mean differences in the shared variance of the items. The marker method (Little, Slegers & Card, 2006) was considered to test metric and scalar invariance of second-order model, whereas in order to test the scalar invariance of second-order model, the latent means where fixed to zero, but in the case of the current study, latent means were at the same time intercepts for the second-order factor (see Rudnev, Lytkina, Davidov, Schmidt & Zick, 2017). Therefore, the model was identified by fixing one indicator intercept per first-order factor to 0. We followed modified cut-off values to confirm metric and scalar invariance: if ΔCFA≤.01 and ΔRMSEA≤.15 metric and scalar invariance were confirmed (Chen, 2007). Finally, correlation analysis between depression and burnout was carried out to test concurrent validity.

# RESULTS

Preliminary results of item analysis showed that all skewness and kurtosis values were between −2.0 and +2.0, demonstrating univariate normality (Gravetter & Wallnau, 2014). Then, we assessed the multivariate normality and deleting 57 cases. Reliability analysis showed acceptable values. Cronbach alphas was: .92 for emotional exhaustion, .86 for emotional impairment, .92 for cognitive impairment, .88 for mental distance, .79 for psychosomatic complaints and .85 for psychological distress. Cronbach alpha for the overall BAT score was .96. Cronbach alpha for the DASS was .92.

## Factorial validity

The load factors for each item in the second-order model are shown in Appendix.

Result of CFA for both models tested showed a good fit to the data as reported in the Table 1. The fit indices of first-order model ($M_1$) on the overall sample were acceptable ($\chi^2_{(512)}$= 1671.057, $p$ = .000; CFI = .93; TLI = .92; RMSEA = .056; SRMR = .048; AIC = 1837.057) as well as those of the second order Model 2 ($\chi^2_{(520)}$= 1787.651, $p$ = .000; CFI = .92; TLI = .91; RMSEA = .058; SRMR = .056; AIC = 1937.651). The first-order model showed a better fit to the data but, according to Schaufeli and colleagues (2019), the second-order model to test the measurement invariance was accepted for two reasons: 1) the second-order model is closest to the conceptualization of burnout as suggested by Schaufeli and colleagues (2019); 2) the factorial validity of the second-order model has been demonstrated internationally by De Beer and colleagues in their 2020 study and in the Italian context by Angelini and colleagues (2021) and Consiglio and colleagues (2021).

The fit of the second-order model was separately tested on the group of employees and teachers. Results reported satisfactory fit for the two sub-samples as showed in the Table 1: teachers ($N$ = 217; Model 3 and 4) and employees ($N$ = 506; Model 5 and 6). The fit of the first-order model (Model 3) on the sub-sample of teachers are satisfactory (CFI = .92; TLI = .91; RMSEA = .059; SRMR = .051; AIC = 1059.266) as well as those of second-order model (Model 4) (CFI = .91; TLI = .90; RMSEA = .060; SRMR = .057; AIC = 1080.658). For the employees, both the first order (Model 5) and second order (Model 6) models showed satisfactory fit indices: first-order model (CFI = .92; TLI = .91; RMSEA = .060; SRMR = .06; AIC = 1668.441) and second-order model (CFI = .91; TLI = .90; RMSEA = .061; SRMR = .07; AIC = 1657.715).

The first step of measurement invariance is to evaluate the configural invariance though MGCFA (Byrne, 2004). Result of configural invariance reported in the Table 1 (Model 7) showed adequate fit indices (CFI = .91; TLI = .90; RMSEA = .043; SRMR = .057) and thus, configural invariance was established. The next step was to evaluate the scalar invariance. To assess the metric invariance of first-order model, Model 7 was compared to the constraint model where all the factor loadings were fixed to 1 (Model 8). The constraint model provided an acceptable fit (CFI = .89; TLI = .89; RMSEA = .046; SRMR = .064). The difference between the RMSEA values suggested that the full metric invariance

**Table 1** – Fit indices for the CFA e MGCFA of the Italian version of BAT

| Models | $\chi^2$ *(df)* | CFI | TLI | RMSEA | SRMR |
|---|---|---|---|---|---|
| Model 1 (I order): Overall sample | 1671.057 (512) | .927 | .920 | .056 | .048 |
| Model 2 (II order): Overall sample | 1787.651 (520) | .920 | .913 | .058 | .056 |
| Model 3 (I order): Teachers | 893.266 (512) | .916 | .908 | .059 | .064 |
| Model 4 (II order): Teachers | 930.658 (520) | .909 | .902 | .060 | .069 |
| Model 5 (I order): Employees | 1434.441 (512) | .918 | .910 | .060 | .0511 |
| Model 6 (II order): Employees | 1507.715 (520) | .912 | .905 | .061 | .0574 |
| Model 7: Configural invariance | 2438.902 (1040) | .911 | .904 | .043 | .0574 |
| Model 8 (I order): Full metric invariance | 2768.340 (1098) | .894 | .892 | .046 | .0639 |
| Model 9 (I order): Partial metric invariance | 2648.160 (1094) | .902 | .899 | .044 | .0619 |
| Model 10 (II order): Full metric invariance | 2733.116 (1102) | .897 | .895 | .045 | .0685 |
| Model 11 (I order): Scalar invariance | 2765.784 (1127) | .896 | .897 | .045 | .0681 |
| Model 12 (II order): Scalar invariance | 2662.897 (1094) | .901 | .898 | .045 | .0682 |

*Legenda. df* = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Squared Residual.

could be accepted, but the difference of the CFI exceeded the cut-off values (ΔRMSEA = −.003; ΔCFI = .017). In line with Dimitrov (2010), partial scalar metric invariance was evaluated. According to modification indexes, factor loadings related to the items BAT18 e BAT34 were released to be freely estimate (Model 9). Results presented in Table 1 show that partial metric invariance could be established (ΔRMSEA = .000; ΔCFI = .009). In the third step metric invariance of second-order factors was assessed and results showed adequate fit indices (model 10; CFI = .90; TLI = .89; RMSEA = .045; SRMR = .068). The comparison between Models 10 and 9 showed that the differences of RMSEA and CFI were smaller than suggested cut-off values (ΔRMSEA = −.001; ΔCFI = .005) and, therefore, the full metric invariance of the second-order factors was accepted. Full scalar invariance of the first-order factors was assessed through the comparison of the Model 10 and the constraint model (Model 11) where 32 factor loadings and all intercepts were fixed. The results of Model 11 showed fit indices adequate (CFI = .90; TLI = .90; RMSEA = .045; SRMR = .068) and the comparison

between model 10 and 11 showed that the difference in CFI and RMSEA are within the cut off values (ΔRMSEA = .001; ΔCFI = .000). The full scalar invariance of the first-order factors was accepted. Finally, we tested the scalar invariance of second-order factors. The result of Model 12 was adequate (CFI = .90; TLI = .90; RMSEA = .045; SRMR = .068) and the comparison between model 11 and 12 showed that the full scalar invariance of the second-order factors was accepted (ΔRMSEA = .000; ΔCFI = −.005).

## Concurrent validity

To test concurrent validity the correlation analysis between burnout and depression was carried out. Results supported concurrent validity since a significant correlation between depression and exhaustion ($r$ = .62, $p$<.001), mental distance ($r$ = .33, $p$<.001), cognitive ($r$ = .55, $p$<.001) and emotive ($r$ = .59, $p$<.001) impairment, psychological distress ($r$ = .68, $p$<.001) and psychosomatic complaints ($r$ = .53, $p$<.001), were found.

# DISCUSSION

The purpose of this study was to test the psychometric characteristics of the Italian version of the BAT (Schaufeli et al., 2019). Specifically, the psychometric properties were assessed through item analysis, factorial validity, measurement invariance, reliability, and concurrent validity. For factorial validity, confirmatory factorial analyses were conducted, focusing on the two models: Model 1 (equivalent to Model 6 in the original study) with 6-factors correlated (exhaustion, mental distance, emotion and cognitive impairment, psychological distress and psychosomatic complaints); Model 2 (equivalent to Model 8 in the original study) which was a second-order model. According to authors of BAT, the second-order model is compatible with the theory of burnout as a syndrome. Both models tested showed good fit indices. Although the fit indices of the first model were slightly better than the second, we proceeded to test the invariance on Model 2 following Schaufeli and colleagues. Results of CFA and MGCFA analysis confirmed hypotheses 1 and 2, supporting the validity of the Italian version of the BAT. The overall scale and subscales were found to be reliable. To confirm criterion validity, we considered the relationship between burnout and depression. Our results show that the BAT is a valid and reliable tool to measure the burnout in the Italian context as well as in the international context (De Beer et al., 2020). In conclusion, this study supported and confirmed the factorial validity, reliability, and criterion validity of the BAT in the Italian context. Our results are in line with those of Schaufeli and colleagues.

This study has some limitations that should be taken in consideration. One of the limitations of this study concerns the selection of subjects because we used a convenience sample, and the two samples may not be representative of the Italian population. In addition, this study considered only self-assessment data, and this implies the possibility of methodological bias related to self-report questionnaires (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). A further limitation is the cross-sectional nature of the study, longitudinal study studies should be conducted in the future to test predictive validity. Finally, comparison of the BAT with popular scales on burnout such as the *Maslach Burnout Inventory* was not conducted. However, previous Italian BAT adaptation addressed this issue.

# CONCLUSION

The current work aimed to provide a contribution to the validation of the *Burnout Assessment Tool* (Schaufeli et al., 2019) using data obtained in two samples, teachers and employees. Our findings showed that the *Burnout Assessment Tool* is a valid and reliable scale for measuring burnout in the Italian context. The BAT studies the burnout in a comprehensive way and assesses various burnout manifestations. Therefore, both the total score on the BAT and the scores on the six dimensions can be used to assess the burnout. Schaufeli and colleagues in the original study (2019) suggested that the total score is useful for screening in the organization while the single scores are useful for the individual assessment. Schaufeli and colleagues also provide the cut-off scores showing different levels of severity of the phenomenon. The assessment and management of stress is a legal duty of employers, established by the Framework Directive 89/391/EEC. Organizations that are able to identify and detect the presence of burnout can propose interventions to contain the phenomenon, for example, focusing on the importance of recovering energy from work activities (Schabracq, 2005).

## References


AKDEMIR, Ö.A. (2019). The effect of teacher burnout on organizational commitment in Turkish context. *Journal of Education and Training Studies*, *7* (4), 171-179.

ANGELINI, G., BUONOMO, I., BENEVENE, P., CONSIGLIO, P., ROMANO, L. & FIORILLI, C. (2021). The Burnout Assessment Tool (BAT): A Contribution to Italian validation with teachers'. *Sustainability*, *13* (16), 9065.

ARMON, G., MELAMED, S., TOKER, S., BERLINER, S. & SHAPIRA, I. (2014). Joint effect of chronic medical illness and burnout on depressive symptoms among employed adults. *Health Psychology*, *33* (3), 264.

ARMON, G., SHIROM, A., SHAPIRA, I. & MELAMED, S. (2008). On the nature of burnout-insomnia relationships: A prospective study of employed adults. *Journal of Psychosomatic Research*, *65* (1), 5-12.

AYYAGARI, R., GROVER, V. & PURVIS, R. (2011). Technostress: Technological antecedents and implications. *MIS Quarterly*, 831-858.

BAKKER, A.B., DEMEROUTI, E. & DOLLARD, M.F. (2008). How job demands affect partners' experience of exhaustion: Integrating work-family conflict and crossover theory. *Journal of Applied Psychology*, *93* (4), 901.

BENTLER, P.M. & BONETT, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88* (3), 588-606.

BIANCHI, R., SCHONFELD, I.S. & LAURENT, E. (2015). Burnout does not help predict depression among French school teachers. *Scand. J. Work Environ. Health*, *41*, 565-568.

BROWN, T.A. (2015). *Confirmatory factor analysis for applied research (2nd ed.)*. The Guilford Press.

BROWN, T.A., & MOORE, M.T. (2012). Confirmatory factor analysis. In R.H. Hoyle (Ed.), *Handbook of structural equation modeling*. The Guilford Press.

BYRNE, B.M. (2004). Testing for Multigroup Invariance Using AMOS Graphics: A road less traveled. *Structural Equation Modeling*, *11* (2), 272-300.

CHEN, F.F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Struct Equ Modeling: A Multidisciplinary Journal*, *14* (3), 464-504.

CHEN, F.F. (2008). What happens if we compare chopsticks with forks? The impact of making inappropriate comparisons in cross-cultural research. *Journal of Personality and Social Psychology*, *95* (5), 1005.

CHO, Y.N., RUTHERFORD, B.N., FRIEND, S.B., HAMWI, G.A. & PARK, J. (2017). The role of emotions on frontline employee turnover intentions. *Journal of Marketing Theory and Practice*, *25* (1), 57-68.

CONSIGLIO, C., MAZZETTI, G. & SCHAUFELI, W.B. (2021). Psychometric properties of the Italian version of the Burnout Assessment Tool (BAT). *International Journal of Environmental Research and Public Health*, *18* (18), 9469.

DE BEER, L.T., SCHAUFELI, W.B., DE WITTE, H., HAKANEN, J.J., SHIMAZU, A., GLASER, J. et al. (2020). Measurement invariance of the Burnout Assessment Tool (BAT) across seven cross-national representative samples. *International Journal of Environmental Research and Public Health*, *17* (15), 5604.

DIMITROV, D.M. (2010). Testing for factorial invariance in the context of construct validation. *Measurement and Evaluation in Counseling and Development*, *43* (2), 121-149.

DYLAG, A., JAWOREK, M., KARWOWSKI, W., KOZUSZNIK, M. & MAREK, T. (2013). Discrepancy between individual and organizational values: Occupational burnout and work engagement among white-collar workers. *International Journal of Industrial Ergonomics*, *43* (3), 225-231.

EATON, L. (2019). Health workforce burn-out. *Bulletin of the World Health Organization*, *97* (9), 585-586.

GEORGE, D. & MALLERY, M. (2010). *SPSS for windows step by step: A simple guide and reference (10th ed.)*. Boston, MA: Pearson.

GRAVETTER, F. & WALLNAU, L. (2014). *Essentials of statistics for the behavioral sciences (8th ed.)*. Belmont, CA: Wadsworth.

HAKANEN, J.J., BAKKER, A.B. & SCHAUFELI, W.B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, *43* (6), 495-513.

HOBFOLL, S.E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, *6*, 307-324.

ILO-ORGANIZZAZIONE INTERNAZIONALE DEL LAVORO (2021). *Stime e analisi aggiornate sull'impatto del COVID-19 sul mondo del lavoro*. https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo- rome/documents/publication/wcms_767283.pdf

INGERSOLL, R.M. & MAY, H. (2012). The magnitude, destinations, and determinants of mathematics and science teacher turnover. *Educational Evaluation and Policy Analysis, 34* (4), 435-464.

KIM, H., JI, J. & KAO, D. (2011). Burnout and physical health among social workers: A three-year longitudinal study. *Social work*, *56* (3), 258-268.

KORUNKA, C., KUBICEK, B., PASKVAN, M. & ULFERTS, H. (2015). Changes in work intensification and intensified learning:

challenge or hindrance demands? *Journal of Managerial Psychology*, *30* (7), 786-800.

KRISTENSEN, T.S., HANNERZ, H., HØGH, A. & BORG, V. (2005). The Copenhagen Psychosocial Questionnaire: A tool for the assessment and improvement of the psychosocial work environment. *Scandinavian Journal of Work, Environment & Health*, 438-449.

KUBICEK, B., PASKVAN, M. & KORUNKA, C. (2015). Development and validation of an instrument for assessing job demands arising from accelerated change: The intensification of job demands scale (IDS). *European Journal of Work and Organizational Psychology*, *24* (6), 898-913.

KYRIACOU, C. (2001). Teacher stress: Directions for future research. *Educational Review*, *53* (1), 27-35.

LANE, C. & HOBFOLL, S.E. (1992). How loss affects anger and alienates potential supporters. *Journal of Consulting and Clinical Psychology*, *60* (6), 935.

LITTLE, T.D., SLEGERS, D.W. & CARD, N.A. (2006). A non-arbitrary method of identifying and scaling latent variables in SEM and MACS models. *Structural Equation Modeling*, *13* (1), 59-72.

LOVIBOND, P.F. & LOVIBOND, S.H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33* (3), 335-343.

MÄKIKANGAS, A., LEITER, M.P., KINNUNEN, U. & FELDT, T. (2020). Profiling development of burnout over eight years: relation with job demands and resources. *European Journal of Work and Organizational Psychology*, 1-12.

MASLACH, C. & JACKSON, S.E. (1981). The measurement of experienced burnout. *Journal of Organizational Behavior*, *2* (2), 99-113.

MASLACH, C. & LEITER, M.P. (2016). Understanding the burnout experience: Recent research and its implications for psychiatry. *World Psychiatry, 15* (2), 103-111.

MASLACH, C., SCHAUFELI, W.B. & LEITER, M.P. (2001). Job burnout. *Annual Review of Psychology*, *52* (1), 397-422.

MELAMED, S., SHIROM, A., TOKER, S. & SHAPIRA, I. (2006). Burnout and risk of type 2 diabetes: A prospective study of apparently healthy employed persons. *Psychosomatic Medicine*, *68* (6), 863-869.

MOHREN, D.C., SWAEN, G.M., KANT, I., VAN AMELSVOORT, L.G., BORM, P.J. & GALAMA, J.M. (2003). Common infections and the role of burnout in a Dutch working population. *Journal of Psychosomatic Research*, *55* (3), 201- 208.

MOLERO JURADO, M.D.M., PEREZ-FUENTES, M.D.C., ATRIA, L., OROPESA RUIZ, N.F. & GAZQUEZ LINARES, J.J. (2019). Burnout, perceived efficacy, and job satisfaction: Perception of the educational context in high school teachers. *BioMed Research International*, 1021408.

PODSAKOFF, P.M., MacKENZIE, S.B., LEE, J.Y. & PODSAKOFF, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88* (5), 879.

ROBINSON, O.P., BRIDGES, S.A., ROLLINS, L.H. & SCHUMACKER, R.E. (2019). A study of the relation between special education burnout and job satisfaction. *Journal of Research in Special Educational Needs*, *19* (4), 295-303.

ROSA, H. (Ed.). (2010). *High-speed society: Social acceleration, power, and modernity*. Pennsylvania: Penn State Press.

RUDNEV, M., LYTKINA, E., DAVIDOV, E., SCHMIDT, P. & ZICK, A. (2018). Testing measurement invariance for a second-order factor: A cross-national test of the alienation scale. *Methods, Data, Analyses: A Journal for Quantitative Methods and Survey Methodology (MDA)*, *12* (1), 47-76.

SALVAGIONI, D.A.J., MELANDA, F.N., MESAS, A.E., GONZALEZ, A.D., GABANI, F.L. & ANDRADE, S.M.D. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PloS one*, *12* (10), e0185781.

SALVAGIONI, D.A.J., MESAS, A.E., MELANDA, F.N., GONZALEZ, A.D. & DE ANDRADE, S.M. (2022). Burnout and long-term sickness absence from the teaching function: A cohort study. *Safety and Health at Work*.

SCHABRACQ, M.J. (2005). Stress, alienation and shared leadership. *Research Companion to Organizational Health Psychology*, 122-131.

SCHAUFELI, W.B., LEITER, M.P. & MASLACH, C. (2009). Burnout: 35 years of research and practice. *Career Development International*, *14* (3), 204-220.

SCHAUFELI, W.B. & ENZMANN, D. (1998). *The burnout companion to study and practice: A critical analysis*. Philadelphia: Taylor & Francis.

