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QUESTIONNAIRE

**Italian Validation of the Meaning in Life Questionnaire: Factor Structure, Reliability, Convergent
and Discriminant Validity**

Abstract

Several studies highlighted the role of meaning in life as a major component of well-being and researchers have developed different measures to assess the features of this construct. In the present study the psychometric properties of the Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006) were investigated in the Italian context. The MLQ is a 10-item scale measuring perceived presence of and search for meaning in life, conceptualized as two separate factors. The former refers to perceived meaning and purpose in life, the latter to the active commitment to find meaning in life. Participants were 464 adults aged 20-60 ($M = 39.34$; $SD = 10.86$; 54.7% women). Factor structure was inspected through exploratory and confirmatory factor analyses using a split-sample approach. Internal consistency was assessed through Cronbach's alphas, inter-item and item-scale correlations. Convergent and discriminant validity with measures of well-being, personality, mental and physical health were also evaluated. Factor analyses supported the adequacy of the MLQ two-factor structure in the Italian context; internal consistency measures corroborated the measure's reliability; and correlation matrix coefficients sustained convergent and discriminant validity. Results showed that the MLQ is a valid and reliable measure to assess meaning in life and its relationship with well-being within the Italian context.

Keywords

Meaning in Life Questionnaire, MLQ, Psychometric Properties, Validation, Well-being

Introduction

Since Victor Frankl's (1963) seminal work on perceived meaning in life as a key resource to develop adaptive coping strategies, researchers have paid increasing attention to this construct, its measurement and its relation with well-being (King, Hicks, Krull, & Del Gaiso, 2006; Reker, 2005; Steger, 2013; Steger et al., 2006; Wong & Fry, 1998). In particular, several studies have demonstrated the positive association between perceived presence of meaning in life and life satisfaction, optimism, and happiness (Debats, van der Lubbe, & Wezeman, 1993; Ho, Cheung, & Cheung, 2010; Schnell, 2009). By contrast, low levels or perceived absence of meaning in life **have been** associated with anxiety, depression and indication for psychotherapy (Mascaro & Rosen, 2008; Ruini & Fava, 2012; Steger, Shin, & Fitch-Martin, 2013). The assessment of meaning in life is often included in global quality of life surveys (Carlozzi et al., 2016; Veenhoven, 2016).

The concept of meaning can be interpreted from different perspectives, as it is deeply value-laden and intimately connected with individual and collective existential questions. Such a conceptual complexity may account for the variety of operational definitions of meaning developed by researchers. Some definitions are focused on the motivational and volitional aspects of meaning, such as goal directedness and perceived purpose in one's existence (Ryff, 1989); others are centered on the cognitive and affective components of meaning, such as sense of coherence and a feeling of life fulfilment (Battista & Almond, 1973). These multiple definitions led to the development of as many as 59 measures of meaning (Brandstätter, Baumann, Borasio, & Fegg, 2012). Three measures were specifically designed to assess the overall appraisal of meaning in life: the Purpose in Life Test (PIL, Crumbaugh & Maholick, 1964), the Life Regard Index (LRI, Battista & Almond, 1973), and the Life Attitude Profile-Revised (LAP-R, Reker, 1992). These scales were, however, subject to criticism due to problems emerging at two levels: inconsistent factor structures (Brandstätter et al., 2012), and lack of theoretical clarity due to the inclusion of dimensions that were strongly correlated with constructs substantially different from meaning, such as

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excitement and suicidal ideation in the PIL, and emotional fulfillment in both LRI and LAP-R (Steger, 2013; Steger et al., 2006).

In an attempt to overcome these shortcomings, Steger et al. (2006) developed the Meaning in Life Questionnaire (MLQ), a scale with good psychometric properties that was successfully validated and applied in various cultural settings. The aim of the present study was to investigate the suitability of the questionnaire in the Italian context.

Meaning in life and the Meaning in Life Questionnaire

Steger et al. (2006) proposed a definition of meaning in life as “the sense made of, and significance felt regarding, the nature of one’s being and existence” (p.81). This definition is intentionally broad, in order to suit each individual’s unique manner of building one’s own meaning. The attempt to operationalize this definition led to the development of the Meaning in Life Questionnaire, a short self-report inventory comprised of 10 items assessing the core dimensions shared by most researchers, namely, perceived life significance and purposefulness. The questionnaire investigates meaning in life from two perspectives: a cognitive one, through five items measuring *Presence of Meaning* (POM) as the degree to which individuals comprehend and perceive their lives as significant and purposeful; and a motivational one, *Search for Meaning* (SFM), through five items assessing the level of individuals’ active engagement in establishing and/or augmenting their comprehension of the meaning and purpose of their lives (Steger et al., 2013). The classification of search for meaning as a motivational dimension stems from Frankl’s work (Frankl, 1963), in which search for meaning is represented as a core psychological need. This interpretation was subsequently endorsed by other researchers, who investigated search for meaning as a strategy to satisfy frustrated needs (Klinger, 1998) or as a more complex pathway towards the fulfillment of both self-affirmation and deficit-based needs (Reker, 2000).