SCHAUFELI, W.B., DE WITTE, H. & DESART, S. (2019). *Manual Burnout Assessment Tool (BAT)*. KU Leuven, Belgium: Unpublished internal report.

SCHONFELD, I.S. & BIANCHI, R. (2016). Burnout and depression: two entities or one? *Journal of Clinical Psychology, 72* (1), 22-37.

SPAGNOLI, P., MANUTI, A., BUONO, C. & GHISLIERI, C. (2021). The good, the bad and the blend: The strategic role of the "middle leadership" in work-family/life dynamics during remote working. *Behavioral Sciences*, *11* (8), 112.

SPAGNOLI, P., BUONO, C., KOVALCHUK, L.S., CORDASCO, G. & ESPOSITO, A. (2021). Perfectionism and burnout during the COVID-19 crisis: A two-wave cross-lagged study. *Frontiers in Psychology*, *11*, 4087.

TOKER, S., MELAMED, S., BERLINER, S., ZELTSER, D. & SHAPIRA, I. (2012). Burnout e rischio di malattia coronarica: Uno studio prospettico su 8838 dipendenti. *Psychosomatic Medicine*, *74*, 840-847.

VANDENBERG, R.J. & LANCE, C.E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, *3* (1), 4-70.

WHEELER, D.L., VASSAR, M., WORLEY, J.A. & BARNES, L.B.B. (2011). A reliability generalization meta-analysis of coefficient alpha for the Maslach Burnout Inventory. *Educ Psychol Measur*, *71*, 231-244.

WHO-WORLD HEALTH ORGANIZATION (2019). Burn-out an "occupational phenomenon". *ICD 11*. https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases

WOOD, L.A. (2011). *The changing nature of jobs: A meta-analysis examining changes in job characterisitcs over time*. Doctoral dissertation, University of Georgia.

# APPENDIX

## Items and factor loadings of the second-order model of the BAT

| Items | Factor loadings |
|---|---|
| *Exhaustion* | |
| 1. At work, I feel mentally exhausted | |
| 1. Al lavoro mi sento mentalmente esausto/a | .74 |
| 2. Everything I do at work requires a great deal of effort | |
| 2. Ogni cosa che faccio al lavoro mi richiede un grande sforzo | .73 |
| 3. After a day at work, I find it hard to recover my energy | |
| 3. Dopo una giornata di lavoro, per me è difficile recuperare le energie | .80 |
| 4. At work, I feel physically exhausted | |
| 4. Al lavoro mi sento fisicamente esausto/a | .79 |
| 5. When I get up in the morning, I lack the energy to start a new day at work | |
| 5. La mattina, quando mi alzo, mi mancano le energie per cominciare una nuova giornata di lavoro | .81 |
| 6. I want to be active at work, but somehow I am unable to manage | |
| 6. Vorrei essere più attivo/a sul lavoro, ma per qualche ragione non ci riesco | .76 |
| 7. When I exert myself at work, I quickly get tired | |
| 7. Se faccio uno sforzo sul lavoro, mi stanco più velocemente del consueto | .82 |
| 8. At the end of my working day, I feel mentally exhausted and drained | |
| 8. Alla fine della mia giornata lavorativa, mi sento mentalmente esausto/a e svuotato/a | .77 |
| *Mental distance* | |
| 9. I struggle to find any enthusiasm for my work | |
| 9. Ho difficoltà a provare un qualche entusiasmo verso il mio lavoro | .84 |
| 10. At work, I do not think much about what I am doing and I function on autopilot | |
| 10. Al lavoro non penso molto a quello che faccio e agisco in modo meccanico | .73 |
| 11. I feel a strong aversion towards my job | |
| 11. Provo una forte avversione nei confronti del mio lavoro | .86 |
| 12. I feel indifferent about my job | |
| 12. Mi sento indifferente rispetto al mio lavoro | .79 |
| 13. I'm cynical about what my work means to others | |
| 13. Sono scettico/a rispetto al significato che il mio lavoro può avere per gli altri | .66 |

*continued on next page*

*continued*

| Items | Factor loadings |
|---|---|
| *Cognitive impairment* | |
| 14. At work, I have trouble staying focused | |
| 14. Al lavoro faccio fatica a mantenere l'attenzione | .87 |
| 15. At work, I struggle to think clearly | |
| 15. Quando lavoro ho difficoltà a pensare con lucidità | .86 |
| 16. I'm forgetful and distracted at work | |
| 16. Sul lavoro sono distratto/a e ho difficoltà a tenere a mente le cose | .90 |
| 17. When I'm working, I have trouble concentrating | |
| 17. Quando lavoro fatico a rimanere concentrato | .90 |
| 18. I make mistakes in my work because I have my mind on other things | |
| 18. Mi capita di commettere degli errori nel mio lavoro perché sto pensando ad altro | .66 |
| *Emotional impairment* | |
| 19. At work, I feel unable to control my emotions | |
| 19. Al lavoro non mi sento in grado di controllare le mie emozioni | .70 |
| 20. I do not recognize myself in the way I react emotionally at work | |
| 20. Sul lavoro ho delle reazioni emotive che non mi appartengono | .79 |
| 21. During my work, I become irritable when things don't go my way | |
| 21. Mentre lavoro divento irritabile se le cose non vanno come vorrei | .66 |
| 22. I get upset or sad at work without knowing why | |
| 22. Quando lavoro mi capita di diventare agitato o triste senza saperne il motivo | .81 |
| 23. At work I may overreact unintentionally | |
| 23. Al lavoro mi capita involontariamente di avere delle reazioni esagerate | .76 |
| *Psychological distress* | |
| 24. My weight fluctuates without being on a diet | |
| 24. Il mio peso varia anche se non sono a dieta | .51 |
| 25. I have trouble falling or staying asleep | |
| 25. Faccio fatica ad addormentarmi o a mantenere il sonno | .70 |
| 26. I tend to worry | |
| 26. Tendo a preoccuparmi | .78 |
| 27. I feel tense and stressed | |
| 27. Mi sento teso/a e stressato/a | .84 |

*continued on next page*

*continued*

| Items | Factor loadings |
|---|---|
| 28. I feel anxious and/or suffer from panic attacks | |
| 28. Mi sento ansioso/a e/o soffro di attacchi di panico | .77 |
| 29. Noise and crowds disturb me | |
| 29. Il rumore e la folla mi disturbano | .64 |
| *Psychosomatic complaints* | |
| 30. I suffer from palpitations or chest pain | |
| 30. Soffro di palpitazioni o dolori al petto | .69 |
| 31. I suffer from stomach and/or intestinal complaints | |
| 31. Soffro di mal di stomaco e/o disturbi intestinali | .69 |
| 32. I suffer from headaches | |
| 32. Soffro di mal di testa | .66 |
| 33. I suffer from muscle pain, for example in the neck, shoulder or back | |
| 33. Soffro di dolori muscolari, ad esempio al collo, alle spalle o alla schiena | .67 |
| 34. I often get sick | |
| 34. Tendo ad ammalarmi facilmente | .55 |

DOI: 10.26387/bpa.2022.00008

# The role of wisdom for enhancing social well-being and positive aging in old age

*Manuela Zambianchi*

*University of Bologna, Italy*
*University Institute ISIA, Faenza, Italy*

*manuela.zambianchi@unibo.it*
*zambianchi_manuela@isiafaenza.it*

*ABSTRACT.* La saggezza costituisce un'area crescente di ricerca, anche per la sua rilevanza per l'invecchiamento positivo. In questo studio è stato adottato il modello tridimensionale della saggezza (Competenza e conoscenza pragmatica; Pensiero dialettico post-formale; Gestione dell'incertezza del futuro; Moraitou & Efklides, 2012) ed esplorato nelle sue associazioni con il Benessere sociale (Keyes, 1998). Un gruppo di 155 persone anziane (età media 68.98; *DS* = 6.68; 49 maschi e 106 femmine) hanno partecipato allo studio e compilato il *Questionario sul Benessere sociale* ed il *Questionario sul pensiero e azioni sagge* (Moraitou & Efklides, 2012). La saggezza intesa come conoscenza pragmatica risulta correlata positivamente con l'Integrazione sociale, l'Accettazione sociale, la Coerenza sociale ed il Benessere sociale globale. La saggezza intesa come pensiero integrato dialettico post-formale risulta associata con quasi tutte le dimensioni del Benessere sociale e con il Benessere sociale globale. Il pensiero dialettico post-formale apporta un sostanziale contributo alla varianza spiegata per il Benessere sociale globale, dopo aver controllato le variabili età, genere, titolo di studio e l'interazione tra genere e titolo di studio. Esso contribuisce positivamente anche alle componenti Attualizzazione sociale, Coerenza sociale, mentre la competenza pragmatica contribuisce alla dimensione Contributo sociale. È stata fatta una riflessione sulle implicazioni dei risultati.

*SUMMARY. Wisdom constitutes a growing area of research, also for its relevance for positive aging. In this study the three dimensional model of wisdom (Pragmatic competence and knowledge; Integrated dialectical post-formal thinking; Future uncertainty management; Moraitou & Efklides, 2012) was adopted and explored in its associations with Social well-being (Keyes, 1998).A sample of 155 old people (M age = 68.98; SD = 6.68; 49 males and 106 females) took part in the study, filling in the Social Well-being Questionnaire (Keyes, 1998) and The Wise Thinking and Acting Questionnaire (Moraitou & Efklides, 2012). Wisdom as Pragmatic knowledge resulted positively associated with Social integration, Social acceptance, Social coherence and overall Social well-being. Wisdom as Integrated post-formal dialectical thinking resulted in being positively associated with almost all the components of SWB and with overall SWB. Integrated post formal dialectical thinking emerged as a significant contributor to the explained variance for overall SWB, after controlling for age, gender and school education as structural variables. It also gives a positive contribution to the explained variance for the sub-components Social contribution and Social coherence. Wisdom as Pragmatic competence gives a contribution for the Social contribution dimension. A reflection on the implication of results has been made.*

**Keywords:** *Positive aging, Wisdom, Social well-being, Positive aging*

# INTRODUCTION

## Social well-being as a fundamental dimension for positive aging

The issue of positive aging has become of growing importance in recent decades due to the demographic revolution that involves a large part of the world. This progression increases life expectancy (Eurostat, 2020), which highlighed the need for further research on the factors that promote positive and healthy aging (WHO, 2020).

Rowe & Khan (1997) adopted a systemic perspective on successful aging, defining it as a possible outcome of old age. It is characterized by the presence of high physical, high cognitive and personality resources, which allow an active participation in social life. According to this perspective, continuing to actively participate in social life is the core criterion of positive aging, which highlights the importance of the social context of life and the social resources for the well-being of the elderly.

The Complex model of proactive aging elaborated by Kahana, Kahana and Lee (2014) highlights the role played by proactivity (the attempt made by the individual to actively intervene in the social context of life) throughout the life span. According to the authors, even an elderly person maintains the ability to actively intervene for modifying non-functional aspects of life through agentivity. This factor is closely linked to the perceived self-efficacy (Bandura, 1997) and the ability to act strategically to prevent potentially critical situations or negative outcomes. In this perspective, the social resources and the active participation in social life are fundamental factors for a high level of perceived life quality. Their relevance is confirmed by Pozzi and colleagues (Pozzi, Marta, Marzana & Gozzoli, 2014), that found a positive contribution of the sense of community for psychological well-being in old age.

The issue of participation in social life and its contribution to the positive functioning of old people has also been highlighted by the Social production function theory, (Lindenberg, 2013; Stevernik, 1999; Stevernik, Lindenberg, Spiegel & Nieboer, 2020). According to the authors, human beings are characterized by three basic needs: the need for affection; the need for confirmation (to be confirmed on the validity and appropriateness of one's behavior); the need for esteem and status. The possibility of an elderly person to be able to continue to frequent social environments capable of satisfying these universal human needs (Stevernik & Lindenberg, 2006) and to receive from them both a positive sense of belonging at the level of social identity (confirmation), and the esteem for a valued expertise, represents a fundamental factor at general level of functioning and for the prevention of possible future pathologies. Kim et al. (2021) introduced the concept of resilient aging. In the perspective of these authors, it is connected to multiple factors, including the social components of well-being. They hypothesized that psychological well-being and social well-being exert a protective effect against stressors, but, when they occur, they also buffer against the health related impact of excessive stress.

A longitudinal study (MIDUS study, Midlife in the USA; Keyes & Shapiro, 2004) examined the factors that, over time, increase the level of Social well-being in the elderly, defined as the quality of the relationship between the individual and the proximal social context (such as neighbors) and distal (the society in the broader sense) (Keyes, 1998). Among these factors, the level of education proves to be of particular importance: as school education increases, we can observe a higher level of social participation, the belief in being able to make a significant contribution to society, the belief in the potential of society for the well-being of its citizens.

The relevance of social activities and the possibility to actively select them has been found in the study of Dawson-Townsend (2019) and Baersiswyl and Oris (2021) to be positively connected with well-being in old age, giving support to the proactive perspective elaborated by Kahana et al. (2014). A longitudinal study (Saadeh et al., 2019) explored the relationships between social and psychological well-being in a large sample of Swedish older people. The former assessed the frequency of attending theater concerts, traveling, participating in social groups, social connection with friends and relatives, the latter assessed the level of life satisfaction, positive and negative affect. Results confirm the contribution of both dimensions of well-being for reducing, over time, the decline in physical functioning. A study (Zambianchi, 2015) investigated the presence of life projects in the family, cultural, civic participation and volunteer areas, free time and non-competitive sports in a sample of Italian elderly in relation to the use of proactive strategies of coping, confirming how they are associated with the presence of numerous projects in different areas of life even in old age.

The contemporary digital society provides other potential resources for enhancing social well-being and participation in old age. The propensity to use ICTs (Internet Computer

Technologies) and technological innovations produced at the digital level is also associated with greater social well-being in the elderly (Heo et al., 2015; Zambianchi & Carelli, 2016).

The temporal orientation represents an additional factor associated with social well-being. A study conducted on a sample of elderly people (Zambianchi & Ricci Bitti, 2013), where the role played by the temporal perspective was investigated, (Carelli, Wiberg & Wiberg, 2011; Zimbardo & Boyd, 1999) highlighted how social well-being is significantly but negatively associated with the negative past and the fatalistic present, which designates the presence of critical or traumatic experiences not yet processed and the belief of not being able to exercise any control over life events. The future positive, conceived as the presence of objectives and projects, influences social integration and the belief that the society is developing through the evolution of institutions and laws. The present conceived as the ability to enjoy interpersonal relationships positively affects global social well-being.

A factor that philosophical speculation has already associated with active participation in society for centuries (Aristotle, 384 b.C.-322 b.C.) is represented by wisdom. In every philosophical cross-cultural perspective wisdom over the centuries has been associated with the old age. Although there is a growing body of research on wisdom assessing its relationships with individual psychological dimensions, including psychological well-being, very few studies have investigated its relationships with the social dimensions of well-being. Therefore, this aspect could constitute an expansion of knowledge about wisdom and its contribution to the positive functioning of the old people.

## Wisdom and its relationship with positive human functioning. Its potential relevance for social well-being of the old people

The theme of wisdom has been the subject of philosophical reflection for millennia in every human culture. Western culture has already developed various theories on wisdom and its characteristics, starting with classical Greek philosophy. The philosopher Aristotle (384 b.C.-322 b.C.) deepened its characteristics and outcomes into the book *Nicomachean ethic,* sustaining that it represents the expression, in old age of virtues firmly rooted in political exercise and participation in the life of the polis. Latin philosophers Seneca (4 b.C.-65 a.D.) defines wisdom as the *medium* through which people can reach inner freedom and awareness to be a part of the *logos*, defined as a rational divine principle that governs the world. In the Bible there are numerous references to the theme of wisdom, e.g. wisdom as the ability to choose the best course of action (Ecclesiaste, 8:1). As for non-western cultures, Buddhism has deepened the question of wisdom, defining it the means to be able to reach the ultimate reality (*prajna*).

Only recently has wisdom become an object of study by psychology, thanks to the demographic revolution (Eurostat, 2020) which has brought to light the question of the expansion of life expectancy. Wisdom indeed has been defined for centuries as a dimension proper to this phase of life.

Yang (2008) classified several models of wisdom: 1) as a personality characteristic; 2) as a positive result of development; 3) as a collective system of knowledge about the meaning and conduct of life; 4) as a real-life process that is completed after certain effect are generated.

From the positive psychology' perspective, wisdom is regarded as an authentic character strength (Peterson & Seligman, 2004). According to this perspective, there are authentic character strengths (mechanisms or processes that lead to virtuous behaviors; Peterson & Seligman, 2004) owned by the individual (and also the communities) which represent fundamental resources for enhancing psychological well-being and for a trusting and constructive relationship with others and society. Wisdom has also been included as an individual's strength, and is identified with the use of creativity, the presence of intellectual curiosity, the ability to judge, the love of learning and the possession of a broad perspective and vision of problems.

Among the most relevant theories on wisdom, its genesis and its characteristics, the one developed by Baltes and colleagues (Baltes & Freund, 2003; Baltes & Kunzmann, 2003) inserts this dimension within the evolutionary perspective of the entire life span, considering wisdom as one of the most positive outcomes in old age. For Baltes & Smith (2008) indeed there is a general agreement that the acquisition of wisdom requires time and effort and that it involves some combination of education, practice, apprenticeship, personal experience and deliberate reflections about life matters (p. 57). Baltes and colleagues tried to integrate the principles of wisdom as philosophical -historical reflections with the psychological perspective of life span development (Baltes & Staudiger, 1996), integrating them into the so called Berlin wisdom paradigm. It combines a broad definition of

wisdom as excellence in mind and virtues with a specific characterization of wisdom as an expert knowledge system dealing with the conduct and understanding of life. There are five criteria that compose the construct of wisdom for the Berlin wisdom paradigm:

1) factual knowledge about the fundamental pragmatics of life; 2) strategic knowledge about the fundamental pragmatics of life; 3) awareness of relativism of values and goals; 4) knowledge about the fundamental uncertainties of life and ways to manage them; 5) knowledge about the contexts of life and how they change over time.

Baltes and Smith (2008) tried moreover to connect wisdom to the research on optimal development and aging. Indeed for Baltes and Smith (2003) wisdom provides a balanced picture of old age as potentially being a period of psychological vitality as well as one of inevitable physical loss. They maintained that a special need for wisdom has emerged over the last 100 years due to the aging demographics of many countries around the world.

From a cognitive perspective, wisdom has been deepened starting from the post-Piagetian perspective (Demetriou & Efklides, 1994), which has identified a further stage after the formal thinking operations, that was conceptualized by Piaget (1970) as the last stage of intelligence evolution of humans. In this perspective, adult cognitive development cross the theme of wisdom and its manifestation into different domains, including the epistemic domain (Perry, 1970).

Wisdom in the post-Piagetian cognitive perspective is framed within the development of post-formal dialectical operations (Kallio, 2011; Labouvie-Vief, 2015; Labouvie-Vief & Diehl, 2000; Moraitou & Efklides, 2012). In this perspective dialectical-post-formal thinking turns out to be a fundamental dimension for the expression of wisdom, as highlighted by Kramer's research (2003). According to the authors, the achievement of post-formal dialectical thinking represents a key element in the possibility of expressing wisdom since it is through this cognitive process that the person manages and approaches the relevant issues in a complex way, especially if they are ethical-moral in nature. The post-Piagetian cognitive theoretical perspective was adopted by Moraitou & Efklides (2012), which defines wisdom as a specific form of thought characterized by three interconnected dimensions: the pragmatics of life, that is close to the definition of wisdom elaborated by Baltes and colleagues; the post-formal dialectical thinking (the ability to deal with complex questions, often with ethical or bio-ethical quality and to find innovative integrated solutions that goes beyond choosing between two dilemmatic horns) and the management of future uncertainty (that corresponds to the deep awareness of uncertainty about future together with the awareness of human finitude).

Kallio (2011; 2015; 2020) sustains that the so called integrative thinking constitutes the key of the adult reasoning. It is based not only on the ability of considering simultaneously the antinomic solutions of a dilemma, but instead integrating them into a new interpretation, different because it is a new and more complex definition of the issue. As indeed she stated: "The term *integrationem* presupposes renewal and something that has not existed before it is born […]. The models of post-formal relativistic dialectical thinking, as well as the models of wisdom and epistemic understanding, definitely have this kind of key elements included in them" (Kallio, 2011, p.12). Commons & Bresette (2006) has described the further development of causal thinking as a progress towards more complicated causal structures: systematic, meta-systematic, paradigmatic and cross-paradigmatic reasoning. According to them, the highest forms of logical reasoning are integrative.

Dialectical post-formal thinking turns out to be a fundamental dimension for the expression of wisdom, as highlighted by the research of Kramer (2003).

The model elaborated by Ardelt (1997; 2009) conceptualized wisdom as a construct made up by three dimensions: cognitive, reflective and affective. The cognitive dimension of wisdom refers to a person's ability to understand life, that is, to comprehend the significance and deeper meaning of phenomena and events, particularly with regard to intrapersonal and interpersonal matters. It comprehends also the knowledge of the positive and negative aspects of human nature, and the knowledge of life's unpredictability and uncertainties. The reflective dimension is considered as a prerequisite for the development of cognitive dimension of wisdom. It corresponds to the perception of the reality as it is, without any major distortions, the reduction of one's self-centeredness, subjectivity and projection, together with ability of introspection, tolerance of ambiguity, as mature defensive mechanisms. The affective dimension includes the presence of positive emotions towards the other people, empathy and compassion.

Nussbaum (2001) maintained that the hallmark of wisdom is knowing how, where and when to take risk and to deal with uncertainty, recalling the perspective of Moraitou

& Efklides on wisdom as ability to navigate in expert ways the difficulties of life and to deal with the anxiety of the future.

For Kekes (1983, 1995), wisdom requires interpretative, rather that descriptive knowledge. It consists of a rediscovery of the significance of generally known facts for own life and for life of others, leading to a deeper understanding of salient phenomena and events.

The role of wisdom on positive functioning in old age has been investigated through several research, especially for the emotional well-being and perceived life quality (Zacher & Staudiger, 2018).

Moraitou & Efklides (2012) in a study with the *WITHAQ Questionnaire*, found that the dialectical thinking is related with positive affect states and memory efficiency; the expression of wisdom through the expert knowledge of life is also associated with positive affect, while the awareness of future uncertainty shows a positive association with negative affect states.

Ardelt (1997), in a study on subjective well-being in old men and women, highlighted that wisdom possesses a strong and positive impact on women's life satisfaction in old age. In this study it was highlighted that age in itself may have a negative impact on life satisfaction for women, but this effect is counterbalanced by wisdom, which is positively related to life satisfaction and age. Also for men, wisdom reduces the positive impact of physical health; however, for men age remains a negative predictor of life satisfaction, without an interaction effect of wisdom. She highlights also that people which are able to perceive a deeper and a more comprehensive truth, have transcended their subjectivity and projections, they feel empathy for others which will ultimately have a positive influence on society through their connections with other individuals (Orwoll & Perlmutter,1990). Hence, she argued, instead of being a burden for younger generations, wise older people could be an invaluable asset for society by guiding the young. Ardelt and Edward (2016) again highlighted how, in a longitudinal study, wisdom is positively associated with subjective well-being, mastery and purpose, and to physical well-being.

The effect of gender on wisdom has brought controversial results: as highlighted Moraitou & Efklides (2012), results of studies about practical wisdom and post-formal dialectical thinking evidenced no differences between men and women, while the concept of wisdom elaborated by Ardelt (2008) which comprises also empathy resulted as more prominent in women.

Wisdom and social well-being: what is the link? Studies that evaluate the relationship between wisdom and (perceived) quality of the relationship between the individual and the social context are still scarce, despite the philosophical reflections for centuries that have envisioned a close link between the expression of wisdom and the active participation of the elderly person in society.

One study, qualitative in its nature (Igarashi, Levenson & Aldwin, 2018) highlighted the role of social context in the development of wisdom after major personal crises or critical events in a group of adults and old people. Since the active participation of the old people to the society is regarded as one hallmark of positive aging (Kahana et al., 2014; Rowe & Khan, 1997), wisdom can represent an important dimension for reaching this outcome.

Adopting the conceptual model of Moraitou & Efklides, it can be hypothesized that complex post-formal thinking style could lead to a positive attitude toward the society and its potential evolution, while pragmatic competence (Baltes & Smith, 2008) could favor the participation of the oldest to the society, giving them a deeper understanding of the ways to navigate its complexity. For these reasons, the knowledge of the relationship between wisdom, as conceptualized by Moraitou & Efklides (2012) and Social well-being as conceptualized by Keyes (1988) could represent an expansion of the knowledge of the phenomenon of wisdom.

## OBJECTIVES AND HYPOTHESES

The study had the following objectives and tested the following hypotheses:

- evaluation of the level of Social well-being and wisdom in old age;
- evaluation of the correlations between the dimensions of wisdom (pragmatic knowledge; post-formal dialectical thinking; management of future uncertainty and awareness of human finitude) and Social well-being, as global score and in its sub-components. It was hypothesized that wisdom as pragmatic knowledge and post-formal dialectical thinking is positively correlated with overall Social well-being and its sub-components ($H_1$), while for wisdom as management for future uncertainty and awareness of human finitude no precise hypotheses have been formulated;
- evaluation of the contribution of structural variables gender and school education on wisdom and Social well-

being. On the basis of previous studies (Keyes & Shapiro, 2004), it was hypothesized that a higher level of school education is related to a higher level of Social well-being and to higher level of wisdom as post-formal dialectical thinking ($H_2$). For gender, given the controversial results obtained (e.g. Moraitou & Efklides, 2012), no specific hypotheses has been formulated;

– evaluation of the correlations between wisdom and Social well-being as global score and with its components. It was hypothesized positive correlations between wisdom as pragmatic competence and Social well-being, between wisdom as post-formal thinking and Social well-being ($H_3$);
– evaluation of the contribution offered by the three components of wisdom for overall Social well-being and for its specific sub-components, after controlling for structural variables age (as continuous variable), gender and school education and the interaction between gender and school education. It was expected a significant contribution of wisdom as post-formal dialectical thinking and wisdom as pragmatic competence for Social well-being. ($H_4$).

# METHOD

## Participants and procedures

155 old people took part in the study (*M* age = 68.98; *SD* = 6.68), 49 males 106 females. For their level of school education, 4 possess the elementary license; 27 middle school diploma, 78 high school diploma and 45 degree. They were recruited through Institutions such as Universities for the third age and Senior social centres, and also Trade associations. The questionnaires were filled in several cases with the presence of the author, and in other cases in their homes, without the presence of any researcher. The elderly did not encounter any problems with the text comprehension. After a brief explanation of the research, where they had been informed of the anonymity of the research to guarantee privacy they gave their consent to participate in the study.

## Instruments

– The *SWB Questionnaire* (Keyes, 1998; It. tr. Cicognani, Albanesi & Berti, 2001). This questionnaire contains five dimensions that evaluate the quality of individual functioning in social life : Social actualization (n. 7 items; e.g. of item "I think the world is becoming a better place for everyone"), Cronbach's α = .79; Social contribution (n. 6 items; e.g. of item "I believe to have something valuable to give to the world"), Cronbach's α = .83; Social acceptance (n. 7 item; e.g. of item "I believe that people are kind"), Cronbach's α = .81; Social integration (n. 7 item; e.g. of item "I feel close to other people in my community"), Cronbach's α = .81; Social coherence (n. 6 item; e.g. of item "The world is too complex for me" with reverse code), Cronbach's α = .58. The items were assessed with a 7-point Likert-type scale (1 = strongly in disagreement, 7 = strongly in agreement).
In the current sample, the internal Cronbach's α consistency of overall Social well-being was .82.
– The *WITHAQ Questionnaire* (Moraitou & Efklides, 2013; It. tr. Zambianchi, 2020). The questionnaire has been translated from English language into Italian language by the author of the article and, independently, by an English native-speaker teacher. After, it was subjected to an exploratory factor analysis (EFA) and scree-test (Cattell, 1950), that confirm the original three-factor solution of the Greek authors (see Appendix). A confirmatory factor analysis (CFA) was run, with the three factors intercorrelated. The RMSEA Steiger-Lind index was .80, the GFI of Joreskog was of .90, and the Bentler index was .92. They indicate an acceptable goodness of fit of the model. A CFA model with not correlated factors returned unsatisfactory indexes: RMSEA Steiger-Lind = .108; GFI Joreskog = .87; Bentler index = .78.
The WHITAQ contains 13 item and is composed by three dimensions: wisdom as pragmatic competence (n. 4 items; e.g. of item: "Through the experience and the knowledge I have obtained so far, I have built well-formulated views and attitudes as far as important moral matters of modern life are concerned", Cronbach's α = .72; original text by Moraitou & Efklides: Cronbach's α = .75); wisdom as integrated post-formal dialectical thinking (n. 6 items; e.g of item: "When I discuss with other people or with myself about life issues, I can usually distinguish different arguments, e.g., which are the strongest in terms of reason or the strongest from a more subjective, experiential point of view"; Cronbach's α = .78; original text by Moraitou & Efklides: Cronbach's α = .70); wisdom as awareness of future uncertainty (n. 3 item; e.g. of item "I often think about death. This makes me get cold feet and on

the other hand, it teaches me not to pay much attention to transient glory, wealth and the small daily problems", Cronbach's α = .59; original text by Moraitou & Efklides: Cronbach's α = .60). The score was computed on a 5-point Likert scale (1 = completely untrue; 5 = completely true).

## Analysis

Statistical analyses were run in four steps. First, mean, standard deviations, skewness and kurtosis of all variables were calculated. Then, multivariate analyses (MANOVAs) explored the differences for gender and school education on the factors SWB and wisdom. For school education only three levels have been included: middle school diploma, high school diploma, degree. In the third step correlational matrices (Pearson *r*) were calculated. Finally a set of general linear models (GLM) evaluated the contribution offered by the components of wisdom on overall Social well-being and for each of its sub component, after controlling for age (as continuous variable), gender, school education (three levels) and the interaction between gender and school education. GLM was chosen for the possibility to check the interaction of the structural variables on the dependent variable, resulted in a more detailed model of explanation.

## RESULTS

– *Descriptive statistics of the sample. Level of wisdom and Social well-being.* Wisdom defined as pragmatic competence has the highest score, while wisdom as management of future uncertainty has the lowest score. For Social well-being, older people show a medium-high level of global social well-being, while for its sub-dimensions the highest score belongs to Social integration, followed by Social coherence and Social contribution. The lowest score is observed on the dimension of Social acceptance (see Table 1).
– *Correlations between the dimensions of WHITAQ Questionnaire*. The Pearson correlation matrix highlights

**Table 1** – Descriptive statistics of the sample for wisdom and Social well-being

| Variable | *M* | *SD* | *Skewness* | *Kurtosis* |
|---|---|---|---|---|
| Wisdom as pragmatics of life | 3.83 | .55 | .02 | .21 |
| Wisdom as post-formal thinking style | 3.66 | .68 | −.29 | .62 |
| Wisdom as future uncertainty management | 3.00 | .92 | −.05 | −.46 |
| Social Integration | 4.76 | .78 | −.06 | −.34 |
| Social acceptance | 4.09 | .90 | .09 | .06 |
| Social contribution | 4.57 | .93 | −.16 | .93 |
| Social actualization | 4.55 | .96 | −.35 | −.14 |
| Social coherence | 4.60 | .81 | .06 | .30 |
| Overall Social well-being | 4.55 | .67 | −.02 | −.11 |

xpositive correlations between the three factors. Wisdom as future uncertainty management resulted to be significantly correlated with wisdom as post-formal thinking only (see Table 2).

– *Correlations between the dimensions of wisdom and the dimensions of Social well-being.* The Pearson's correlation matrix has shown that wisdom defined as Pragmatic knowledge is positively correlated with Social integration, Social contribution, Social coherence and Social well-being as a global score. Wisdom as use of Post-formal dialectical thinking is positively correlated with Social acceptance, Social contribution, Social actualization, Social coherence and Social well-being as a global score. Finally, wisdom as the management of future uncertainty does not have any significant correlation with Social well-being and its components (see Table 3).
– *Gender differences for wisdom and for Social well-being.* The multivariate analysis (MANOVA) conducted on gender as a grouping variable resulted not to be significant ($p$ = .89) for Social well-being. The multivariate analysis

**Table 2** – Correlations between the dimensions of WHITAQ

| Variable | Practical wisdom | Post formal wisdom | Future uncertainty management wisdom |
|---|---|---|---|
| Practical wisdom | – | | |
| Post-formal wisdom | .62*** | – | |
| Future uncertainty management wisdom | .10 | .17* | – |

*$p$<.05; ***$p$<.001

**Table 3** – Zero order correlations between Social well-being and wisdom

| Variable | Wisdom as pragmatics of life | Wisdom as dialectical post-formal thinking | Wisdom as future uncertainty management |
|---|---|---|---|
| Social integration | .17* | .10 | –.06 |
| Social acceptance | .02 | .15+ | .03 |
| Social contribution | .24** | .28*** | .03 |
| Social actualization | .07 | .24** | .08 |
| Social coherence | .19* | .35*** | –.06 |
| Overall Social well-being | .18* | .30*** | .02 |

+$p$<.08; *$p$<.05; **$p$<.01; ***$p$<.001

(MANOVA) conducted on gender as grouping variable resulted as not significant for wisdom (Wilk's Lambda .97; $F_{(3,141)} = 1.247$; $p = .29$). But, subsequent ANOVA highlighted a difference approaching significance for wisdom as Future uncertainty management: $M = 2.80$; $F = 3.08$ ($F = 2.80$; $p<.09$). Scheffè post hoc test confirmed this small significance ($p<.09$).

– *Level of school education differences for wisdom and Social well-being*. A multivariate analysis (MANOVA) with school education as a grouping variable was run. In this analysis a three level model was chosen, excluding the elementary school license, due to its very small number of subjects. They were significant differences found: Wilk's Lambda = .80; $F_{(10,\ 248)} = 2.75$; $p<.01$). Subsequent ANOVAs highlighted differences on the following dimensions: overall Social well-being ($F = 2.32$; $p<.07$; $\eta = .03$); middle school: $M = 4.40$ ($SD = .75$); high school: $M = 4.47$ ($SD =. 60$); degree: $M = 4.78$ ($SD = .62$). A post hoc Tukey test highlighted significant differences between the scores of high school diploma and degree (error between .41; $df = 128.00$; $p<.05$).

  Social acceptance ($F = 3.20$; $p<.05$; $\eta = .01$): middle school: $M = 3.94$ ($SD = .94$); high school: $M = 5.01$ ($SD = .89$); degree: $M = 5.14$ ($SD = .87$). A post hoc Tukey test highlighted significant differences between the scores of middle school diploma and degree (error between = .81; $df = 128.$; $p<.05$).

  Social coherence ($F = 10.80$; $p<.001$; $\eta = .10$): middle school: $M = 4.25$ ($SD = .95$); high school: $M = 4.51$ ($SD = .74$); degree: $M = 5.07$ ($SD = .63$). A Tukey test highlighted significant differences between the scores of middle school diploma and high school diploma ($p<.001$); between the scores on middle school diploma and degree ($p<.001$) and between high school diploma and degree ($p<.001$).

– *Differences for school education on wisdom*. The multivariate analysis (MANOVA) conducted on school education as a grouping variable resulted not to be significant ($p = .87$) for wisdom.

– *The contribution of wisdom to the overall Social well-being. The general linear model.* In the first step, the structural variables age, gender and school education entered into the equation. Only school education and age resulted as significant, with a 6% of explained variance. After inserting the three dimensions of wisdom, school education and age retain their significance, highlighting an interaction with wisdom, while wisdom as post-formal dialectical thinking resulted as a robust significant contributor. The model fit improved significantly, with 11% of explained variance ($p<.01$) (see Table 4).

– *The contributors of Social contribution to wisdom. The general linear model.* A general linear model with Social contribution as dependent variable and wisdom dimensions for independent variables was run. In the first step age, gender, level of school education and the interaction between gender and school education entered into the equation. These variables did not show any statistical significance ($p = .55$). After inserting the dimensions of wisdom the statistical significance improved, highlighting wisdom as pragmatics of life as a significant contributor ($p<.05$) and age approaching statistical significance (see Table 5).

– *The contributors of Social coherence for wisdom. The general linear model.* A general linear model with Social coherence as dependent variable and wisdom dimensions for independent variables was run. In the first step age, gender, level of school education and the interaction between gender and school education entered into the equation. In this first step age and level of school education showed statistical significance, with 13% of explained variance. After inserting the dimensions of wisdom the statistical significance of the model improved substantially, highlighting level of school education and wisdom as dialectical post-formal thinking as significant contributors ($p<.001$), with 21% of explained variance (see Table 6).

– *The contribution of wisdom to Social actualization. The general linear model.* For Social actualization, in the first step age, gender, school education and the interaction between gender and school education entered into the model. Age and the interaction between gender and school education resulted as significant, with 6% of explained variance. After inserting the dimensions of wisdom, only wisdom as use of dialectical post-formal thinking resulted as approaching significance together with age and the interaction between gender and school education ($p<.01$) , with 9% of explained variance (see Table 7).

– *The contribution of wisdom for Social acceptance and for Social integration. The general linear model.* For the sub-component Social acceptance in the first step age, gender, school education and the interaction between gender and school education resulted as not significant ($p = .11$). After inserting the dimensions of wisdom, only wisdom as dialectical post-formal thinking resulted as approaching

**Table 4** – The contributors to overall SWB. The GLM model

| Variable | F | Beta | *p* level |
|---|---|---|---|
| *First step* | | | |
| Age | 4.24 | –.187 | .05 |
| Gender | .22 | .04 | .63 |
| School education | 3.48 | .119 | .05 |
| Gender × school education | 2.07 | –.139 | .12 |
| | | | Multiple R = .32; $R^2$ = .10; adj. $R^2$ = .06; $F_{(6,123)}$ = 2.49, $p$<.05 |
| *Second step* | | | |
| Age | 4.66 | –.196 | .05 |
| Gender | .07 | .02 | .77 |
| School education | 3.11 | –.165 | .05 |
| Gender × school education | 1.45 | –.103 | .23 |
| Pragmatic wisdom | .35 | .06 | .55 |
| Post-formal wisdom | 4.03 | .219 | .05 |
| Uncertainty management wisdom | .007 | .007 | .93 |
| | | | Multiple R = .42; $R^2$ = .18; adj. $R^2$ = .11; $F_{(9, 116)}$ = 2.84; $p$<.01 |

significance (β = .278; $p$ = .10). The explained variance resulted as negligible and the equation as not significant: multiple R = .31; $R^2$ = .09; adj. $R^2$ = .03; $F_{(9, 127)}$ = 1.51; $p$ = .15.