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The first studies aimed at evaluating the structure and psychometric properties of the MLQ were conducted using undergraduate students and adults in the United States. Confirmatory factor analysis provided satisfactory support for the two-factor structure of the questionnaire, identifying the two distinct subscales of POM and SFM (Steger et al., 2006); good internal consistency of item values was also detected in the two subscales (with alpha coefficients higher than .80). MLQ scores were moderately stable over one year, and had good test-retest reliability (Steger et al., 2006; Steger & Kashdan, 2007).

The MLQ was subsequently used in a variety of countries, such as Japan (Steger, Kawabata, Shimai, & Otake, 2008), Portugal (Simões, Oliveira, Lima, Vieira, & Nogueira, 2010), Argentina (Góngora & Castro Solano, 2011), Hungary (Martos & Konkoly Thege, 2012), Turkey (Boyras, Lightsey, & Can, 2013), and South Africa (Temane, Khumalo, & Wissing, 2014). The typology of participants was extended to include healthy adults (Brassai, Piko, & Steger, 2012; Góngora & Castro Solano, 2011; Steger, Oishi, & Kashdan, 2009), persons with mental illness (Schulenberg, Strack, & Buchanan, 2011), and elderly people living in nursing homes (Simões et al., 2010). Related findings allowed researchers to detect similarities and differences in MLQ scores based on specific country and participants' demographic features.

Concerning nationality, differences emerged in the relationship between POM and SFM. In the United States (Steger et al., 2006; Steger, Kashdan et al., 2008), Turkey (Boyras et al., 2013), and South Africa (Temane et al., 2014), low to moderate negative correlations were observed between the two MLQ subscales. By contrast, positive correlations were obtained among Japanese young adults (Steger, Kawabata et al., 2008) and Romanian adolescents belonging to the Hungarian-speaking community (Brassai et al., 2012). Findings from Japan can be explained from a cultural perspective. Japan is characterized by a collectivistic and interdependent culture (Markus & Kitayama, 1991), which encompasses the tendency to value effort and self-improvement over achievement, and to endorse contradictions and dialectical reasoning. This tendency contrasts with the emphasis on self-affirmation

and the predominance of oppositional/either-or thinking typical of individualistic, independent societies, including the United States and most western countries (Nisbett, Peng, Choi, & Norenzayan, 2001).

Contrarily, findings from Romanian adolescents appear to be related to participants' demographic features: Adolescence is a life stage characterized by identity formation and active exploration of different developmental trajectories and lifelong purposes. This interpretation is consistent with the sensitivity to age, detected for presence and search for meaning across samples, irrespective of culture (Steger, Kashdan et al., 2008): Older adults generally report greater POM values, while emerging adults report higher SFM values. Moreover, higher negative correlations between the two subscales were detected among individuals at later stages of life compared to younger ones.

Besides specific cultural and age-related variations, evidence overall suggests that POM and SFM are separate factors, and that search for meaning is not equivalent to absence of meaning. Different patterns of relations can exist between the two dimensions: for example, some individuals may search for meaning when they feel that their lives have little significance, whereas others may attempt to expand their general understanding of life events and the world while holding a coherent and meaningful vision of life (Park, Park, & Peterson, 2010; Steger et al., 2006; Steger, Kashdan et al., 2008). The distinctiveness of POM and SFM was further supported by good convergent and discriminant validity of the MLQ with measures of affective and cognitive constructs, such as satisfaction with life, self-esteem, sense of coherence, positive and negative emotions, anxiety, depression, post-traumatic stress, value rankings, and social desirability (for a review, Steger, 2012; Steger et al., 2013). Particularly, POM was positively related to well-being measures and negatively related to distress and mental illness; to the contrary, SFM was positively associated with distress and negatively associated with well-being indicators (though with fewer significant correlations). These findings were substantially replicated across countries except for Japan (Steger, Kawabata et al., 2008), where both POM and SFM were associated with happiness, in line

with the above described cultural tendency to positively value effort, self-improvement, and dialectical reasoning.