For the sub-component Social integration in the first step age, gender and school education were added to the equation, resulting as not significant: multiple R = .16; $R^2$ = .02; adj. $R^2$ = .006; $F_{(3, 140)}$ = 1.30; $p$ = .27. After inserting the dimensions of wisdom, the statistical model resulted as not significant, with no significant predictors. Multiple R = .20; $R^2$ = .04; adj. $R^2$ = .0000; $p$ = .45.

## DISCUSSION AND CONCLUSIONS

The study has deepened the role exerted by wisdom, defined as the capacity of expert navigating life (pragmatics of life), as utilization of post-formal dialectical thinking and management of future uncertainty and awareness of human finitude, on the perceived quality of the relationship between the elderly and social contexts, namely Social well-being (Keyes, 1998). Interaction between these two factors with three structural variables: age, gender and school education were also evaluated.

**Table 5** – The contributors variables for Social contribution. The GLM model

| Variable | F | Beta | *p* level |
|---|---|---|---|
| *First step* | | | |
| Age | 2.98 | –.131 | .08 |
| Gender | .13 | –.03 | .71 |
| School education | .33 | –.03 | .71 |
| Gender × school education | .49 | –.05 | .60 |
| | | | Multiple R = .18; $R^2$ = .03; adj. $R^2$ = –.007; $F_{(6, 139)}$ = .82; *p* = .55 |
| *Second step* | | | |
| Age | 3.46 | –.162 | .06 |
| Gender | .21 | –.04 | .63 |
| School education | .45 | –.04 | .64 |
| Gender × school education | .13 | .05 | .87 |
| Pragmatic wisdom | 5.02 | .234 | .05 |
| Post-formal wisdom | 1.04 | .108 | .30 |
| Uncertainty management wisdom | .27 | .04 | .60 |
| | | | Multiple R = .36; $R^2$ = .13; adj. $R^2$ = .07; $F_{(9, 129)}$ = 2.22, *p*<.05 |

The elderly shows a medium-high score on overall Social well-being; for its sub-components, Social integration appears as the most relevant, confirming the centrality of proximal social context for their well-being (Pozzi et al., 2014). They also perceive the desire for knowing the society, its characteristics and seem to appreciate its complexity, as highlighted by the high level of Social coherence. Perhaps this result could be in relation with the higher level of school education of this sample. They believe in giving a positive, valued contribution to the society.

Social well-being appears to be strongly influenced by the level of education, as already emerged from previous studies (MIDUS; Keyes & Shapiro, 2004; Zambianchi, 2014). Older people with greater cultural resources tend to perceive greater Social well-being. It declines in particular in the dimensions of acceptance of others, the desire for knowledge of society and awareness of its complexity and Social well-being as a global score. A society in rapid evolution and complexification such as the contemporary one requires the presence of cultural resources for its understanding and, consequently, skills for a constructive and participatory dialogue with it (Sen, 2002).

**Table 6** – The contributors variables for Social coherence. The GLM model

| Variable | F | Beta | *p* level |
|---|---|---|---|
| *First step* | | | |
| Age | 5.70 | –.191 | .01 |
| Gender | .14 | –.03 | .70 |
| School education | 9.16 | –.284 | .001 |
| Gender × school education | .001 | .005 | .99 |
| | | | Multiple R = .41; $R^2$ = .17; adj. $R^2$ = .13 $F_{(6, 140)}$ = 4.78; $p$<.001 |
| *Second step* | | | |
| Age | 4.00 | –.162 | .05 |
| Gender | .08 | .08 | .77 |
| School education | 9.40 | –.289 | .001 |
| Gender × school education | .26 | .07 | .77 |
| Pragmatic wisdom | .46 | .06 | .49 |
| Post-formal wisdom | 8.20 | .283 | .01 |
| Uncertainty management wisdom | .59 | –.06 | .44 |
| | | | Multiple R = .51; $R^2$ = .26; adj. $R^2$ = .21; $F_{(9, 128)}$ = 5.09; $p$<.001 |

With regard to wisdom, on the other hand, the level of education was not influential, a result that has already emerged from the research of Moraitou & Efklides (2012), suggesting that wisdom is involved in cognitive processes not only anchored to cultural knowledge. However, further research with larger samples is needed to validate this explanation or not. Furthermore, the sample is strongly unbalanced on medium-high schooling; a more balanced sample, including a greater number of elderly people with low educational qualifications, could provide more rigorous indications in this regard.

The three components of wisdom appear to be positively intercorrelated, but with values not so high, identifying for this reason clear and distinct constructs.

Overall Social well-being appears to be positively correlated with two dimensions of wisdom assessed through the *WITHAQ Questionnaire*: post-formal integrated dialectical thinking and expert-pragmatic navigation of life, confirming the hypothesis $H_3$. No correlations have been found between Social well-being and future uncertainty management, indicating that the latter component of wisdom does not intercept the social life quality, but perhaps other

**Table 7** – The contributors variables for Social actualization. The GLM model

| Variable | F | Beta | *p* level |
|---|---|---|---|
| *First step* | | | |
| Age | 4.33 | –.177 | .03 |
| Gender | .81 | .07 | .36 |
| School education | 1.38 | –.06 | .25 |
| Gender × school education | 5.27 | .326 | .001 |
| | | | Multiple R = .32; $R^2$ = .10; adj. $R^2$ = .06; $F_{(6, 136)}$ = 2.61; $p$<.01 |
| *Second step* | | | |
| Age | 3.51 | –.205 | .05 |
| Gender | .76 | –.08 | .38 |
| School education | .83 | –.09 | .43 |
| Gender × school education | 4.66 | .313 | .01 |
| Pragmatic wisdom | .35 | –.06 | .55 |
| Post-formal wisdom | 3.47 | .199 | .06 |
| Uncertainty management wisdom | .51 | .06 | .47 |
| | | | Multiple R = .38; $R^2$ = .15; adj. $R^2$ = .09; $F_{(9, 126)}$ = 2.50, $p$<.01 |

more individual, inner psychological dimensions.

The most relevant component of wisdom in this study is represented by the capacity for dialectical thinking linked to the post-formal operations foreseen by the cognitive development model developed by the post-Piagetian school (Labouvie-Vief; & Diehl, 2000; Pasqual-Leone, 2000). It was followed by the competence in expert navigation of life, a component close to the concept of pragmatics of life proposed by Baltes (1998) within the Berlin wisdom paradigm model and close to the Aristotelian concept of Phronesis (see also Massingham, 2019). Wisdom conceived as the ability to resolve ethical-moral issues or problems is crucial when we are confronted with cultural values and models other than those of origin, or belonging, as Jarvis (2017) evidences.

The less relevant component in this study is wisdom as expert navigation of life perhaps could be a relevant indication of the lesser capacity of past experience to act as a pragmatic reference in a society with strong structural, social, economic, informational changes (digital) and characterized by new problems. On the other hand, no significant link emerged with the dimension of wisdom as management of future uncertainty and awareness of human finitude. Perhaps

this dimension expresses a more internal relationship, as an intimate and introspective psychological elaboration with potential outcomes on psychological well-being and with the emotional-affective dimension (Moraitou & Efklides, 2012; Zambianchi, 2020).

The desire for knowledge of society, its mechanisms and functioning processes, its laws and values, expressed by the Social coherence dimension, appears to be strongly connected to the ability to understand the complexity of its functioning and the important challenges it faces. The transformations that took place in the last decades of the last century and, even more so, in the two decades of the new millennium have highlighted the need to deal with systemic complexity, the ability to identify integrative solutions to problems. Wisdom as a mature intelligence (Labouvie-Vief & Diehl, 2000) capable of reorganizing the dilemmas that cross contemporary culture (e.g. the environment; the multi-culturality of societies) in a qualitative superior synthesis could represent a fundamental resource precisely because of its ability to identify points of connection between visions and reality models proposed as antinomic in the Aristotelian formal logic. This small sample of old people permits us to propose only a mere speculation and suggestion about this connection of wisdom to the complexity of post-modern society, but, as Maxwell (2019) claims, it could be of potential interest, suggesting the deepening of this connection in future research.

Indeed, complex issues, the presence of ethical dilemmas, strong cultural and value implications in problems require the presence of post-formal dialectical thought. It resulted better able to grasp the relationships that are underlying the phenomena and go beyond simple solutions based on the elimination of one of the two horn dilemmas, seeking instead answers that integrate the major issues involved in them into an innovative synthesis or integration.

No relationship emerged between the management of uncertainty about the future and awareness of human finitude dimension and Social well-being, both global and in its sub-components. This dimension is probably more involved in other aspects of human functioning, such as the emotional experience (Moraitou & Efklides, 2012) and the temporal experience (Zambianchi, 2020). In fact, it seems to express an in-depth elaboration of the human ontological condition and not a reflection on concrete action in the world, even if it is not to be excluded (but future, broader studies on this are necessary).

For this reason, the research on wisdom as a high and mature form of intelligence and competence could provide some answers regarding which processes, strategies and paths prove to be effective for constructively confronting these societal challenges.

## Limits of the study

This study has several limits that must be taken into account. The first relevant limitation is the small sample, that requires caution for the interpretation of results; broader samples are necessary for their confirmation and also for evaluating the psychometric properties of the *WITHAQ Questionnaire*. Another limit is due to the imbalance in school education; the prevalence of old people with high school education cannot disentangle the question about the influence of school education level on wisdom and also on social well-being, although a robust line of research highlights the role exerted by education on Social well-being. For the sub-components of Social well-being questionnaire, the low level of Cronbach alpha for Social coherence requests caution for drawing conclusions about its association with wisdom components.

## References


ARDELT, M. (1997). Wisdom and life satisfaction in old age. *Journal of Gerontology. Psychological Sciences*, *52* (1), 15-27.

ARDELT, M. (2003). Empirical assessment of a three-dimensional wisdom scale. *Research on Aging*, Vol. 25 No. 3, May 2003 275-324 DOI: 10.1177/0164027503251764.

ARDELT, M. (2009). How similar are wise men and women? A comparison across two age cohorts. *Research in Human Development*, *6* (1), 9-26.

ARDELT, M. & EDWARD, C.E. (2016). Wisdom at the end of life: An analysis of mediating and moderating relations between wisdom and subjective well-being. *J Gerontol B Psychol Sci Soc Sciences*, *71* (3), 502-13. doi: 10.1093/geronb/gbv051

ASPINWALL, L.G. (2005). The psychology of future-oriented thinking: From achievement to proactive coping, adaptation, and aging. *Motivation and Emotion, 29* (4), 203-235. doi.org/10.1007/s11031-006-9013-1

ASPINWALL, L.G. & TAYLOR, S.E. (1997). A stitch in time: Self-regulation and proactive coping. *Psychological Bulletin*, *121*, 417-436.

BALTES, P.B. (1998). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. In M.P. Lawton & T.A. Salthouse (Eds.), *Essential papers on the psychology of aging*. New York University Press.

BALTES, P.B. & KUNZMANN, U. (2003). Wisdom. *The Psychologist*, *16*, 131-132.

BALTES, P.B. & SMITH, J. (2003). New frontiers in the future of aging: From successful aging of the young old to the dilemmas of the fourth age. *Gerontology*, 49, 123-135.

BALTES, P.B. & SMITH, J. (2008). The fascination of wisdom: Its nature, ontogeny, and function. *Perspectives on Psychological Science*, *3* (1), 56-64.

BALTES, P.B. & STAUDIGER, U.M. (Eds.) (1996). *Interactive minds: Lifespan perspectives on the social foundation of cognition*. New York: Cambridge University Press.

BANDURA, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

BAUMANN, Z. (2014). *La società dell'incertezza*. Bologna: Il Mulino.

BECK, U. (1992). *Risk society: Towards a new modernity*. London: Sage.

CARELLI, M.G., WIBERG, B. & WIBERG, M. (2011). Development and construct validation of the Swedish Zimbardo Time Perspective Inventory. *European Journal of Psychological Assessment*, *4*, 220-227. doi: org710.1027/1015-5759/a000076

COMMONS, M.L. & BRESETTE, L.M. (2006). Illuminating major creative scientific innovators with postformal stages. In C. Hoare (Ed.), *The handbook of adult development and learning*. New York: Oxford University Press.

DEMETRIOU, A. & EFKLIDES, R. (Eds.) (1994). Structure, development, and dynamics of mind: A meta-Piagetian theory. *Advances in Psychology*, *106*, 75-109.

EUROSTAT (2020). *Life expectancy across EU Regions*. Available at: https://ec.europe.eu.

JARVIS, K. (2017). Dilemmas in international research and the value of practical wisdom. *Bioethics*, *1*, 50-58.

KAHANA, E., KAHANA, B. & LEE, J.E. (2014). Proactive approaches to successful aging: One clear path through the forest. *Gerontology*, *60* (5), 466-474.

KALLIO, E. (2011). Integrative thinking is the key: An evaluation of current research into the development of adult thinking. *Theory and Psychology*, *1*, 17. doi: 10.1177/0959354310388344

KALLIO, E. (2015). From causal thinking to wisdom and spirituality. *Approaching Religion*, *2*, 27-41.

KALLIO, E. (2020). From multiperspective to contextual integrative thinking in adulthood: Considerations on theorisation of adult thinking and its place as a component of wisdom. In E. Kallio (Ed.), *Development of adult thinking: Interdisciplinary perspectives on cognitive development and adult learning*. Abingdon, Oxon: Routledge. doi: 10.4324/9781315187 464-2

KEKES, J. (1983). Wisdom. *American Philosophical Quarterly*, *20*, 277-286.

KEKES, J. (1995). *Moral wisdom and good lives.* Cornell University Press.

KEYES, C.L.M. (1998). Social well-being. *Social Psychology Quarterly*, *61*, 121-140.

KEYES, C.L.M. & SHAPIRO, A.D. (2004). *Social well-being in the United States: A descriptive epidemiology*. In O.G. Brim, C.D. Ryff & R.C. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife*. The University of Chicago Press.

IGARASHI, H., LEVENSON, M.R. & ALDWIN, C.M. (2018). The development of wisdom: A social ecological approach. *Journal of Gerontology. B. Psychological Science*, *73* (8), 1350-1358. doi:10.1093/geronb/gby002

LABOUVIE-VIEF, G. (1990). Wisdom as integrated thought. In R.J. Sternberg (Ed.), *Wisdom: Its nature, origins, and development.* New York: Cambridge University Press.

LABOUVIE-VIEF, G. (2015). *Integrating emotions and cognition through the lifespan*. Springer. doi: 10.1007/978-3-319-09822-7

LABOUVIE-VIEF G. & DIEHL, M. (2000). Cognitive complexity

and cognitive-affective integration: Related or separate domains of adult development? *Psychology and Aging*, *15*, 490-504.

LINDENBERG, S. (2013). Social rationality, self-regulation and well-being: The regulatory significance of needs, goals and the self. In R. Wittek, T.A.B. Snijders & V. Nee (Eds.), *Handbook of rational choice social research*. Stanford: Stanford University Press.

MASSINGHAM, P. (2019). An Aristotelian interpretation of practical wisdom: The case of the retirees. *Humanities & Social Science Communication*, *5*, 123-133.

MAXWELL, N. (2019). The urgent need for social wisdom. In R. Sternberg & J. Gluck (Eds), *The Cambridge handbook of wisdom*. CUP.

MORAITOU, R. & EFKLIDES, A. (2012). The Wise Acting and Thinking Questionnaire: The cognitive facets of wisdom and its relations with memory, affect and hope. *Journal of Happiness Study*, *13*, 849-873. doi.org/10.1007/s10902-011-9295-1

NUSSBAUM, M.C. (2001). *The fragility of goodness: Luck and ethics in Greek tragedy and philosophy*. New York: Cambridge University Press.

ORMEL, J., LINDENBERG, S., STEVERNIK, N. & VERBRUGGE, L.M. (1999). Subjective well-being and social production functions. *Social Indicators Research, 46* (1), 61-90. doi.org/10.1023/A:1006907811502

ORWOLL, L. & PERLMUTTER, M. (1990). The study of wise persons: Integrating a personality perspective. In R.J. Sternberg (Ed.), *Wisdom: Its nature, origins, and development*. New York: Cambridge University Press.

PASQUAL-LEONE, J. (2000). Mental attention, consciousness, and the progressive emergence of wisdom. *Journal of Adult Development*, *7* (4), 241-254.

PERRY, W. (1970). *Forms of intellectual and ethical development in the college years*. New York, NY: Holt, Rinehart & Winston.

PETERSON, C. & SELIGMAN, M.E.P. (2004). *Character strengths and virtues: A handbook and classification*. New York: Oxford University Press; Washington, DC: American Psychological Association.

PIAGET, J. (1972). *The principles of genetic epistemology*. New York: Basic Books.

POZZI, M., MARTA, E., MARZANA, D. & GOZZOLI, C. (2014). The effect of psychological sense of community on the psychological well-being in older volunteers. *Europe's Journal of Psychology*, *10* (4), 598-612. doi: 10.5964/ejop.v10i773

ROWE, J.W. & KAHN, R. (1997). Successful aging. *The Gerontologist*, *37*, 433-440. doi: 10.1093/geront/37.4.433.

SAADEH, M., WELMER, A-K., DEKHTYAR., S., FRATIGLIONI, L. & CALDERON-LARRANAGA, P. (2020). The role of psychological and social well-being on physical function trajectories in older adults. *Journal of Gerontology A Biol Sci Med Sci*, *75* (8), 1579-1585. doi:10.1093/gerona/glaa114

SEN, A. (2002). *Rationality and freedom*. Cambridge, MA: Harvard University Press.

STEVERNIK, N. & LINDENBERG, S. (2006). Which social needs are important for subjective well-being? what happens to them with aging? *Psychology and Aging*, *2*, 281-290.

STEVERNIK, N., LINDENBERG, S., SPIEGEL, T. & NIEBOER, A.P. (2020). The associations of different social needs with psychological strengths and subjective well-being: An empirical investigation based on social production function theory. *Journal of Happiness Studies*, *21*, 799-824. doi.org/10.1007/s10902-019-00107-9

VON BERTALANFFY, L. (1980). *Teoria generale dei sistemi: Fondamenti, sviluppo, applicazioni*. Milano: Mondadori.

WHO (2020). *Ageing: Healthy ageing and functional ability*. Available at: https://www.who.int/westernpacific/news/q-a-detail/ageing-healthy-ageing-and-functional-ability

YANG, S.-Y. (2008). A process view of wisdom. *Journal of Adult Development*, *15*, 62-75.

ZAMBIANCHI, M. (2015). La realizzazione di sé in età anziana: Uno studio sui progetti personali e le strategie proattive di coping. *Ricerche di Psicologia*, *3*, 391-409.

ZAMBIANCHI, M. (2020). Time of wisdom and time for wisdom: The relationship between wisdom and time perspective. *Mediterranean Journal of Clinical Psychology*, *8* (3).