Finally, some initial analyses were conducted to explore the relationship between MLQ dimensions and personality traits, adopting the Big Five framework. Findings showed that young adults reporting higher values of POM scored lower on neuroticism and higher on extraversion, agreeableness, and conscientiousness; whereas young adults reporting higher values of SFM scored higher on neuroticism and openness to experience (Steger et al., 2006; Steger, Kashdan et al., 2008). While some of these results should be taken with caution, as correlation coefficients were quite small ($< |.29|$), for the moderate relationships of POM with neuroticism and conscientiousness a conceptual interpretation may be formulated, keeping in mind that the findings refer to college students and are not necessarily applicable to older participants. The positive relationship between presence of meaning and conscientiousness can be related to the orientation towards goal setting, pursuit, and achievement characterizing conscientious individuals; more specifically, this orientation is theoretically consistent with the perception of high levels of purpose in life (McKnight & Kashdan, 2009; Steger et al., 2013). The negative relationship between presence of meaning and neuroticism is instead consistent with the widely shared theoretical assumption that perceived meaning in life is a key indicator of well-being (see Steger et al., 2013 for a review). This assumption was empirically supported by the recurrent positive association of POM values with positive emotions, life satisfaction, and self-esteem, and their negative association with mental distress, anxiety and depression (Mascaro & Rosen, 2008; Steger, 2012; Steger & Kashdan, 2007).

In sum, since its development in 2006, the MLQ has gathered vast consensus among researchers around the world thanks to its short format, relatively value-free approach, robust psychometric properties, face validity, and ability to neatly assess two distinct dimensions of meaning, namely presence and search (Steger, 2013). These strengths were recently highlighted in a systematic review of the measures currently available for assessing meaning in life (Brandstätter et al. 2012): MLQ ranked first in

total score among the quantitative measures, based on a variety of criteria including reliability, interpretability/norms, criterion and construct validity, appropriateness, concept definition, development sample, item generation/selection, and use of formal analysis in test development.

Study Aims

The aim of the present study was to test the psychometric properties of the MLQ in a sample of Italian adults, and to contribute to the literature on meaning conceptualizations across cultures. Specifically, considering the high level of individualism and self-expressive values characterizing the Italian culture (Delle Fave et al., 2016), we expected that the two-factor structure of the questionnaire would be supported, in line with findings from the United States and a variety of other countries. We further expected that POM and SFM subscales would prove reliable and that a significant and negative relationship would be detected between POM and SFM.

For comparative reasons, we took into account gender and age as demographic characteristics, in line with previous validation studies conducted with adult participants (Góngora et al., 2011; Steger et al., 2006). In particular, we expected POM and SFM to be uncorrelated with gender, but to be associated with age, such that older participants would report higher POM as well as lower SFM compared to younger participants.

To investigate the convergent validity of the Italian version of the MLQ, we analyzed the relationship of its subscales with self-reported measures of satisfaction with life, positive and negative affect, and mental health. As observed in the majority of the investigated countries, we expected well-being indicators to be positively associated with POM and negatively associated with SFM, though to a lesser extent. We further explored the relationship between the MLQ and personality traits. Particularly, we expected POM to negatively correlate with neuroticism and to positively correlate with conscientiousness.

Finally, concerning discriminant validity, correlations were computed between POM and SFM and two self-reported measures of physical health, namely overall physical functioning and role limitation due to physical problems (Ware et al., 1993). In this respect, a study conducted with smoking cessation patients found a positive relation between POM and perceived health (Steger, Mann, Michels, & Cooper, 2009). In addition, a review of the studies assessing meaning using different measures identified a recurrent positive relation between meaning and perceived health among individuals with severe pathologies such as congestive heart failure or cancer (Roepke, Jayawickreme, & Riffle, 2014). Since our study included adult participants not belonging to a specific clinical population, we expected reported health to be uncorrelated to both POM and SFM.

Method

Procedure and Participants

After study approval by the **Università degli Studi di Milano Ethical** Committee, a group of 464 adult participants was recruited by researchers through poster advertisements affixed in different locations (e.g. workplaces, shopping centers, and public offices) with a brief description of the research study, eligibility criteria (being aged 20-60 and Italian speaking), and researchers' contact details. All participants received information about project aims and measures, and signed informed consent forms in line with local rules and the Helsinki Declaration. The validated Italian translation was used for all the study questionnaires. Participants filled out questionnaires on their own and returned them to the researchers either personally or by mail. Anonymity was guaranteed in both data coding and storing phases.

The sample comprised 254 women (54.7%) and 210 men (45.3%) with a mean age of 39.34 years (SD = 10.86). More specifically, 23.3% of the participants (N = 108) were aged 20-29; 28.4% (N = 132) 30-39; 25.9% (N = 120) 40-49, and the remaining 22.4% (N = 104) 50-60. As for education level, 37.3% of the participants (N = 173) had obtained high school diploma, 36.4% (N = 169) completed **Master** courses,

22.4% (N = 104) had a Bachelor's degree, and the remaining 3.9% (N = 18) reported a primary or secondary school degree. Most participants (86.2%; N = 400) had a job as office workers (37.4%, N = 150), helping professionals (23.3%, N = 93), scientists and technicians (16.3%, N = 65), self-employed or free-lance in finance, marketing and sales (14%, N = 56). A small percentage (5%, N = 20) reported other professions (e.g. factory worker, art and law professionals), while the remaining 4% (N = 16) did not provide this information. Concerning civil status, 58.4% of the participants (N = 271) were married or cohabiting, 35.1% (N = 163) were single, 5.2% (N = 24) separated or divorced. Four participants (0.9%) were widowed, and two (0.4%) did not report this information.

Measures

The *Meaning in Life Questionnaire* (MLQ; Steger et al., 2006) consists of two subscales: Presence of Meaning (POM; five items) and Search for Meaning (SFM; five items). The POM subscale measures the extent to which individuals perceive their own life as meaningful (e.g., 'My life has a clear sense of purpose'). The SFM subscale measures the extent to which participants actively seek meaning in life (e.g., 'I am looking for something that makes my life feel meaningful'). Items are rated on Likert scales ranging from 1 (*absolutely untrue*) to 7 (*absolutely true*). One item in the POM subscale (item 9) is reverse coded. Items in each subscale are summed, with higher scores representing higher levels of the construct. Conceptual and content equivalence of the Italian version of the questionnaire was reached through translation/back-translation, performed by one qualified scientific translator and three expert psychology researchers.

The *Satisfaction with Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) assesses the degree of perceived general satisfaction with life through five items on scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The original unidimensional structure was supported in the SWLS Italian

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translation; the measure showed good levels of reliability and validity (Di Fabio & Gori, 2016; Goldwurm, Baruffi, & Colombo, 2004). Cronbach's alpha coefficient for this study was .89.

The *Positive Affect and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegen, 1988) consists of ten items measuring positive affect (PA) and ten items measuring negative affect (NA) on scales ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). In the present study, PA and NA were evaluated as dispositional traits: participants were asked to indicate to what extent they felt each listed item 'in general, that is, on the average'. The hypothesized two-factor structure was supported in the PANAS Italian translation; the measure showed good levels of reliability and validity (Terracciano, McCrae, & Costa, 2003). In the present study, Cronbach's alpha coefficients were .79 for PA and .85 for NA.

The *Short Form-36 Health Survey* (SF-36; Ware et al., 1993) measures individuals' perception of their own health status. It is comprised of 36 items grouped into eight dimensions measuring both physical and mental health in a four-week recall period. In the current study, three scales were employed: Physical Functioning (PF), assessing perceived difficulties in performing activities such as walking, lifting heavy objects, climbing stairs; Role Limitations due to Physical Problems (PP), i.e., the extent to which physical health conditions interfere with work and other daily activities; and General Mental Health (MH), i.e., feeling nervous, full of energy, calm, downhearted. The values of each dimension range from 0 (worst health) to 100 (best health). The Italian translation of the SF-36 supported the multidimensional structure of the measures, and also showed adequate to good levels of internal consistency, test-retest reliability, and validity (Apolone & Mosconi, 1998). In the present study, Cronbach's alpha coefficients were .79 for PF and .82 for MH; since PP items are dichotomous, internal consistency for this scale was assessed through KR-20, and amounted to .77.

The *Big Five Inventory* (BFI; John, Donahue, & Kentle, 1991) consists of 44 items grouped into the Big Five Factors: Neuroticism (N), Extraversion (E), Openness to experience (O), Agreeableness (A), and

Conscientiousness (C). Participants are invited to rate their level of agreement with each item on scales from 1 (*disagree strongly*) to 5 (*agree strongly*). The original five-factor structure was supported in the Italian BFI translation; moreover, the measure showed adequate levels of internal consistency, test-retest reliability, and convergent-discriminant validity (Fossati, Borroni, Marchione, & Maffei, 2011). Cronbach's alpha coefficients for the present study were .81 (N), .82 (E), .82 (O), .66 (A), .75 (C).

Statistical Analyses

First, we calculated the descriptive statistics for MLQ items on the whole sample. Subsequently, we examined the structure and internal consistency of the questionnaire. In order to test the MLQ factor structure, the sample was randomly split into two halves (Sample 1 and Sample 2) using the procedure employed by Asendorpf, Borkenau, Ostendorf, and Van Aken (2001); both halves replicated the global sample's features as concerns participants' age and gender percentage distribution. The factorial structure of the MLQ was investigated on Sample 1 (N = 232) through Exploratory Factor Analysis (EFA). Since Mardia's multivariate omnibus test showed data violation of the assumption of multivariate normality, a principal axis factoring analysis was employed (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Oblimin direct rotation method allowed for factors to correlate; Kaiser-Guttman's criterion, Cattell's scree test, and parallel analysis were employed to identify the final number of factors to be retained; pattern matrix of item loadings was then examined.