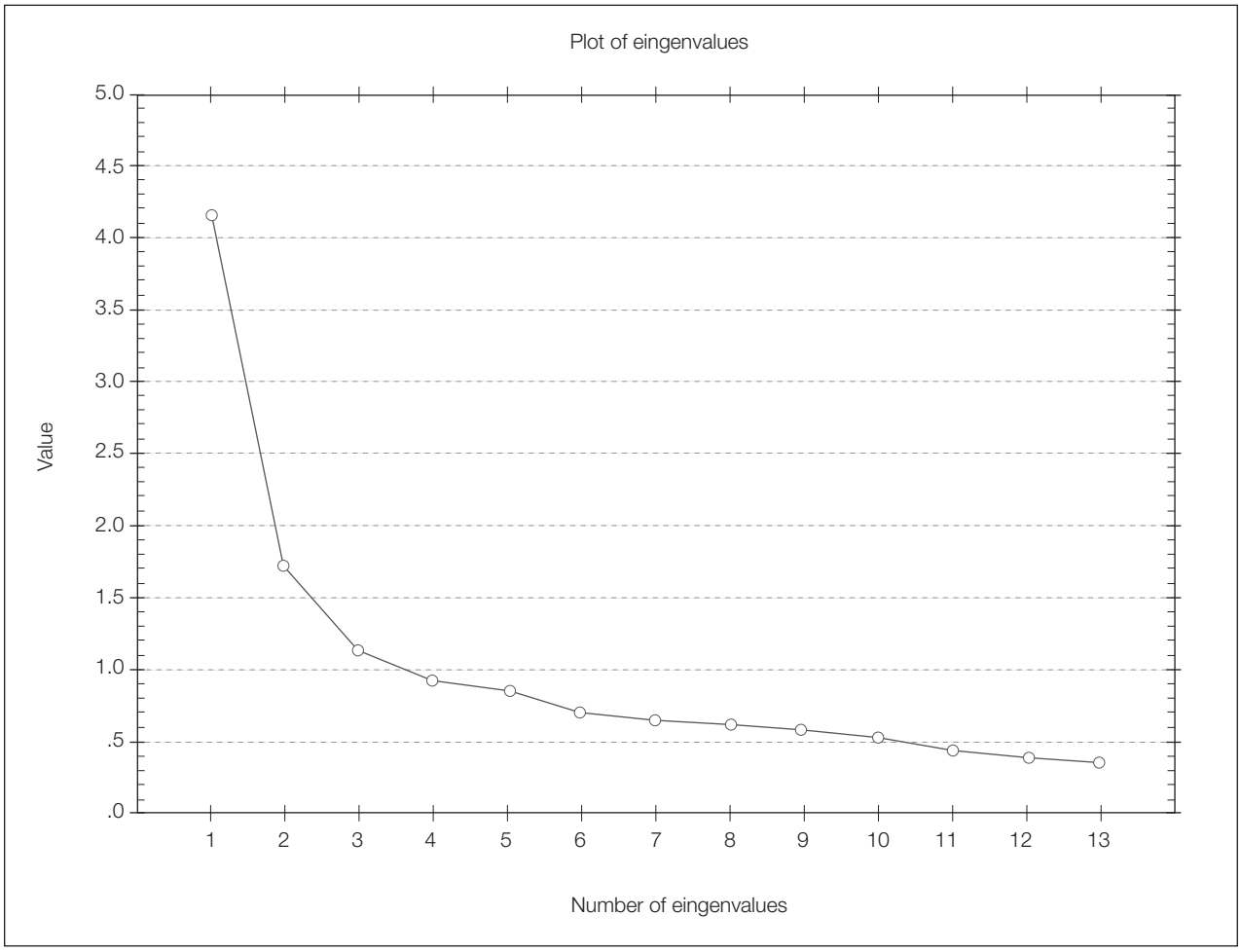
ZAMBIANCHI, M. & CARELLI, M.G. (2016). Attitudes towards technologies and facets of well-being in old age. *Journal of Applied Gerontology*, *1*,18. doi: 10.1177/073346481664782

ZAMBIANCHI, M. & RICCI BITTI, P.E. (2013). Il ruolo della scolarità, del genere e del supporto sociale nel benessere sociale in età anziana (The role of education, gender and social support on social well-being in old age). *Psicologia della Salute*, 111-123.

ZIMBARDO, P.G. & BOYD, J. (1999). Putting time in perspective: A valid, reliable individual-difference metric. *Journal of Personality and Social Psychology*, *6*, 1271-1288.

# APPENDIX

*A1 - Scree-test for WITHAQ Questionnaire*




*A2 - Factor loadings WITHAQ Questionnaire. Varimax rotation. Extraction: principal components*

| Item | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| **PW1.** Through the experience and the knowledge I have obtained so far, I have built well-formulated views and attitudes as far as important moral patterns of modern life are concerned. | .66 | | |
| **PW2.** Owning to my various experiences in life, I feel competent enough to handle different situations or - when asked - advise people who face similar situations. | .65 | | |
| **PW3.** The way I act in everyday life is not only defined by what my sense, experience or heart says, but mainly by what my principles dictate to me. | .81 | | |

*continued on next page*

*continued*

| Item | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| **PW4.** When people ask for my advice regarding a dilemma, I usually try my advice to serve, first of all, the values that rule life. | .51 | | |
| **DT1.** When I want to fully understand an important event that has happened to me, I usually try to look at it from different angles. That is, look at it not only from my point of view but also from the perspective of those who were involved in this event or of a third party who views event from a distance. | | .66 | |
| **DT2.** When I have to reach an important decision, I take into account as many aspects as possible. That is, I take into consideration what my sense, my hearth, my experience, my principles, etc. say. | | .48 | |
| **DT3.** When I come up across a difficult situation, I usually try to consider various factors which may have affected the formation of this situation (e.g. from luck to intentional action, from my affect to external circumstances). | | .49 | |
| **DT4.** I am usually open and interested in different viewpoints, because this way I can form a more complete and clear opinion about an issue. | | .61 | |
| **DT5.** When I hear different or opposing views on a matter or a person, I usually search for common ground that may underlie these views. | | .81 | |
| **DT6.** When I discuss with other people or with myself about life issue, I can usually distinguish different arguments, e.g., which are the strongest in terms of reason or the strongest from a more subjective, experiential point of view. | | .72 | |
| **AU1.** When I plan tomorrow's schedule, I usually think about the possibility that something happens and as a result my plans would be reversed. | | | .80 |
| **AU2.** The saying "it changes in an hour what happens not in 7 years" is almost always true when I plan my future. | | | .76 |
| **AU3.** I often think about death. This makes me get cold feet and on the other hand, it teaches me not to pay much attention to transient glory, wealth and the small daily problems. | | | .57 |

*Legenda.* PW = Pragmatic wisdom; DT = Dialectical thinking; AU = Awareness of uncertainty.

| | Eigenvalue | % total | Cumulative | Cumulative |
|---|---|---|---|---|
| 1 | 4.15 | 31.93 | 4.15 | 31.93 |
| 2 | 1.73 | 13.27 | 5.88 | 45.21 |
| 3 | 1.14 | 8.79 | 7.02 | 53.99 |

DOI 10.26387/bpa.2022.00010

# Disability as a job resource: The role of job crafting and organizational citizenship behaviours. Towards an approach to value diversity in organizations

*Emanuela Ingusci[1], Fulvio Signore[2], Silvia Ortiz-Bonnin[3], Marta Giaccari[1], Federica Malerba[1], Paola Martino[1], Flavia Lecciso[1], Claudio Giovanni Cortese[4]*

*[1] Department of Social and Human Sciences, University of Salento, Italy*
*[2] Department of Engineering Innovation, University of Salento, Italy,*
*[3] Department of Psychology, University of the Balearic Islands*
*[4] Department of Psychology, University of Turin, Italy*

*fulvio.signore@unisalento.it*

*ABSTRACT.* Il tema delle opportunità per lavoratori disabili è molto dibattuto in Italia, in vista di politiche sempre più inclusive sia nel pubblico che nel privato. Lo scopo di questo studio è verificare se l'incontro con la disabilità possa essere considerato una risorsa ed un promotore di comportamenti proattivi di job crafting ed extra-ruolo. I risultati, dopo opportune analisi di attendibilità, confermano tramite modello PLS-SEM che i lavoratori che considerano i colleghi con disabilità come uno strumento di crescita sono più propensi a mettere in atto quei comportamenti che possono migliorare la qualità della vita organizzativa e il benessere individuale. La percezione costruttiva della disabilità potrebbe essere inclusa quindi, di fatto, nelle risorse lavorative secondo il modello Job demands-Job resources.

*SUMMARY. The number of employment opportunities afforded to people with disabilities in Italy is still not entirely satisfactory. Managerial policies should build a more favourable context, full of stimuli, support and backing for the promotion of good disability management practices within both private and public organizations. The aim of this study was to investigate how disability understood as a resource can positively influence the organizational climate and, consequently, the enactment of supportive and proactive behaviors, using the Job Demands-Resources model (JD-R) as a starting paradigm. Analyses were performed on 129 school educators in May 2021, who answered a structured questionnaire comprising several constructs, such as the perception of disability as a resource (2 items), job crafting (9 items) and extra-role behaviours (4 items). The mean age of the respondents was 51.6 years; most of them were female, married or cohabiting, and had a university degree. The study was performed through a non-parametric approach (PLS-SEM) and validated through bootstrap. Analyses showed that the relationship between disability as a resource and extra-role behaviors was partially mediated by the effect of job crafting. Results highlighted that workers with a predisposition to consider their colleagues with disabilities as a tool for growth are more likely to implement those behaviors that can improve the quality of organizational life and individual well-being, such as those oriented to proactivity and those aimed at expressing support, voluntary actions, and professional development even when this is not immediately required by the role.*

**Keywords:** *JD-R model, Disability, Well-being, School educators*

# INTRODUCTION

The relationship between people with disabilities and employment is still not entirely satisfactory in Italy. Twenty years after the approval of the law on targeted employment (L.68/1999), the labor and social inclusion of people with disabilities, despite having made important steps forward, is still a goal far from being achieved. Recent developments in equal opportunities legislation have raised new and relevant issues for companies to consider. Among these, disability management is a crucial interest issue in the organizational debate. In fact, in recent years the employment of people with disabilities has become a central issue in Europe. According to data reported by the European Commission, the employment rate of people with disabilities is only 11.3%, and 10.3% of unemployed disabled people are currently looking for work.

In Italy, up to 66% of people with disabilities remain excluded from the labor market. To cope with this employment imbalance, it is certainly necessary for people with disabilities to be facilitated to achieve higher levels of acceptance, integration, and social inclusion within employment contexts.

One of the first objectives to be pursued to promote greater inclusion is to strengthen the employability of people with disabilities, understanding them as a resource for the organization, rather than identifying them as a disadvantage. Particularly inclusive organizations, which aim to accommodate a diverse workforce, become necessary and could provide a solution to achieving higher levels of employment for people with disabilities (Zijlstra, Mulders & Nijhuis, 2012). Disability management is an excellent response at company level to effectively pursue this goal. According to a classic definition, "disability management is a strategy that aims to prevent or reconcile disability in the workplace, using coordinated actions to ensure quality employment for people who experience temporary or permanent functional limitations" (Akabas, Gates & Galvin, 1997).

Depending on and respecting the work ability of each worker, disability management is concerned, on the one hand, with finding diversified solutions that emphasize the skills and strengths of workers with disabilities and, on the other, with promoting an organizational culture free from prejudice and discriminatory feelings with benefits that are widely documented in the literature, not only at the professional level of the individual worker but, above all, in the organizational context.

These managerial policies have the role of building the most favorable context, full of stimuli, support and backing for the promotion of good disability management practices within both private and public organizations. This recent disability management within employment contexts places the disabled worker and his or her enhancement at the center, proving to be an excellent transversal tool for reconfiguring the organization to accommodate and manage the needs of people with disabilities within the company's areas and processes, from strategic management to human resources management.

Starting from these premises, the aim of this research work was to investigate how the perception of disability could positively influence the organizational climate and, consequently, the enactment of supportive and proactive behaviors, namely those of job crafting and extra-role, using the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007, 2014, 2017) as a starting paradigm.

## Job crafting

In the course of their work experience, employees redefine and design their work in a personal way according to the significance they attach to the tasks and duties they must perform (Wrzesniewski & Dutton, 2001). Several studies have shown that workers with disabilities can also engage in job crafting behaviors, adapting and modifying their roles, tasks, and social interactions in the workplace in relation to their specific needs (Brucker & Sundar, 2020; Macchitella et al., 2021). There are three areas of application of the job crafting approach, namely task crafting, relational crafting, and cognitive crafting (Petrou, Demerouti, Peeters, Schaufeli & Hetland, 2012). Specifically, task crafting concerns modifications to work activities and how they are performed. Relational crafting refers to social interactions, the reformulation of relationships and the construction of new ones, both with members of the organization and with people outside it; one could consider this aspect as integrated with task crafting by referring to the shaping of the relationship during the performance of a task, thus, in this case, the way in which the activity is individually shaped (Sundar & Brucker, 2019). Finally, cognitive crafting relates to perceptions of one's work and the tasks to be performed; this area does not refer to a physical change but to changing perceptions to increase meaningfulness (Brucker & Sundar, 2020; Sundar & Brucker, 2019). Job crafting, therefore, is an example of a proactive

behavior in which workers engage to adapt their work to their needs, skills, and preferences (Tims & Bakker, 2010), even in emergency situations (Signore et al., 2020). Proactive behaviors refer to self-initiated, future-oriented actions aimed at seeking opportunities to improve one's position by changing oneself or one's surroundings in problematic situations (Demerouti & Bakker, 2011). Job crafting describes the ways in which employees modify their task, acting on the cognitive and relational boundaries of their work to find more meaning in it (Demerouti et al., 2020; Wrzesniewski & Dutton, 2001). From a quantitative perspective (Tims, Bakker & Derks, 2012), job crafting has been categorized through four distinct dimensions, including:

- increasing structural job resources, i.e., the propensity to develop individual skills;
- increasing social job resources, i.e., changes concerning relationships with colleagues and supervisors, requesting feedback or advice at work;
- increasing challenging job demands, specifically the search for new tasks with increased responsibilities;
- decreasing hindering job demands, i.e., those behaviors aimed at the reduction of emotionally and cognitively burdensome work aspects.

For the purposes of this study, job crafting was studied in its positive component, i.e., not considering the sub-dimension of decreasing hindering job demands since, as verified by Rudolph et al. (Rudolph, Katz, Lavigne & Zacher, 2017) and Lichtenthaler and Fischbach (2019), it leads to withdrawal behaviors and correlates negatively with personal growth, fueling a prevention-based job crafting that loses its proactive connotations.

## Extra-role behaviors

Extra-role behaviors are those behaviors which strengthen the social context and increase the effectiveness levels of the individual worker. They are behaviors that are not formally required in the job performance, for example, engaging in work activities, volunteering, helping colleagues, following rules and in general, supporting the organization's objectives (Borman & Motowidlo, 1997; Organ, 1988). Some forms of extra-role behaviors are organizational citizenship behaviors (OCB) and contextual performance behaviors (CPB): Organ's (Organ, 1988) research work shows that although these behaviors are similar in that they are not formally rewarded, "they differ in that contextual performance behaviors are incentivized by rewards such as appreciation from the supervisor" (Stoner, Perrewé & Munyon, 2011). Macey and Schneider (2008) state that organizational citizenship behaviors contribute to the effective functioning of the organization: workers perform extra-role behaviors so that they can effectively achieve their goals in the work context. Bakker, Demerouti and Verbeke (2004), in their research, elaborate on the relationship between work engagement and extra-role performance: job resources (e.g. social support) are predictors of performance; when employees exhaust work resources, there is a reduction in motivation and withdrawal from work activities. "Work engagement represents a form of intrinsic motivation in which behavior is performed for its own sake, in order to experience the pleasure and enthusiasm inherent in the work activity" (cf. Vallerand, 1997). The level of motivation in work performance can compensate for the lack of certain skills or competences that are relevant to perform a given task (Amabile, 1996); thus, work engagement enables one to value and complete the tasks that one performs.

## The theoretical reference model: Job demands-Job resources

The Job Demands-Resources model (JD-R; Bakker & Demerouti, 2007, 2014, 2017) postulates the existence of specific dimensions in each job occupation. These factors can be divided into two broad categories: demands and resources. Work demands include all the physical, organizational, social, and psychological aspects that characterize the job and require an effort of adaptation and an expenditure of psychophysical energy. Resources, on the other hand, include all the physical, organizational, social, and psychological aspects that make it possible to achieve the objectives of the job, mitigate the psychophysical costs of coping with the job demands and stimulate learning and personal development (Schaufeli & Bakker, 2004). Bakker and Demerouti (2007) specify that demands are not necessarily negative aspects of work; at the same time, resources simply serve to manage demands, but have positive value in themselves that is independent of them. Demands and resources generate two independent psychological processes: the excessive presence of demands such as high load, role ambiguity and poor control can trigger a process of health deterioration, which in the long run can lead to various stress-related outcomes (depression, burnout,

physical illness, etc.). On the contrary, the presence of resources such as autonomy, feedback and support from colleagues can activate a motivational process, which promotes involvement, willingness to learn and to achieve high performance.

## Objectives and assumptions

Starting, therefore, from the theoretical premises just stated and from the theoretical framework of the JD-R model which considers personal and work resources as factors able to promote psychological health at work and prevent negative outcomes, the investigation has the general objective of verifying whether the perception of disability in the workplace as a tool for growth can be considered a job resource. Therefore, the research hypotheses were formulated as follows (see Figure 1):

$H_1$: the perception of disability as a resource has a positive influence on job crafting behavior;

$H_2$: job crafting positively influences extra-role behavior;

$H_3$: disability as a resource has a positive impact on non-role behavior.

# METHOD

The assumptions of the study were explored through a non-parametric approach, namely Partial Least Squares-based Structural Equation Models (PLS-SEM; Hair Jr, Hult, Ringle & Sarstedt, 2021; Wold, 2006). In contrast to parametric Structural Equation Models, PLS-SEM reveals some basic assumptions, characterizing itself as a robust method that works well with smaller sample sizes. Furthermore, this method does not require assumptions on data distribution and residuals and does not consider indices such as skewness and kurtosis that are necessary prior to data analysis. In addition, PLS-SEMs also allow to easily handle single-item constructs and consider constructs, represented by composite variables, as approximations of the latent concept (Signore, Catalano, De Carlo, Madaro & Ingusci, 2019).

## Sample

The sample under study is composed of 129 subjects of school professions (managers, teachers, substitutes, collaborators) belonging to schools in Salento, Italy. The questionnaire under study was completed in May 2021. The sampling was carried out by means of a non-probabilistic snowball procedure, and the interviewees belonged to a convenience sample. Specifically, respondents representing a specific pool of school professionals were asked, once they had completed the questionnaire, to send it to school workers they knew.

The subjects were guaranteed anonymity and voluntarily decided to participate in the research after learning the research details. All the criteria for being included in the study were in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki). Informed consent was obtained for all participants. The data obtained was analyzed in an appropriate form without any possibility of tracing it back to the individual. In descriptive terms, the average age is 51.6 years, ranging from 32 to 66 and with a standard deviation of 7.61 years. The most frequent age of the subjects is 50. In terms of gender, the sample was strongly skewed towards women (95.3%, men 4.7%). Most of the subjects are married/cohabiting (76.0%), single/unmarried (10.9%) and separated/divorced (10.1%). 50.4% of the individuals declare to have a university degree, 27.1% a high school diploma and 22.5% a post-graduate degree. Finally, 55.8% of the subjects have dependent children, while 44.2% do not.