Confirmatory Factor Analysis (CFA) was performed on Sample 2 (N = 232). Two competitive models were evaluated: 1) a unidimensional model with all items loading on a general meaning factor; 2) the hypothesized two-factor model with correlated factors. Satorra-Bentler scaled chi-square (S-B χ^2) was employed to account for the non-normal distribution of data resulting from Mardia's multivariate omnibus test. In addition, several other indices were employed to evaluate the models' goodness of fit: root mean square error of approximation (RMSEA), comparative fit index (CFI), standardized root mean

square residual (SRMR), goodness of fit index (GFI), and adjusted goodness of fit index (AGFI). RMSEA values lower than .05 indicate a good model fit, values between .05 and .10 an acceptable fit, values greater than .10 a poor fit (Browne & Cudeck, 1992). Values greater than .90 for CFI, GFI, and AGFI indicate an acceptable fit, and values greater than .95 a good fit (Byrne, 1998). A model fit is deemed as acceptable with SRMR values lower than .08, and as good with values lower than .05 (Hu & Bentler, 1995, 1999). Akaike's information criterion (AIC) was employed for choosing between competing statistical models, with lower values indicating the model to be preferred. Internal consistency of the MLQ subscales was examined through Cronbach's alpha coefficients, inter-item and corrected item-scale correlations.

As a final step, we calculated correlation coefficients of the MLQ subscales with demographic variables, measures of well-being, perceived physical and mental health, and personality. A Bonferroni correction was applied to adjust alpha levels for multiple comparisons, and Cohen's (1988) convention was used to evaluate correlation effect sizes, with values ranging between $|.10|$ and $|.29|$ indicating a small effect, $|.30|$ and $|.49|$ a medium effect, and $\geq |.50|$ a large effect.

Results

Descriptive Statistics

Table 1 provides the descriptive statistics of the MLQ items calculated on the whole sample; no univariate outliers were identified. Mean scores for POM items ranged between 4.55 (item 4) to 5.21 (item 9), with a total average score of 24.19. For SFM, item-level mean scores ranged between 3.55 (item 8) to 4.36 (item 2), and the total average score was 19.59.

--- Table 1 about here ---

Exploratory Factor Analysis

The MLQ items in Sample 1 were preliminary checked for EFA assumptions to be met. The sampling adequacy for performing the analysis was verified through the Kaiser-Meyer-Olkin test (KMO). The total KMO value was .88, and all KMO values for individual items were $>.84$, well above the acceptable limit of .60 (Hutcheson & Sofroniou, 1999). Bartlett's test of sphericity ($\chi^2(45) = 1345.42, p < .001$) indicated that between-item correlations were sufficiently large to perform EFA.

Both scree plot inspection and Kaiser-Guttman's criterion supported the adequacy of a two-factor solution; the first factor (SFM) showed an eigenvalue of 4.47 and the second factor (POM) showed an eigenvalue of 1.78. After rotation, these two factors explained 32.94% and 29.49% of variance respectively (62.43% total variance). The two-factor solution also showed eigenvalues higher than the cut-off value suggested by Parallel Analysis (Hayton, Allen, & Scarpello, 2004).

Table 2 shows MLQ factor loadings and measures of internal consistency for Sample 1.

--- Table 2 about here ---

All the items clustered on the expected factor, thus supporting the adequacy of the original model (Steger et al., 2006). Item loadings were higher than .68 on the expected factor, except for item 9, included in the POM subscale, whose loading was comparatively low. Cronbach's alpha values were all $\geq .86$, indicating good internal consistency. Correlation between POM and SFM factors was $\rho = -.40$.

Confirmatory Factor Analysis

The goodness of fit values of both the unidimensional and the two-factor models are reported in Table 3.

--- Table 3 about here ---

The unidimensional model of the MLQ showed unsatisfactory goodness of fit indices. Values were instead more than adequate for the two-factor solution. The standardized values of loading estimates for the two-factor model from CFA are shown in Table 4, together with measures of internal consistency.

--- Table 4 about here ---

All loading estimates ranged from .61 (item 6) to .86 (item 8) and were statistically significant ($p < .001$). In line with EFA results, the correlation between POM and SFM factors was $\rho = -.49$.

Internal Consistency

MLQ internal consistency was further evaluated through Cronbach's alpha indices, inter-item and corrected item-scale correlations calculated for the whole sample. Cronbach's alpha indices showed high levels of internal consistency (.84 for POM and .90 for SFM). All the POM subscale items were significantly and positively intercorrelated, with values ranging from .41 (item 6 with item 9) to .70 (item 1 with item 4). The same pattern was observed for all the SFM subscale items, with values ranging from .56 (item 2 with item 7) to .71 (item 8 with item 10). Higher correlations emerged between the items belonging to the same subscale, except for item 9. Although this item is included in the POM subscale, its correlation coefficients with item 8 ($r = -.42$), and item 10 ($r = -.48$), both belonging to the SFM subscale, showed absolute values comparable with the lowest one detected between item 9 and each of the other items of the POM subscale (item 6, $r = .41$). In order to further test item 9 discriminant validity, the correlation of this item with the sum of all other items of the POM subscale was calculated ($r = .59$) and compared with the absolute value of the correlation between item 9 and the summated score of SFM items ($r = -.45$; Ware & Gandek, 1998). A test of the dependent correlations revealed for item 9 a stronger

relation with the POM than with the SFM subscale ($Z = 3.26; p = .001$; Steiger, 1980). MLQ corrected item-scale correlation coefficients are reported in Table 1; values ranged from .58 to .79, well above the minimum criterion of .30 (Nunnally & Bernstein, 1994).