## Measures

The study aims to explore the extent to which perceptions of disability as a resource can influence the development of proactive behavior and organizational citizenship behavior. To test the hypotheses explained above, measures were used through Likert scale questionnaires (Corallo, Latino, Menegoli & Striani, 2020) already validated in the literature. Specifically (see Table 1):

- The perception of disability as a resource was measured using two items from Santilli's (Nota, Santilli, Ginevra & Soresi, 2014) work for people with disability questionnaire, with α Cronbach = .51 and ω McDonald = .53. An example of an item is: "Based on my professional experience with work colleagues who have any form of disability: I believe that he/she is perceived as a resource in the workplace". The response scale ranges from 1 = Completely disagree to 5 = Completely agree.
- Job crafting was measured in its sub-dimensions of increasing structural resources, increasing challenging

**Figure 1** – The study hypotheses

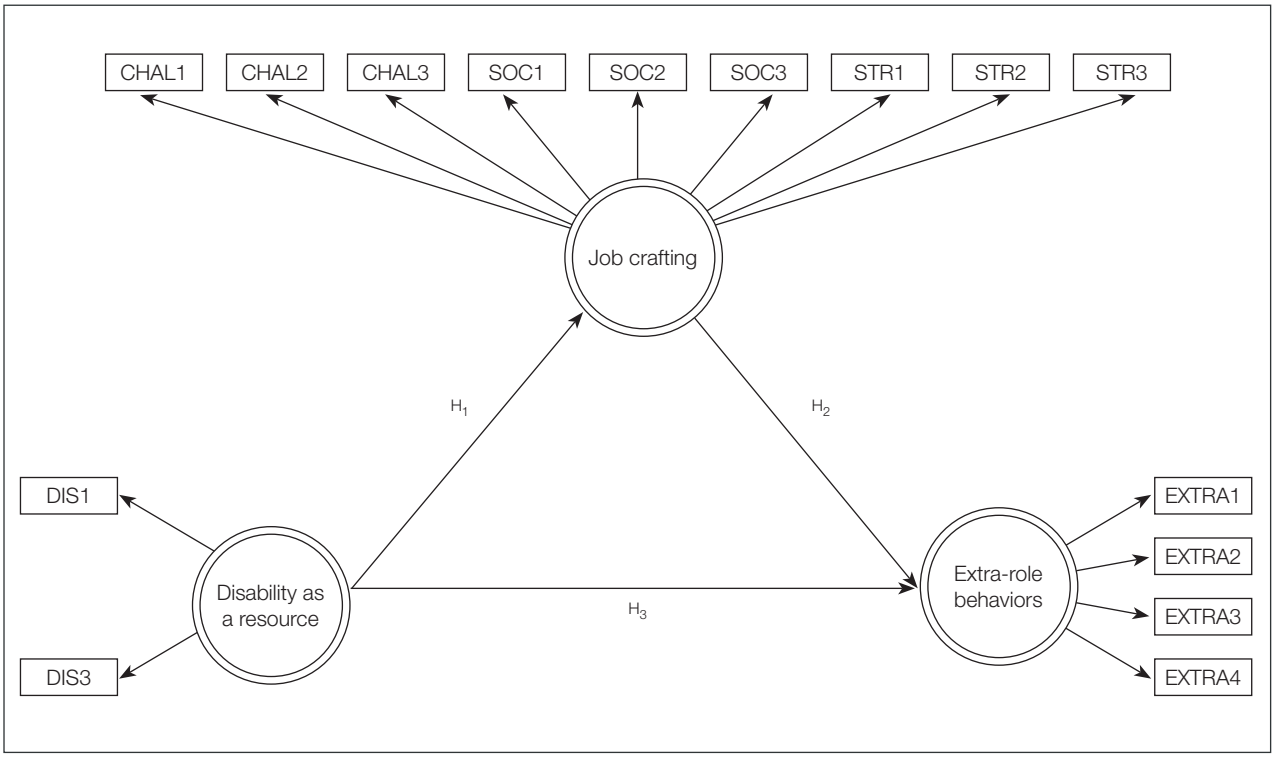



**Table 1** – Descriptive statistics of the study variables

| | *Mean* | Median | *SD* |
|---|---|---|---|
| Disability as a resource | 3.20 | 3.00 | .78 |
| Job crafting | 4.21 | 4.22 | .93 |
| Extra-role behaviour | 3.40 | 3.25 | .88 |

demands and increasing social resources, through 3 items for each sub-factor (9 items in total) using Ingusci et al.'s (Ingusci et al., 2018) job crafting short scale. Examples of items, for each dimension, are: "When an interesting project is proposed, I actively put myself forward to collaborate on the presented idea" (increasing structural resources), "I ask colleagues in the groups I am part of to give me directions and suggestions to improve my work" (increasing social resources), "I try to refine my skills" (increasing structural resources). The Cronbach α and McDonald ω = .93, with a response scale ranging from 1 = Completely disagree to 5 = Completely agree.

– Extra-role behavior was measured by means of 4 items from the George et al. (George, Levenson, Finegold & Chattopadhyay, 2010) scale. Reliability is respected as α Cronbach α = .89 and ω McDonald = .90, on a scale ranging from 1 = Completely disagree to 5 = Completely agree. An example of an item is "I am committed to performing tasks beyond my responsibilities for the benefit of the organization".

## RESULTS

The correlations between the latent variables are all positive and significant. In particular, the greater the perception of disability as a resource, the greater the likelihood of developing proactive behavior within work boundaries and extra-role actions in a spontaneous manner, as shown by the Table 2.

Analyses on the mediation model were carried out by validating the results through bootstrap resampling performed 5000 times. Both models, the measurement, and the structural model, show satisfactory results. In particular, the proposed items are all good indicators of the hypothesized latent variables, as they are greater than the cut-off of .70. The convergent validity of the latent dimensions is respected as the Average Variance Extracted for each construct is greater than 50% (see Table 3), as well as discriminant validity, which allows us to establish that the highest correlation of each manifest variable is with respect to its reference factor.

Regarding the structural model, the analysis shows (see Figure 2) that considering disability at work as a resource has a positive effect on proactive job crafting behaviors ($\beta_1 = .47$, $p<.000$, CI [.34; .61]). Therefore, for those who consider the encounter with disability as a potential benefit and tool for growth, the possibility of developing spontaneous and creative behaviors to adapt job boundaries to their needs is greater. At the same time, disability as a resource leads individuals to perpetuate supportive behaviors, with greater commitment to colleagues and the organization itself even when this is not directly required ($\beta_2 = .20$, $p<.05$, CI [.01; .38]). Finally, job crafting, considered in its positive sense of an increase in challenging demands, structural resources, and social resources, shows a positive association with extra-role behaviors ($\beta_3 = .48$, $p<.000$, CI [.30; .64]). The relationship between disability as a resource and extra-role behaviors is therefore partially mediated by the effect of job crafting. The total variance of job crafting explained by disability as a resource is 21%, while the variance of extra-role behaviors explained by disability as a resource and job crafting is 34%.

**Table 2** – Correlations between the variables of the hypothesized model

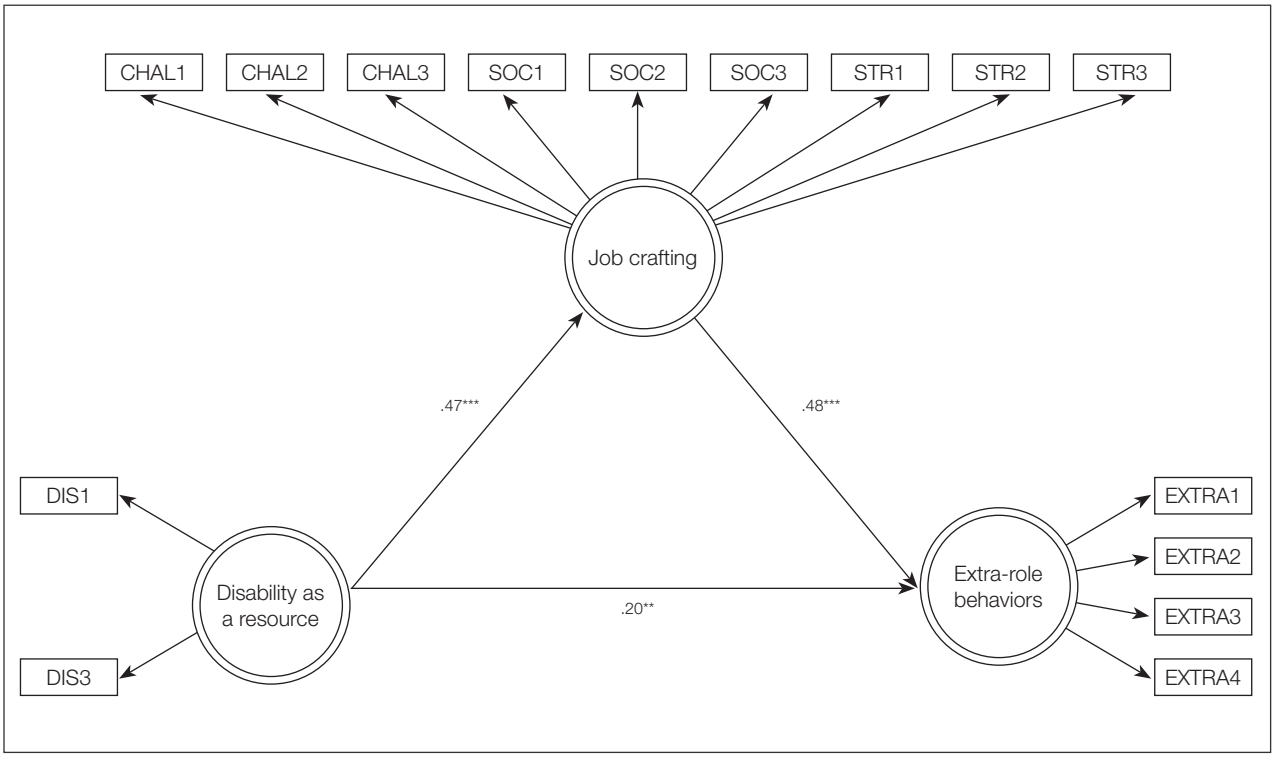
| | **Job crafting** | **Extra-role behaviours** |
|---|---|---|
| Extra-role behaviours | .53 *** | |
| Disability as a resource | .45 *** | .42 *** |

*** $p<.001$

**Table 3** – Extracted mean variance of latent variables

| | AVE | *M* AVE (BOOTSTRAP = 5000) |
|---|---|---|
| Disability as a resource | .67 | .67 |
| Job crafting | .77 | .77 |
| Extra-role behaviours | .60 | .69 |

**Figure 2** – The research hypotheses of the study and the relationships identified



## DISCUSSION AND FUTURE IMPLICATIONS

As explained in the introduction to this paper, the relationship with disability is a very controversial topic that is the result of numerous legislative and ethical discussions. One issue that is certainly widespread is not only the inclusion of disabled workers in jobs, but also and above all the way in which they are psychologically represented by their colleagues' perception (Sparf & Ohman, 2014). Although several research in the literature have been able to highlight ambiguities from this point of view (Beatty, Baldridge, Boehm, Kulkarni & Colella, 2019; Harlan & Robert, 1998), few empirical experiences allow us to answer the question of whether disabled workers can be considered an added value for the organizations in which they are placed, in terms of cultural, social and also productivity enrichment (Yorkston, McMullan, Molton & Jensen, 2010). The aim of this work was to explore how the perception of disability could be placed within a theoretical framework that considers the existence, in every work context, of elements predisposing motivational processes (job resources) and elements hindering organizational wellbeing (job demands). The results of the study, although extremely exploratory and preliminary, have shown that workers with a predisposition to acceptance of their colleagues with disabilities (where acceptance means the perception of the same as a resource, as a tool for growth, as an added value) are more likely, consequently, to implement those behaviors that can improve the quality of organizational life and individual well-being, such as those oriented to proactivity and those aimed at expressing support, voluntary actions and professional development even when this is not immediately required by the role. This result is of particular interest because it allows disability to be considered a resource and is associated with positive processes in terms of organizational outcomes. In this sense, therefore, *disability management* takes on a different connotation, as it is no longer only oriented towards the inclusion of disabled workers in professional contexts, but also aimed at becoming a tool for growth which can improve the individual's propensity to undertake paths to make the management of work more consistent with their needs and interests (job crafting). Moreover, as shown by several studies, the increase in extra-role behaviors is associated with greater involvement and commitment to work, as well as identification with the organization itself (Orlowski, Bufquin & Nalley, 2021; Pace, Ingusci, Signore & Sciotto, 2021; Wright, George, Farnsworth & McMahan, 1993). These elements make it possible, therefore, to reflect constructively on the inclusion of disabled workers in organizations, not only as a social right and an instrument of inclusion, but also as an element capable of fostering behaviors that gives direct and indirect benefit to companies. In fact, as widely demonstrated in the study, perceiving disability as a potential and as a tool for growth directly favors the development of organizational citizenship behaviors and, at the same time, job crafting. In fact, the objective of national and international policies, especially in an extremely controversial and changeable period like the one characterized by the pandemic and, in all likelihood, also in the period following the pandemic, should be to safeguard as far as possible not only company productivity but also the well-being of workers, from the perspective of healthy organizations, that is, workplaces in which the objective is to promote productivity by improving well-being (Lowe, 2012). This study has highlighted a crucial aspect: disability, when considered as a development factor, influences aspects that favor positive organizational outcomes. According to the JD-R model, therefore, it can act as a work resource, thus impacting on those demands that the worker is forced to face every day. The resulting reflection therefore has cultural implications but is also empirically connected with tangible results. In healthy organizations "culture, climate and good practices create an environment that can promote workers' health, safety and organizational effectiveness" (Lowe, 2020): in this sense, therefore, disability seems to be associated with behaviors that create an environment suitable for the development of good practices, thus being part of the factors that predispose the constitution of a healthy organization. Finally, in a working context such as the current one, the watchword is to provide workers with tools to create transversal competences, capable of making an organization sustainable. These include being open to challenges, a dimension of job crafting, a construct that seems to be more activated when disability in the organization is seen as a resource. Therefore, considering disability from a constructive point of view can be a key and strategic factor, as it implements proactivity and commitment to spontaneous actions. Therefore, there is a need for a rethink on the subject, based more on empirical studies that can highlight the applicative implications of dealing with diversity capable of promoting growth and development in individual, group, organizational and inter-organizational terms, as positive

psychology affirms (Csikszentmihalyi & Seligman, 2000; Di Fabio, 2017; Seligman, 2004).

Finally, the study implicitly reveals how a positive climate can be established when disability is seen as a development pathway. This statement provides an opportunity to highlight a variety of findings: first, the idea of implementing training and knowledge paths in the form of sessions to reinforce and support the idea of a new culture of disability as a resource can be helpful in improving the organizational climate and coexistence among its employees. Moreover, disability, which is among the forms of diversity that employees in an organization may have, can be seen not only as a factor to be managed, but to be used in a constructive sense to foster positive organizational processes. Implementing training courses aimed at making people aware of disability and providing support for a new working culture that considers it as a resource can have two purposes: functional to both improving organizational wellbeing but also aimed at deriving value from the knowledge, sharing of experiences and transmission of skills that contacts with disability can foster.

## Limits

This study is exploratory and preliminary in nature. In view of this premise, it is also necessary to consider certain characteristics of the study that undermine the generalizability of its results. First, the measures surveyed are of a self-assessment type, so their non-objectivity is obviously a risk. Further studies could use more structured and complex indicators to confirm or disprove the results. Secondly, above all, the construct of disability as a resource needs to be further explored by means of more reliable and numerous questions. In fact, although the manifest variables have satisfactory saturations with the latent construct, their internal consistency is lower than the recommended cutoffs even though the exploratory and preliminary nature of the study has been repeatedly stressed. Finally, some sample's features, as size and convenience, further undermine the generalizability of the results, which are based on non-parametric methods of analysis.

**Declaration of interests**. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

AKABAS, S.H., GATES, L.B. & GALVIN, D.E. (1997). *Disability management: A complete system to reduce costs, increase productivity, meet employee needs, and ensure legal compliance.* New York: AMACOM.

AMABILE, T. (1996). *Creativity in context: Update to the social psychology of creativity*. Boulder, Colo.: Westview Press.

BAKKER, A.B. & DEMEROUTI, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22* (3), 309-328.

BAKKER, A.B. & DEMEROUTI, E. (2014). Job demands-resources theory. In P.Y. Chen & C.L. Cooper (Eds.), *Work and wellbeing: A complete reference guide*. New York: John Wiley.

BAKKER, A.B. & DEMEROUTI, E. (2017). Job demands-resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22* (3), 273.

BAKKER, A.B., DEMEROUTI, E. & VERBEKE, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management*, *43* (1), 83-104. doi: 10.1002/hrm.20004

BEATTY, J.E., BALDRIDGE, D.C., BOEHM, S.A., KULKARNI, M. & COLELLA, A.J. (2019). On the treatment of persons with disabilities in organizations: A review and research agenda. *Human Resource Management, 58* (2), 119-137. doi: 10.1002/hrm.21940

BORMAN, W.C. & MOTOWIDLO, S.J. (1997). Task performance and contextual performance: The meaning for personnel selection research. *Human Performance, 10* (2), 99-109. doi: 10.1207/s15327043hup1002_3

BRUCKER, D.L. & SUNDAR, V. (2020). Job crafting among American workers with disabilities. *Journal of Occupational Rehabilitation*, *30* (4), 575-587. doi: 10.1007/s10926-020-09889-9

CORALLO, A., LATINO, M.E., MENEGOLI, M. & STRIANI, F. (2020). What factors impact on technological traceability systems diffusion in the agrifood industry? An Italian survey. *Journal of Rural Studies*, *75*, 30-47. doi: 10.1016/j.jrurstud.2020.02.006

CSIKSZENTMIHALYI, M. & SELIGMAN, M. (2000). Positive psychology. *American Psychologist*, *55* (1), 5-14.

DEMEROUTI, E. & BAKKER, A.B. (2011). The job demands-resources model: Challenges for future research. *SA Journal of Industrial Psychology*, *37* (2).

DEMEROUTI, E., HEWETT, R., HAUN, V., DE GIETER, S., RODRÍGUEZ-SÁNCHEZ, A. & SKAKON, J. (2020). From job crafting to home crafting: A daily diary study among six European countries. *Human Relations*, *73* (7), 1010-1035. doi: 10.1177/0018726719848809

DI FABIO, A. (2017). Positive healthy organizations: Promoting well-being, meaningfulness, and sustainability in organizations. *Frontiers in Psychology*, *8*, 1938.

GEORGE, E., LEVENSON, A., FINEGOLD, D. & CHATTOPADHYAY, P. (2010). Extra-role behaviors among temporary workers: How firms create relational wealth in the United States of America. *The International Journal of Human Resource Management*, *21* (4), 530-550. doi: 10.1080/09585191003612034

HAIR JR, J.F., HULT, G.T. M., RINGLE, C.M. & SARSTEDT, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

HARLAN, S.L. & ROBERT, P.M. (1998). The social construction of disability in organizations: Why employers resist reasonable accommodation. *Work and Occupations*, *25* (4), 397-435. doi: 10.1177/0730888498025004002

INGUSCI, E., CORTESE, C.G., ZITO, M., COLOMBO, L., COLETTA, G., TORDERA, N., … & CIAVOLINO, E. (2018). An Italian validation of the job crafting scale: A short form. *Statistica & Applicazioni*, *16* (2).

LICHTENTHALER, P.W. & FISCHBACH, A. (2019). A meta-analysis on promotion-and prevention-focused job crafting. *European Journal of Work and Organizational Psychology, 28* (1), 30-50.

LOWE, G. (2012). *Creating healthy organizations*. University of Toronto Press. Retrieved from http://www.vlebooks.com/vleweb/product/openreader?id=none&isbn=9781442698772

LOWE, G. (2020). *Creating healthly organizations, revised and expanded edition: Taking action to improve employee well-being*. University of Toronto Press.

MACCHITELLA, L., SIGNORE, F., INGUSCI, E., TORALDO, D.M., ARIGLIANI, M., DE BENEDETTO, M., … & ANGELELLI, P. (2021). Coping strategies in mild-to-severe OSA patients: The role of job crafting in work-related behaviors. *BPA Applied Psychology Bulletin*, *69* (291), 2-16. doi: 10.26387/bpa.291.1

MACEY, W.H. & SCHNEIDER, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology, 1* (1), 3-30. doi: 10.1111/j.1754-9434.2007.0002.x

NOTA, L., SANTILLI, S., GINEVRA, M.C. & SORESI, S. (2014). Employer attitudes towards the work inclusion of people with disability. *Journal of Applied Research in Intellectual Disabilities, 27* (6), 511-520. doi: 10.1111/jar.12081

ORGAN, D.W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, Mass.: Lexington Books.

ORLOWSKI, M., BUFQUIN, D. & NALLEY, M.E. (2021). The influence of social perceptions on restaurant employee work engagement and extra-role customer service behavior: A moderated mediation model. *Cornell Hospitality Quarterly*, *62* (2), 261-275. doi: 10.1177/1938965520910119

PACE, F., INGUSCI, E., SIGNORE, F. & SCIOTTO, G. (2021). Human resources management practices perception and extra-role behaviors: The role of employability and learning at work. *Sustainability*, *13* (16), 8803.

PETROU, P., DEMEROUTI, E., PEETERS, M.C., SCHAUFELI, W.B. & HETLAND, J. (2012). Crafting a job on a daily basis: Contextual correlates and the link to work engagement. *Journal of Organizational Behavior, 33* (8), 1120-1141.

RUDOLPH, C.W., KATZ, I.M., LAVIGNE, K.N. & ZACHER, H. (2017). Job crafting: A meta-analysis of relationships with individual differences, job characteristics, and work outcomes. *Journal of Vocational Behavior*, *102*, 112-138.

SCHAUFELI, W.B. & BAKKER, A.B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *25* (3), 293-315.

SELIGMAN, M.E. (2004). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment.* Simon and Schuster.

SIGNORE, F., CATALANO, A., DE CARLO, E., MADARO, A. & INGUSCI, E. (2019). The role of employability in students during academic experience: A preliminary study through PLS-PM technique. *Electronic Journal of Applied Statistical Analysis*, *12* (4), 720-747.

SIGNORE, F., CORTESE, C.G., PARISI, S., RUSSO, V., ZITO, M. & INGUSCI, E. (2020). Job crafting and well-being at work: An exploratory analysis during health emergency period. *La*

*Medicina del Lavoro*, *111* (6), 478-492.

SPARF, J. & OHMAN, S. (2014). On risk and disability investigating the influence of disability and social capital on the perception and digital communication of risk. *Journal of Risk Analysis and Crisis Response*, *4* (1), 20. doi: 10.2991/jrarc.2014.4.1.3

STONER, J., PERREWÉ, P.L. & MUNYON, T.P. (2011). The role of identity in extra-role behaviors: Development of a conceptual model. *Journal of Managerial Psychology*, *26* (2), 94-107. doi: 10.1108/02683941111102146

SUNDAR, V. & BRUCKER, D.L. (2019). Personal and organizational determinants of job satisfaction for workers with disabilities. *Rehabilitation Counseling Bulletin*, *62* (3), 170-179. doi: 10.1177/0034355218770272

TIMS, M. & BAKKER, A.B. (2010). Job crafting: Towards a new model of individual job redesign. *SA Journal of Industrial Psychology*, *36* (2), 1-9.

TIMS, M., BAKKER, A.B. & DERKS, D. (2012). Development and validation of the job crafting scale. *Journal of Vocational Behavior*, *80* (1), 173-186.

VALLERAND, R.J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Experimental Social Psychology*, *29*, 271-360. doi: 10.1016/S0065-2601(08)60019-2

WOLD, H. (2006). Partial least squares. In S. Kotz, C.B. Read, N. Balakrishnan, B. Vidakovic & N.L. Johnson (Eds.), *Encyclopedia of Statistical Sciences*. Hoboken, NJ: John Wiley. doi: 10.1002/0471667196.ess1914.pub2

WRIGHT, P.M., GEORGE, J.M., FARNSWORTH, S.R. & McMAHAN, G.C. (1993). Productivity and extra-role behavior: The effects of goals and incentives on spontaneous helping. *Journal of Applied Psychology*, *78* (3), 374-381. doi: 10.1037/0021-9010.78.3.374

WRZESNIEWSKI, A. & DUTTON, J.E. (2001). Crafting a job: Revisioning employees as active crafters of their work. *Academy of management review*, *26* (2), 179-201.

YORKSTON, K.M., McMULLAN, K.A., MOLTON, I. & JENSEN, M.P. (2010). Pathways of change experienced by people aging with disability: A focus group study. *Disability and Rehabilitation*, *32* (20), 1697-1704. doi: 10.3109/09638281003678317

ZIJLSTRA, F., MULDERS, H. & NIJHUIS, F. (2012). Inclusieve organisaties: Op weg naar duurzame arbeidsparticipatie. *Tijdschrift voor Arbeidsvraagstukken*, *28* (1). doi: 10.5117/2012.028.001.022

DOI 10.26387/bpa.2022.00009

# Work and play: Validation of the Italian version of the Playful Work Design Questionnaire

*Emanuela Caracuzzo[1], Antonino Callea[1], Flavio Urbini[1], Arnold B. Bakker[2,3]*

*[1] Department of Human Science, Lumsa University, Rome, Italy*
*[2] Center of Excellence for Positive Organizational Psychology, Erasmus Universiteit Rotterdam, The Netherlands*
*[3] Department of Industrial Psychology and People Management. University of Johannesburg, South Africa*

*e.caracuzzo@lumsa.it*

*ABSTRACT*. Il Playful Work Design è il processo con cui i dipendenti riprogettano proattivamente le attività lavorative, ricercando divertimento e sfida senza cambiare la natura del proprio lavoro. Questo contributo presenta la versione italiana del *Playful Work Design Questionnaire*, un questionario composto da 12 item atto a misurare due dimensioni: Designing fun e Designing competition. I risultati supportano la struttura bidimensionale del questionario, che presenta buone caratteristiche psicometriche e buoni livelli di coerenza interna. Inoltre, i modelli di equazioni strutturali evidenziando empiricamente la distinzione tra le dimensioni del Playful Work Design e le dimensioni del Job crafting.

*SUMMARY. Playful Work Design (PWD) refers to the process by which people create proactive conditions within their work activities, without changing the nature of their work. Based on the theory of the duality of play and proactivity theory, Scharp and colleagues (in press) validated a 12-item instrument, the PWD Questionnaire (PWD-Q), that included the dimensions of Designing fun and Designing competition. In the present study, we aimed to validate the Italian version of the PWD-Q. Exploratory factor analysis, divergent validity between PWD and job crafting dimensions, and reliability analyses were conducted with data from 253 Italian employees. The results supported the two-factor structure of the PWD-Q and showed good reliabilities, in line with the original validation. The confirmatory factor analysis empirically supported the distinction between PWD and job crafting. Overall, the results showed that the PWD-Q is a reliable and valid instrument that can be used to measure Designing fun and Designing competition in the Italian context.*

**Keywords:** *Playful at work, Proactivity, Job crafting*

# INTRODUCTION

Because of new technology and globalization, modern organizations are continuously and rapidly evolving. Therefore, employees are required to be proactive and to actively participate in organizational change processes (Callea, Caracuzzo, Costanzi & Urbini, 2022). Research has shown that proactive work behavior, including job crafting, voice, and taking charge, may lead to role clarity and a range of positive employee outcomes, including work engagement, job satisfaction, and improved performance (Tornau & Frese, 2013). By taking initiative, employees can optimize their person-job fit and create a better future (Parker et al., 2017; Tims & Bakker, 2010).

Recently, Bakker and colleagues (Bakker, Scharp, Breevaart & De Vries, 2020) proposed a new proactivity concept, called Playful Work Design (PWD), through which employees can optimize their experience of work without changing their tasks. The prevailing logic describes play and work in a dichotomy. However, the concepts of work and play can actually merge, making work both more productive and more satisfying by activating the participation of employees. In fact, when people play, they usually have an enthusiastic attitude and are often completely immersed in the activity (Csikszentmihalyi, 1975). Also, play may help counter the unfavorable effects of stressors (Petelczyc, Capezio, Wang, Restubog & Aquino, 2018).

PWD is based on play theory and proactivity theory (Bakker, Scharp et al., 2020). The duality of play theory (Huizinga, 1949) distinguishes the game in ludic and agonistic activities. Ludic activity aims at maintaining psychophysical well-being through the use of humor or creativity in development activities, and agonistic activity refers to a more competitive nature in achieving performance, through the challenge and competition with themselves. By following the dualist theory, employees can engage in playful activities in two ways. First, in the ludic activity, the employee can make work activities more fun both for themselves and their colleagues. Second, in agonistic activity, the employee tries to make work more competitive for themselves (e.g., completing a job ahead of schedule) to increase intrinsic motivation and increase performance, creativity, and learning (Barnett, 2007).

The PWD perspective (Bakker, Scharp et al., 2020) suggests that employees can initiate play during work activities to transform their work experience. This is in line with recent advances in individual job design strategies, such as job crafting (Tims, Bakker & Derks, 2012). Thus, PWD is built on the assumption that proactivity is a fundamental resource that employees can use to play and redesign their work tasks. Proactivity concerns self-initiated and future-oriented behaviors for improving current circumstances or creating new ones (Crant, 2000). Some studies have shown that proactive employees are more involved in work activities and take initiatives to change procedures (Parker, Williams & Turner, 2006). In other words, proactive employees may also organize their tasks and activities themselves, using individual work design strategies, including PWD.

The PWD perspective aims to investigate how employees proactively create working conditions that lead to the promotion of fun and challenge without changing the work methodology, but rather the conception of it (Bakker & van Woerkom, 2017; Scharp, Breevaart, Bakker & Van Der Linden, 2019).

## The development of the PWD Questionnaire

Starting from the theories of the game and the concept of proactivity, the *PWD-Questionnaire* (*PWD-Q*; Scharp, Bakker, Breevaart, Kruup & Uusberg, in press) was recently developed and validated. The PWD-Q distinguishes between two dimensions: (a) Designing fun and (b) Designing competition.

The validation process of PWD-Q has been carried out through three studies using different Dutch samples. Study 1 aimed to explore the factorial structure of and content validity of an initial set of 32 items. The results of a principal-components analysis suggested identifying 12 items, loading onto two distinct factors. The first factor was composed of six items, measuring ludic play during work; this factor was named Designing fun. The second factor was composed of six items, measuring agonistic play during work; this factor was named Designing competition. Reliability indices were acceptable for both factors. With respect to validity, the factors were positively correlated with other measures of ludic traits and agonistic traits. These results support the distinction between two dimensions of PWD. Study 2 showed, through a confirmatory factor analysis, showed adequate fit indices for the two-factor model. The results showed that the two-factor model fit significantly better to the data than a one-factor model that did not differentiate between Designing fun and Designing competition. Furthermore, Scharp and colleagues tested the divergent validity among PWD dimensions and

three job crafting dimensions: (a) crafting structural job resources; (b) crafting social job resources, such as support from colleagues or supervisors; and (c) crafting challenging job demands, including starting new projects, and looking for new opportunities. Hence, a five-factor model, with each latent factor measured by its own items, has been compared with alternative models, combining PWD dimensions with job crafting dimensions. The results showed that none of the alternative models significantly improved the fit of the five-factor model. Therefore, the results supported the validity of the two-factor structure of the PWD-Q, as well as the distinction of the playful work design factors from job crafting factors. Finally, the results of Study 3 provided further support by showing psychometric robustness of the PWD-Q through longitudinal measurement invariance. Furthermore, the test–retest reliability of the two PWD dimensions was adequate.

## Aims of the present study

In the present study, we aimed to test the validity of the Italian version of the PWD-Q. First, we investigated the factor structure of the PWD-Q. We hypothesized that the items of the Italian version of the PWD-Q will load on the intended Designing fun and Designing competition dimensions. Second, we assessed the psychometric properties of the two dimensions by assessing corrected item-total correlations and reliabilities. We hypothesized that the two dimensions will reach good reliability. Finally, we explored the relationship between PWD and job crafting. We expected that the two concepts can be conceptually and empirically distinguished.

In light of the increasing scientific interest about the importance of play in the work field and the lack of an Italian measure to address this topic, we aimed to validate the Italian version of the PWD-Q. Therefore, the present study sought to fill the gap and promote in Italy more empirical research on PWD, as well as its antecedents and outcomes.

# METHOD

## Translation of the PWD-Q and administration procedure

The present study is a part of a research project entitled *Playful Work Design and flow experience: Antecedents and outcomes*, which was approved by the Ethics Committee of Lumsa University of Rome in May 2022. The Italian version of the PWD-Q was developed following a forward-translation procedure (Gudmundsson, 2009). First, the PWD-Q was independently translated, on an item-by-item basis, from English into Italian by two experts in work psychology and methodology. The two translations were compared and discussed in order to arrive at an accepted version. The revised version was proposed to two native Italian work psychologists; they, individually, supported the clarity of items' content.

Regarding the administration procedure, data were collected through an online questionnaire on Google Forms. On the first page of the online questionnaire we described the research aims and specified that participation was free and voluntary. The two inclusion criteria were (a) age >18 years and (b) employed in an organization. Participants were personally contacted via email by three researchers, according to proximity, availability, and accessibility criteria. Each respondent was asked to invite other people to fill out the questionnaire, and so on, through a snowball convenience sampling.

## Participants

The sample consisted of 253 employees. Participants were equally divided by gender (44.6% men and 55.4% women). In terms of age, 14.7% were between 18 and 25 years old, 27.1% were between 26 and 35 years old, 19.1% were between 36 and 45 years old, 18.7% were between 46 and 55 years old, and 20.3% were more than 56 years old. Regarding education, 64.1% of the participants had a university degree, 35.9% had a high school degree, and the remaining 2% had completed compulsory schooling. Most were employed in the private sector (68.4%), in small (38.4%) or medium (35.5%) organizations.

## Measures

Playful work design was assessed using the Italian version of the PWD-Q. The scale is composed of 12 items that measure Designing fun (six items) and Designing competition (six items) that are rated on a 5-point frequency scale (1 = never, 2 = sometimes, 3 = regularly, 4 = often, 5 = very often). Data on the Italian and English versions of the PWD-Q are reported in Table 1.

**Table 1** – Component loading matrix, with the Geomin rotation, eigenvalues and percentage variance for each dimension

| Item code | Item | Factor 1 | Factor 2 |
|---|---|---|---|
| PWD1 | Cerco l'umorismo nelle cose che devo fare<br>[I look for humor in the things I need to do] | .692* | −.005 |
| PWD2 | Provo a darmi delle tempistiche per le attività lavorative<br>[I try to set time records in my work tasks] | −.021 | .368* |
| PWD3 | Progetto il mio lavoro in modo giocoso<br>[I approach my work in a playful way] | .743* | .058 |
| PWD4 | Provo a stare al passo con tutte le attività lavorative<br>[I try to keep score in all kinds of work activities] | −.003 | .446* |
| PWD5 | Cerco modalità per rendere le attività lavorative più divertenti per chiunque ne sia coinvolto<br>[I look for ways to make tasks more fun for everyone involved] | .884* | −.075 |
| PWD6 | Competo con me stesso al lavoro, non perché devo ma perché mi diverto<br>[I compete with myself at work, not because I have to, but because I enjoy it] | .417* | .325* |
| PWD7 | Progetto le mie attività lavorative in modo creativo per renderle più interessanti<br>[I approach my tasks creatively to make them more interesting] | .456* | .388* |
| PWD8 | Provo a rendere il mio lavoro una sfida entusiasmante<br>[I try to make my job a series of exciting challenges] | .101 | .789* |
| PWD9 | Cerco di rendere il mio lavoro più divertente<br>[I look for ways to make my work more fun] | .663* | .242 |
| PWD10 | Mi spingo a fare di più anche quando non è previsto<br>[I push myself to do better even when it isn't expected] | .029 | .524* |
| PWD11 | Utilizzo l'immaginazione per rendere il mio lavoro più interessante<br>[I use my imagination to make my job more interesting] | .332* | .449* |
| PWD12 | Considero le mie attività lavorative come una serie di sfide entusiasmanti<br>[I approach my job as a series of exciting challenges] | −.039 | .857* |
| Eingevalues | | 5.58 | 1.43 |
| % explained variance | | 46.5% | 11.9% |

* $p<.01$

Job crafting was assessed using 13 items of the Italian version of the *Job Crafting Scale* (Cenciotti et al., 2016). Different from the original scale (Tims, Bakker & Derks, 2012), the Italian version only measures three positive dimensions, for example, crafting structural resources, measured with four items (sample item: "I try to develop my capabilities", $\alpha = .85$); crafting social resources, measured with four items (sample item: "I ask whether my supervisor is satisfied with my work", $\alpha = .80$); and crafting challenging demands, measured with five items (sample item: "When an interesting project comes along, I offer myself proactively as project co-worker", $\alpha = .83$). Participants could respond to each item by using a frequency scale ranging from 1 (never) to 7 (always).

## Data analysis

First, we tested an exploratory structural equation model (ESEM), with a principal-axis factoring method, via Mplus 8.53, in order investigate the factor structure of the PWD-Q. A parallel analysis suggested that the factors that have higher eigenvalues than parallel eigenvalues should be extracted (Turner, 1998). Furthermore, we evaluated the fit of the proposed factor structure to the data using the following fit indices: $\chi^2$, $\chi^2/df$, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). When $\chi^2/df$ is <3, CFI and TLI are >.90 and RMSEA and SRMR are <.08, the model may be considered adequate (Hu & Bentler, 1999). Second, we assessed the psychometric properties of 12 items of the PWD-Q and internal consistence reliability with Cronbach's $\alpha$ coefficients. Finally, to assess the distinction between PWD and job crafting dimensions, we compared the hypothesized measurement model with five distinct latent factors (Designing fun, Designing competition, Crafting structural, Crafting social, and Crafting challenging) with a series of competitive models using the chi square difference test ($\Delta\chi^2$).

## RESULTS

The results of the parallel analysis showed that two factors should be extracted. In addition, the results of the ESEM pointed out more acceptable fit indices for a two-factor model, $\chi^2(43) = 159.25$, RMSEA = .10, CFI = .92, TLI = .88, SRMR = .05, than a one-factor model, $\chi^2(54) = 334.17$, RMSEA = .14, CFI = .81, TLI = .76, SRMR = .08. The $\Delta\chi^2(11) = 174.91$ was significant, showing that the two-factor model fitted significantly better than a model in which all items loaded onto a single factor (one-factor model).

The factor loading matrix of the two-factor model (see Table 1) suggested that Factor 1 explained the 46.5% of the total variance, and it was composed of six items, principally referring to fun (PWD5 and PWD9), playful (PWD3), creativity (PWD7), and humor (PWD1), rather than PWD6. Factor 2 explained 11.9% of the variance and was also composed of six items, principally referring to competition (PWD2, PWD4, PWD8, PWD10, and PWD12) rather than PWD11.

Thus, PWD6 and PWD11 significantly loaded onto the intended factor as well as onto the unintended factor. In line with the original validation (Scharp et al., in press), we considered PWD6 as an observed indicator of Designing competition and PWD11 as an observed indicator of Designing fun. The two latent factors were positively and moderately correlated ($r = .57$, $p<.001$). The descriptive statistics, skewness, and kurtosis of the 12 items and reliability indicators for each factor are reported in Table 2.