Demographic Variables

Pearson's correlation coefficients were calculated between the MLQ subscales and participants' age; point-biserial correlations were instead employed to evaluate the degree of association with gender (0 = women; 1 = men). Alpha levels were adjusted for multiple comparisons. Significant low correlations were detected only between age and both POM ($r = .22, p < .001$) and SFM ($r = -.27, p < .001$), with older participants reporting higher POM and lower SFM than younger ones.

Convergent and Discriminant Validity

Convergent and discriminant validity of the MLQ were assessed through the inspection of Pearson's correlation coefficients calculated between the subscale values and measures of well-being, mental and physical health, and personality. Descriptive statistics and correlation coefficients are reported in Table 5.

--- Table 5 about here ---

In terms of convergent validity, the POM showed moderate to large positive correlations with satisfaction with life, positive affect, and mental health, as well as low positive correlations with extraversion and conscientiousness. Low to moderate negative correlations were instead detected between POM and negative affect and neuroticism. As for SFM, low positive correlations were observed with negative affect and neuroticism; low to medium negative correlations were detected with satisfaction with life, and mental health.

Discriminant validity was assessed through the SF-36 subscales referring to physical functioning and role limitations due to physical problems. As these values were found to substantially deviate from normality, with negative skewness and positive kurtosis, a logarithmic transformation was performed on them; variables were reflected before and after the transformation. No significant correlations were observed between POM and SFM and these two dimensions of physical health.

Discussion

The present study investigated the psychometric properties and the convergent and discriminant validity of the Meaning in Life Questionnaire in the Italian context. The MLQ factor structure was examined through a split-sample approach. Results from EFA performed on Sample 1 fully supported the adequacy of the two-factor structure of the questionnaire – Presence of Meaning and Search for Meaning – with all items showing the highest loadings on the expected factor. This finding was consistent with evidence obtained in both the original study conducted in the United States (Steger et al., 2006), and subsequent ones involving samples from other countries (Boyraz et al., 2013; Góngora & Castro Solano, 2011; Martos & Konkoly Thege, 2012; Temane et al., 2014). A CFA on Sample 2 further corroborated the two-factor model compared to the unidimensional solution. In line with the MLQ validation study in Argentina (Góngora & Castro Solano, 2011) an EFA identified a rather low loading of item 9 on the POM subscale, to which the item conceptually belongs. This result could be related to the negative formulation of the item (“My life has no clear purpose”), that could make the understanding of the content relatively difficult for participants, compared to the more straightforward formulation of the other MLQ items. Nevertheless, in the present study item 9’s loading on POM was higher than .50 both in the EFA and the CFA. Moreover, in the EFA the item’s cross-loading on SFM was rather low (-.19), with the difference between the two exceeding .20. Taken together, these results suggest a suitable assignment of item 9 to POM subscale.

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As concerns MLQ internal consistency, Cronbach's alpha indices calculated for the whole sample indicated satisfactory reliability for both POM and SFM subscales; internal consistency was further supported by the adequate magnitude of each corrected item-scale correlation coefficient. Moreover, most inter-item correlations were stronger between elements from the same subscale. In particular, all SFM items showed significant positive correlations with one another, and the same relationship was detected among the POM items except for item 9 ('My life has no clear purpose'), whose correlation with SFM items 8 ('I am seeking a purpose or mission for my life') and 10 ('I am searching for meaning in my life') was comparable in absolute value to the correlation with POM item 6 ('I have discovered a satisfying life purpose'). Further inspection of item 9 discriminant validity, however, demonstrated the higher association level of this item with the other items included in the POM subscale.

Besides supporting the hypothesized two-factor structure of the MLQ and the overall reliability of its subscales, the present findings shed light on the conceptual relationship between presence and search for meaning. These two dimensions were negatively correlated, such that participants perceiving higher presence of meaning also reported lower search for meaning. This finding was consistent with the majority of MLQ validation studies involving adult participants in the United States (Steger et al., 2006; Steger, Kashdan et al., 2008), Turkey (Boyras et al., 2013), and South Africa (Temane et al., 2014). As concerns the relationship between the two dimensions of MLQ and the sample's demographic characteristics, no gender difference was detected, in line with other studies with adult participants (Steger et al., 2006; Góngora & Castro Solano, 2011). By contrast, small-size correlations with age emerged, with older individuals reporting greater presence of meaning and lower search for meaning, compared to younger individuals. This finding was not only consistent with other studies conducted on the MLQ (Brassai et al., 2012; Steger, Kashdan et al., 2008), but also with studies investigating the relationship between perceived meaning and life stages from different conceptual and methodological perspectives. In particular, a study conducted on the relationship between time perspective and life

priorities (Hicks, Trent, Davis, & King, 2012) showed that younger adults were prominently focused on optimizing the future, compared with older adults who derived meaning from previous achievements. In the same vein, a study investigating sources and motives for meaning in an international sample of adults (Delle Fave, Brdar, Wissing, & Vella-Brodrick, 2013) showed that younger adults were more engaged in building life meanings through long-term goal pursuit, while older adults primarily detected meaning in activities and relationships available in their daily environment.

In the present study, the MLQ showed good convergent validity with measures of well-being and mental health, substantially replicating findings from previous studies (Steger, 2012; Steger et al., 2013). Adopting a conservative approach that takes into account only moderate to high correlations between variables ($r \geq .30$), evidence was obtained on the association between higher levels of presence of meaning and higher life satisfaction, positive affect, and mental health. By contrast, higher levels of search for meaning were associated with lower life satisfaction and poorer mental health. In line with the theoretical underpinnings, findings globally underscored an opposite trend between presence of and search for meaning. While attaining meaning in life represents a crucial component for healthy psychological functioning, search for meaning may be perceived as problematic, except for participants belonging to cultures characterized by dialectical thinking and high tolerance for contradiction (such as Japan) or participants experiencing developmental transitions, such as adolescents. To the best of our knowledge, no longitudinal evidence is currently available on the relationship between perceived meaning and well-being indicators; nevertheless, most theories and models seem to suggest that perceived meaning is a predictor of well-being, rather than the other way around. Following Frankl (1963), the assumption that humans strive for finding meaning implies that attaining meaning is a source of well-being. Evidence in support of this mechanism can be derived from the health psychology domain, in which meaning-making is widely studied as a key factor to promote positive adjustment to disease. Perceiving a sense of coherence allows individuals to manage adversarial conditions more adaptively (Antonovsky, 1987).

Adopting meaning-based coping strategies (Park & Folkman, 1997), building coherent representations of illness (Leventhal, Brissette, & Leventhal, 2003; Hicks & King, 2009), and finding benefit in an illness condition emerged as strong predictors of well-being in both persons with disease and their caregivers (Pakenham, 2009; Bassi et al., 2016).

Correlation analysis with personality factors supported the association between higher presence of meaning and lower neuroticism detected among college students **in the United States** (Steger, Kashdan et al., 2008), but failed to support the positive association observed between presence of meaning and conscientiousness. Although this difference could be related to demographic factors, such as age and life stage, the lack of similar MLQ-based studies involving adults does not allow us to reach a definitive conclusion. Further research is needed to explore the relationship between MLQ dimensions and personality traits. In this respect, interesting results were recently obtained from college students (Lavigne, Hofman, Ring, Ryder, & Woodward, 2013), taking into account both the specific life domains that people identify as primary sources of meaning (Schnell, 2009), and the lower-level aspects of the Big Five components (DeYoung, Quilty, & Peterson, 2007). Findings showed that participants reporting high levels of openness to experience and assertiveness (a component of extraversion) primarily derived meaning from creative and non-traditional activities; whereas participants with high levels of conscientiousness and compassion (a component of agreeableness) were more likely to find meaning in the domains of productive activities, family, and friendship.

Finally, as expected, the MLQ showed discriminant validity with perceived physical health. Both physical functioning and role limitation due to physical problems were uncorrelated to POM and SFM. This finding supports the bio-psycho-social model of health, a construct including dimensions that differently contribute to personal functioning, without being necessarily interrelated (Skevington & McCrate, 2011; World Health Organization [WHO], 2001).

Overall, the present study provided support for the good psychometric properties and convergent and discriminant validity of the MLQ in the Italian context. Our results should, however, be considered vis à vis the study limitations. First, in the attempt to broaden our scope of investigation, we collected data from a sample of adult individuals, and not from college students as in the majority of MLQ validation studies (Boyratz et al., 2013; Steger et al., 2006; Temane et al., 2014). Although our participants could more faithfully reflect the way meaning is perceived by the general population, future studies should attempt to replicate current findings with representative Italian samples, recruited through random sampling and more diversified in terms of demographic features – such as education, age, and employment status – that may be differently related to presence and search for meaning. A second limitation regards the validation procedure: The present study lacks both an objective measure of health, which could complement results on the MLQ discriminant validity, and a test-retest reliability check which could inform on consistency of the measure over time. Further research should explore these issues, along with measurement invariance across countries in order to enhance our cross-cultural knowledge on POM and SFM.