All items had a no extreme means and acceptable standard deviations; furthermore, no item violated normality assumptions, showing skewness and kurtosis values between −2 and +2. Regarding reliability, both factors reached a good level of internal consistency, .88 for Designing fun and .78 for Designing competition, respectively. Furthermore, corrected item-total correlations are between .61 and .75 for Designing fun and .37 and .69 for Designing competition. Cronbach's $\alpha$ did not increase if an item was removed. Therefore, these results show good psychometric properties for the 12 items of the PWD-Q and good reliability of both factors.

Moreover, we tested, via CFA, a hypothesized measurement model (M1) with five distinct latent factors, including two PWD factors and three job crafting factors. We next compared M1 with alternative models: a one-factor model (M2); a two-factor model (M3), with the PWD dimensions as Factor 1 and the job crafting dimensions as Factor 2; and 6 four-factor models (M4-M9), combining PWD dimensions with job crafting dimensions. The fit indices of each model and model comparison are reported in Table 3.

The CFA results showed that M1 had acceptable fit indices. Furthermore, the results indicated that $\Delta\chi^2$ was significant; therefore, the alternative models did not fit better to the data

**Table 2** – Psychometric properties of 12-item PWD and reliability

| Dimensions | Item | *M* (*SD*) | Skewness | Kurtosis | $C_{it}^{c}$ | α-i | α total |
|---|---|---|---|---|---|---|---|
| Designing fun | PWD1 | 3.53 (1.11) | −.38 | −.61 | .64 | .86 | |
| | PWD3 | 2.79 (1.10) | .27 | −.63 | .72 | .85 | |
| | PWD5 | 3.34 (1.18) | −.29 | −.82 | .73 | .85 | |
| | PWD7 | 3.37 (1.15) | −.21 | −.81 | .65 | .86 | |
| | PWD9 | 3.48 (1.04) | −.29 | −.56 | .75 | .84 | |
| | PWD11 | 3.29 (1.19) | −.28 | −.78 | .61 | .87 | .88 |
| Designing competition | PWD2 | 4.18 (.89) | −1.14 | 1.40 | .37 | .78 | |
| | PWD4 | 4.17 (.84) | −.72 | −.24 | .50 | .75 | |
| | PWD6 | 3.11 (1.24) | −.17 | −.97 | .46 | .77 | |
| | PWD8 | 3.60 (1.09) | −.38 | −.70 | .67 | .71 | |
| | PWD10 | 3.89 (1.00) | −.67 | −.18 | .48 | .79 | .78 |
| | PWD12 | 3.45 (1.07) | −.31 | −.58 | .69 | .70 | |

*Legenda.* $C_{it}^{c}$ = corrected item-total correlations; α-i = alpha if item is deleted.

than M1. Therefore, the hypothesized M1 should be preferred (see Figure 1), suggesting that the two PWD dimensions are empirically distinct from job crafting dimensions. In other words, the discriminant validity of the PWD-Q was supported. Furthermore, Designing fun was positively and significantly correlated with Crafting structural resources ($r$ = .41, $p$<.001), Crafting social resources ($r$ = .34, $p$<.001), and Crafting challenging demands ($r$ = .37, $p$<.001). In a similar vein, Designing competition was positively and significantly correlated with Crafting structural resources ($r$ = .66, $p$<.001), Crafting social resources ($r$ = .52, $p$<.001), and Crafting challenging demands ($r$ = .60, $p$<.001). To compare the strength of the correlations, we calculated two-tailed 95% confidence intervals (CIs) of the differences (Zou, 2007). When the CI includes 0, the strength of the correlations does not significantly differ. The positive correlations between Designing competition with Crafting structural resources ($Z$ = −3.994, $p$<.001 [−4.054, −3.934]), Crafting social resources ($Z$ = −2.485, $p$<.001 [−2.545, −2.225]), and Crafting challenging demands ($Z$ = −3.407, $p$<.001 [−3.467, −3.347]) were stronger than the associations between Designing fun with the same dimensions.

## DISCUSSION

People have a natural tendency to play because it is inherently rewarding and satisfying (Barnett, 2007). Recently, there has been increasing scientific interest in the topic of play at work and its consequences for individual well-

**Table 3** – Divergent validity: model comparisons among PWD dimensions and job crafting dimensions

| Model | $\chi^2$ | df | $\chi^2/df$ | CFI | TLI | RMSEA | SRMR | $\Delta\chi^2$ | $\Delta df$ |
|---|---|---|---|---|---|---|---|---|---|
| M1 | 706.740 | 265 | 2.67 | .876 | .859 | .081 | .064 | – | – |
| M2 | 1629.601 | 275 | 5.93 | .590 | .553 | .140 | .117 | 921.861** | 10 |
| M3 | 1019.070 | 274 | 3.72 | .774 | .753 | .104 | .091 | 311.33** | 9 |
| M4 | 1264.785 | 269 | 4.70 | .699 | .664 | .121 | .103 | 557.045** | 4 |
| M5 | 994.693 | 269 | 3.70 | .780 | .755 | .103 | .100 | 286.953** | 4 |
| M6 | 1295.446 | 269 | 4.82 | .689 | .653 | .123 | .116 | 587.706** | 4 |
| M7 | 965.901 | 269 | 3.59 | .789 | .765 | .101 | .089 | 258.161** | 4 |
| M8 | 909.195 | 269 | 3.38 | .806 | .784 | .097 | .080 | 201.455** | 4 |
| M9 | 977.726 | 269 | 3.63 | .785 | .761 | .102 | .092 | 269.986** | 4 |

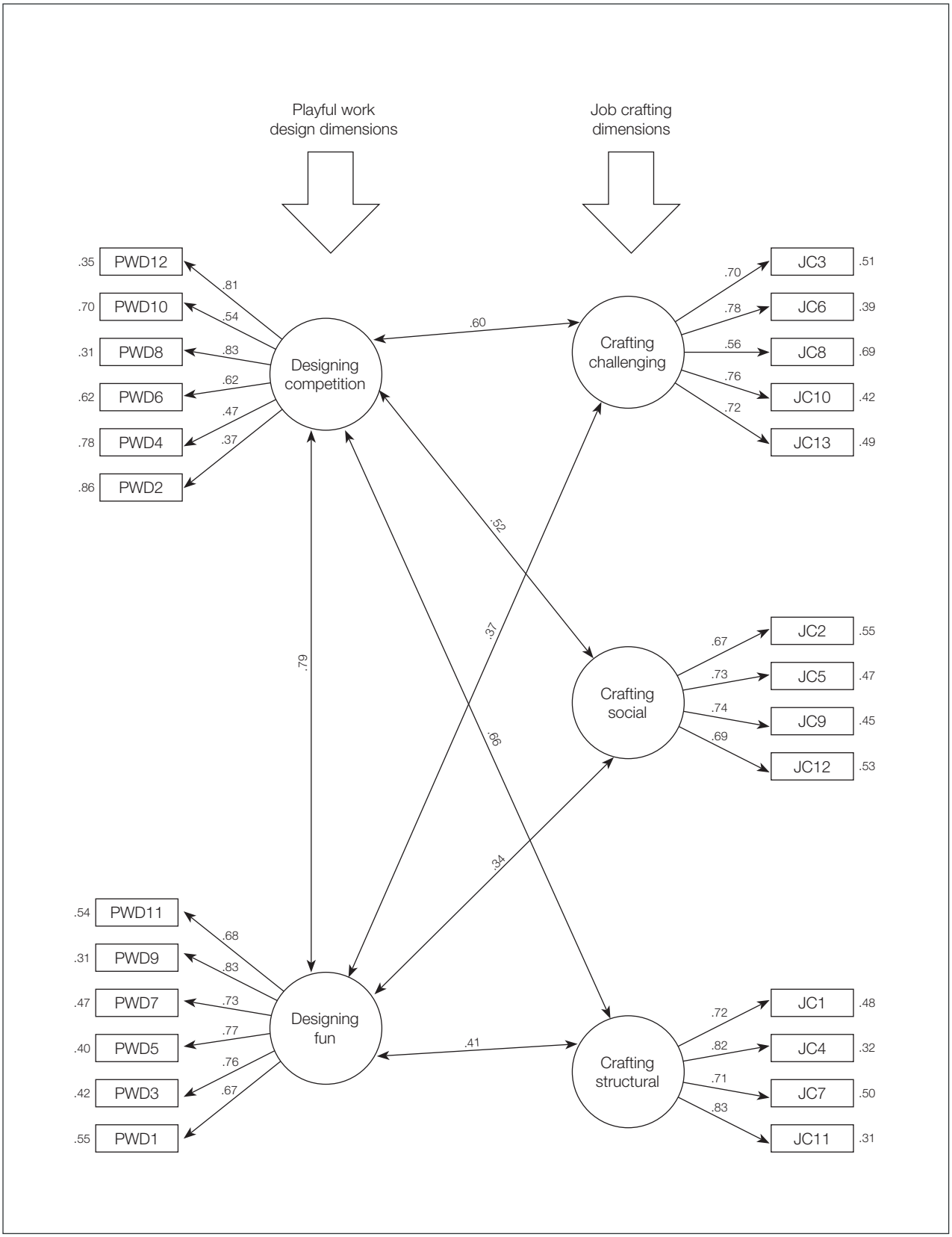
*Legenda. df* = degree of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; M1 = hypothesized 5-factor model; M2 = 1-factor model; M3 = 2-factor model (PWD, JC); M4 = 4-factor model (DF and STR); M5 = 4-factor model (DF and SOC); M6 = 4-factor model (DF and CHA); M7 = 4-factor model (DC and STR); M8 = 4-factor model (DC and SOC); M9 = 4-factor model (DC and CHA).
** $p<.01$

being (Scharp et al., in press). In the present study, we focused on PWD, the proactive and playful approach to work tasks with the aim of experiencing more meaning and engagement at work. To date, the only instrument available to measure playful work design, the PWD-Q, has been validated only in Dutch. For this reason, in the present study we aimed to provide the first psychometric evaluations of the Italian version of the PWD-Q and explore its factor structure.

The results of an ESEM partially supported the original validation, revealing a two-factor structure. All items significantly loaded on the hypothesized factors. However, two items (PWD6 and PWD11) showed double loadings (although the loadings were not extremely high); specifically, with regard to item content, PWD6 ("I compete with myself at work, not because I have to, but because I enjoy it") refers to competition, whereas PWD11 ("I use my imagination to make my job more interesting") refers to imagination and fun. Therefore, consistent with the original version of the PWD-Q, we described the first factor as Designing fun, including PWD11, and the second factor as Designing competition, including PWD6. The two factors supported the duality of play theory, differentiating the ludic (i.e., fun) and agonistic (i.e., competitive) activities of work redesign in the Italian version.

The reliabilities of the factors were satisfactory. In particular, the Cronbach's $\alpha$ coefficients were in line with the original study (Scharp et al., in press). Furthermore, the results of a higher order CFA suggested that the PWD dimensions differ from job crafting dimensions even though both concepts concern proactive work behaviors. PWD and

**Figure 1** – Hypothesized model (M1): distinction among PWD dimensions and job crafting dimensions



job crafting shared some points - for example, the concept of personal challenge - and both are considered two job redesign strategies. However, PWD and job crafting are different with regard to ways to redesign the job experience: the first integrates fun and self-competition within the job activities, and the second redesigns job characteristics so that they become more challenging and more resourceful (using Crafting structural resources, Crafting social resources, and Crafting challenging demands). Our results empirically support the conceptual distinctions between PWD and job crafting, in line with previous research (Scharp et al., in press). Furthermore, Designing competition correlated more strongly with three job crafting dimensions than Designing fun. Despite the clear conceptual and empirical distinction, our results show that the Designing competition dimension of PWD has some overlap with Crafting structural resources and Crafting challenging demands.

From theoretical perspective, the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2014) may explain PWD as a personal resource. In JD-R model, the job demands concern the physical, psychological, social, and organizational aspects of a job that require an effort to adapt. In this model, job demands may lead to a consumption of the available psychophysical resources (Fraccaroli & Balducci, 2011). Instead, the resources may "(a) be functional in achieving work goals; (b) reduce job demands together with their associated physiological and psychological costs; or (c) stimulate personal growth and development" (Demerouti, Bakker, Nachreiner & Schaufeli, 2001, p. 501). Therefore, in the JD-R model the resources may be used to manage and address the job demands.

Recently, Mazzetti and colleagues (in press) identified five types of resources: (a) social, (b) job, (c) organizational, (d) developmental, and (e) personal. Among personal resources, PWD is a functional resource in relation to job demands. Indeed, Designing fun and Designing competition reduced, as buffers, the negative effect of hindering job demands on work engagement (Scharp, Breevaart & Bakker, 2021). Furthermore, PWD allows one to avoid boredom, try to be more proactive by playing toward a specific goal, stimulating growth and development through competition with oneself, and increasing flow at work (Bakker, Hetland, Olsen, Espevik & De Vries, 2020).

The availability of the Italian version of PWD-Q may have several practical implications. First, it can be used in recruiting, especially for roles that require high creativity and challenge. Second, it may be useful to analyze which PWD strategies can be improved among employees. Finally, the PWD-Q can be used to evaluate the efficacy of interventions both before and after.

Among the practical interventions that can promote Designing fun and Designing competition, training may play a key role. Today, training activities also aim at creative development, in order to improve the opportunity to redesign one's own job. For instance, training interventions may concern the use of challenges and innovative tasks to help workers channel their individual energy and knowledge into an approach to their work in a different way.

Some limitations should be considered. A first limitation concerns the sample size; although the number of participants was appropriate to conduct a factor analysis with a 12-item questionnaire, and the sample was well balanced by gender and age, it did not allow us to conduct further analyses. Therefore, future studies should use a larger sample size in order to compare differences in PWD-Q scores with respect to organizational role, organizational size and organizational tenure and to test statistical invariance across gender and age. A second limitation concerns the cross-sectional nature of our study; longitudinal studies may support our results and assess test-retest reliability across time. Furthermore, further studies may explain how employees use play proactively to organize their work activities and their effect on performance. Finally, it would be ambitious and fruitful to study in more depth the relationship between PWD and job crafting and their different effect on several outcomes (e.g., flow at work, in-role and extra-role performance). The importance of play as an element of individual well-being has recently been highlighted (Parker, 2014). The present study expands the literature on play at work and provides empirical support for validation of the Italian version of the PWD-Q, which assesses Designing fun and Designing competition in the work field.

## References


BAKKER, A.B. & DEMEROUTI, E. (2014). Job demands-resources theory. In P.Y. Chen & C.L. Cooper, *Work and wellbeing: A complete reference guide*. Chichester: Wiley-Blackwell.

BAKKER, A.B., HETLAND, J., OLSEN, O.K., ESPEVIK, R. & DE VRIES, J.D. (2020) Job crafting and playful work design: Links with performance during busy and quiet days. *Journal of Vocation Behavior*, *122*, 1-13. doi:10.1016/j.jvb.2020.103478

BAKKER, A.B., SCHARP, Y.S., BREEVAART, K. & DE VRIES, D. (2020). Playful work design: Introduction of a new concept. *The Spanish Journal of Psychology*, *23* (19), 1-6. doi:10.1017/SJP.2020.20

BAKKER, A.B. & VAN WOERKOM, M. (2017). Flow at work: A self-determination perspective. *Occupational Health Science*, *1*, 47-65. doi:10.1007/s41542-017-0003-3

BARNETT, M.L. (2007). Stakeholder influence capacity and the variability of financial returns to corporate social responsibility. *Academy of Management Review*, *32* (3), 794-816. doi:20159336

CALLEA, A., CARACUZZO, E., COSTANZI, M. & URBINI, F. (2022). Promoting flow at work through proactive personality: A sequential mediation model with evidence from Italian employees. *Sustainability*, *14* (5), 1-14. doi:10.3390/su14052477

CENCIOTTI, R., BORGOGNI, L., CALLEA, A., COLOMBO, L., CORTESE, C.G., INGUSCI, E., MIRAGLIA, M. & ZITO, M. (2016). The Italian version of the job crafting scale (JCS). *Applied Psychology Bulletin*, *64*, 28-36.

CRANT, J.M. (2000). Proactive behavior in organizations. *Journal of Management*, *26*, 435-462. doi:10.1177/014920630002600304

CSIKSZENTMIHALYI, M. (1975). *Beyond boredom and anxiety: Experiencing flow in work and play*. Jossey-Bass.

DEMEROUTI, E., BAKKER, A.B., NACHREINER, F. & SCHAUFELI, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*, 499-512.

FRACCAROLI, F. & BALDUCCI, C. (2011). *Stress e rischi psicosociali nelle organizzazioni. Valutare e controllare i fattori dello stress lavorativo*. Bologna: Il Mulino. doi: 10.978.8815/304407

GUDMUNDSSON, E. (2009). Guidelines for translating and adapting psychological instruments. *Nordic Psychology*, *61* (2), 29-45. doi:10.1027/1901-2276.61.2.29

HU, L.T. & BENTLER, P.M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55. doi:10.1080/10705519909540118

HUIZINGA, J. (1949). *Homo ludens: A study of the play-element in culture*. Routledge & Kegan Paul.

MAZZETTI, G., ROBLEDO, E., VIGNOLI, M., TOPA, G., GUGLIELMI, D. & SCHAUFELI, W.B. (in press). Work engagement: A meta-analysis using the job demands-resources model. *Psychological Report*. doi.org/10.1177/00332941211051988

PARKER, S.K., WILLIAMS, H.M. & TURNER, N. (2006). Modeling the antecedents of proactive behavior at work. *Journal Applied Psychology*, *91*, 636-652.

PETELCZYC, C.A., CAPEZIO, A., WANG, L., RESTUBOG, S.L.D. & AQUINO, K. (2018). Play at work: An integrative review and agenda for future research. *Journal of Management*, *44*, 161-190. doi:10.1177/0149206317731519

SCHARP, Y.S., BAKKER, A.B., BREEVAART, K., KRUUP, K. & UUSBERG, A. (in press). Playful work design: Conceptualization, measurement, and validity. *Human Relations*. doi:10.1177/00187267211070996

SCHARP, Y.S., BREEVAART, K. & BAKKER, A.B. (2021). Using playful work design to deal with hindrance job demands: A quantitative diary study. *Journal of Occupational Health Psychology*, *26*, 175-188. 10.1037/ocp0000277

SCHARP, Y.S., BREEVAART, K., BAKKER, A.B. & VAN DER LINDEN, D. (2019). Daily playful work design: A trait activation perspective. *Journal of Research in Personality*, *82*, 103850. doi:10.1016/j.jrp.2019.103850

SUN, J., LI, W.D., LI, Y., LIDEN, R.C., LI, S. & ZHANG, X. (2021). Unintended consequences of being proactive? Linking proactive personality to coworker envy, helping, and undermining, and the moderating role of prosocial motivation. *Journal Applied Psychology*, *106* (2), 250-267. doi:10.1037/apl0000494

TIMS, M., BAKKER, A.B. & DERKS, D. (2012). Development and validation of the job crafting scale. *Journal of Vocational Behavior*, *80* (1), 173-186. doi:10.1016/j.jvb.2011.05.009

TORNAU, K. & FRESE, M. (2013). Construct clean-up in proactivity research: A meta-analysis on the nomological net of work-related proactivity concepts and their incremental validities. *Applied Psychology: An International Review*, *62* (1), 44-96. doi:10.1111/j.1464-0597.2012.00514.x

TURNER, N.E. (1998). The effect of common variance and structure pattern on random data eigenvalues: Implications for the accuracy of parallel analysis. *Educational and Psychological Measurement*, *58* (4), 541-568. doi:10.1177/0013164498058004001

ZOU, G.Y. (2007). Toward using confidence intervals to compare correlations. *Psychological Methods*, *12* (4), 399-413. doi:10.1037/1082-989X.12.4.399