In spite of these limitations, the promising results from the present study speak to the suitability of the MLQ in the Italian context, and pave the way for future research and applications of this measure in a variety of non-clinical and clinical settings. At the same time, further conceptual refinements and empirical studies on meaning are needed, in order to better understand the different facets of the construct, and to develop more refined measures to assess it (Martela & Steger, 2016). Longitudinal studies are necessary, in order to identify the processes and mechanisms through which perceived meaning is connected to ill- and well-being dimensions. The investigation of perceived sources of meaning (Schnell, 2009) could elucidate the role of specific life domains (for example family, social relationships and spirituality) as mediators or moderators of this relationship. Finally, the complexity of meaning as a personal and social construct would greatly benefit from interdisciplinary research, in the

attempt to harmonize psychological interpretations with philosophical, social, cultural, and ethical perspectives.

Disclosure of interest

The authors declare that there is no conflict of interest.

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Table 1. Descriptive Statistics of MLQ Items and Subscales ($N = 464$).

Item	Min -Max	M (SD)	Corrected item-scale correlations	
			SFM	POM
1.	1-7	4.70 (1.43)		.72
2.	1-7	4.36 (1.99)	.74	
3.	1-7	3.90 (2.01)	.77	
4.	1-7	4.55 (1.53)		.73
5.	1-7	5.12 (1.50)		.66
6.	1-7	4.62 (1.63)		.60
7.	1-7	4.14 (1.97)	.70	
8.	1-7	3.55 (1.98)	.79	
9 (R).	1-7	5.21 (1.83)		.58
10.	1-7	3.65 (2.03)	.74	
SFM	5-35	19.59 (8.40)		
POM	5-35	24.19 (6.24)		

Note. M = Mean; SD = Standard Deviation; (R) = Reverse-coded item; SFM = Search for meaning; POM = Presence of meaning.

Table 2. Exploratory Factor Analysis, Oblimin-Rotated Factor Loadings (Sample 1; $N = 232$).

Item	Principal Axis Factoring	
	SFM	POM
	(.90) ^a	(.86) ^a
2.	.78	
3.	.90	
7.	.81	.11
8.	.78	-.10
10.	.72	-.20
1.		.86
4.		.87
5.		.73
6.		.69
9 (R).	-.19	.58

Note. **Bold** = Item highest factor loadings; ^a Cronbach's alpha value; (R) = Reverse item. SFM = Search for meaning; POM = Presence of meaning; Loadings below .10 are not shown.

Table 3. Goodness of Fit Indices from Confirmatory Factor Analysis (Sample 2; $N = 232$).

Model	S-B χ^2	<i>df</i>	RMSEA	CFI	SRMR	GFI	AGFI	AIC
Unidimensional	382.5***	35	.21	.82	.14	.71	.54	422.5
Two Factors	61.52**	34	.059	.99	.064	.94	.91	103.52

Note. S-B χ^2 = Satorra-Bentler Scaled Chi-Square; *df* = Degree of Freedom; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; SRMR = Standard Root Mean Square Residual; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit Index; AIC = Akaike's Information Criterion. ** $p < .01$, *** $p < .001$.

Table 4. Standardized Factor Loadings from Confirmatory Factor Analysis (Sample 2; $N = 232$).

Item	Factor Loadings	
	SFM	POM
	(.89) ^a	(.82) ^a
2	.80	
3	.76	
7	.74	
8	.86	
10	.80	
1		.79
4		.82
5		.66
6		.61
9 (R)		.64

Note. ^a Cronbach's alpha values; (R) = Reverse item; SFM = Search for meaning; POM = Presence of meaning.

Table 5. Descriptive Statistics of Measures of Well-being, Mental and Physical Health and Personality, and their Correlations with the MLQ Subscales ($N = 464$).

	Min-Max	M (SD)	Correlations	
			SFM	POM
Satisfaction with life	6-35	23.28 (5.96)	-.31	.57
Positive affect	19-50	36.44 (5.47)	-.01	.37
Negative affect	10-46	23.51 (7.04)	.25	-.26
General mental health	0-100	68.08 (16.30)	-.31	.42
Neuroticism	10-39	23.42 (5.73)	.24	-.30
Extraversion	11-40	26.15 (5.84)	.03	.19
Openness	19-50	37.13 (6.70)	.13	.10
Agreeableness	19-45	33.84 (4.75)	-.01	.16
Conscientiousness	19-45	35.69 (5.12)	-.12	.23
Physical functioning ^a	1-2.93	2.46 (0.54)	-.01	.10
Role limitation due to physical problems ^a	1-3	2.51 (0.77)	-.08	.04

Note. M = Mean; SD = Standard Deviation; ^a Transformed variable; SFM = Search for meaning; POM = Presence of meaning; Correlation coefficients greater than .13, .15, and .17 were significant at Bonferroni corrected .05, .01, and .001 α levels respectively (alpha correction takes into account the bivariate correlations with age and gender).