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Measuring Positive Mental Health in the Postpartum Period: The Bifactor Structure of the Mental Health Continuum–Short Form in Portuguese Women

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Abstract

This study aimed to investigate the factor structure of the Mental Health Continuum–Short Form (MHC-SF) in the postpartum context using a single-factor model, a correlated three-factor model, and a bifactor model. The reliability and validity of the MHC-SF were also examined. The total sample consisted of 882 postpartum Portuguese women. Confirmatory factor analysis showed that the bifactor model yielded a significantly better fit to the data than the other models. The unidimensionality strength indices (explained common variance = .76, percentage of uncontaminated correlations = .69) and the ω_H values supported the general factor of positive mental health, which accounted for 91.5% of the reliable variance in the total score. Additionally, the MHC-SF showed high reliability (ω = .96), and its total and subscale scores were significantly correlated with other measures related to mental health. The results of this study suggest a strong general factor of positive mental health and support the use of its total score in this context.

Keywords

Mental Health Continuum–Short Form, bifactor model, confirmatory factor analysis, psychometric properties, postpartum period

Although commonly portrayed as happy and joyous, the postpartum period represents a major and challenging transition for most women (Emmanuel & St John, 2010; Winson, 2017). Women in the postpartum period often experience a wide range of stressors, from emotional, physical, and social challenges (e.g., Kanotra et al., 2007; Woolhouse et al., 2012; Woolhouse et al., 2014) to financial strains and difficulties in balancing work and family demands (e.g., Grice et al., 2007; Nowak et al., 2013). This may result in an increased vulnerability to mental illness, even in low-risk women (Murphey et al., 2017). Moreover, there is substantial evidence demonstrating a significant long-term negative impact of perinatal mental illness on the child's cognitive, social, emotional, and physical development (e.g., Kingston et al., 2012; O'Donnell et al., 2014; Stein et al., 2014), with a significant economic burden to society (e.g., Bauer et al., 2016; Ladd et al., 2017). Accordingly, there has been increasing interest in reducing the human and economic costs associated with perinatal mental illness through its effective treatment and prevention (Sockol, 2015; Sockol et al., 2013). However, the demanding changes experienced by women during this period and their recognized impact are often viewed solely from a mental illness perspective (absence vs. presence of mental illness) rather than from a complete mental health approach (i.e., considering both mental illness and positive mental health), which limits a better understanding of what contributes to and enhances women's mental health. Apart from recent contributions (e.g., Bassi et al., 2017; Corno et al., 2018), the study of positive mental health during this period and the development of interventions focused on the promotion of positive aspects of mental health are still underdeveloped.

In recent decades, the view of mental health as merely the absence of mental illness has changed considerably. The World Health Organization (WHO) has long considered the

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positive aspects of mental health, stating that mental health is a "state of wellbeing in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2004, p. 12). Integrating the advances made in wellbeing research, Keyes (2002) proposed the two-continua model of mental health. From this perspective, mental health is best viewed as a complete state consisting not only of the absence of mental illness but also of the presence of positive dimensions of mental health, namely, emotional, psychological, and social well-being (Keyes, 2002). This model has been supported by several studies in both general and clinical samples (e.g., Lamers et al., 2015; Trompetter et al., 2017; Westerhof & Keyes, 2010), and the presence of positive mental health has been associated with better psychosocial functioning, better physical health outcomes, less use of health care services, and less missed days of work (e.g., Keyes, 2002, 2005). Considering the benefits associated with positive mental health, it seems essential to include its assessment when evaluating women's psychological adjustment to the postpartum period.

Assessing Positive Mental Health: The Mental Health Continuum–Short Form

Keyes (2002) created the Mental Health Continuum–Long Form (MHC-LF) as a comprehensive and multidimensional measurement of positive mental health. The MHC-LF comprises 40 items that were developed based on a tripartite conception of positive mental health as emotional, psychological, and social well-being, also reflecting the definition given by the WHO (2004). Subsequently, the MHC–Short Form (SF) was adapted from the long form to create a version that could be more efficiently administered (Keyes et al., 2008), which has been widely used. The MHC-SF consists of 14 items assessing three dimensions: emotional well-being (three items measuring positive affect/satisfaction with life); social well-being (five items comprising social acceptance, social contribution, social coherence, social actualization, and social integration); and psychological well-being (six items comprising purpose in life, positive relations with others, self-acceptance, autonomy, personal growth, and environmental mastery).

The original psychometric study of the MHC-SF was carried out in South Africa and was later expanded in the Netherlands (Keyes et al., 2008; Lamers et al., 2011). Both studies supported a three-factor structure of the MHC-SF and found the instrument to be both reliable and valid. The MHC-SF has been translated into different languages, and several validation studies across multiple cultural contexts have also found evidence supporting its utility, validity, and reliability (e.g., Poland: Karaś et al., 2014; Korea: Lim, 2014; Argentina: Lupano Perugini et al., 2017; Italy: Petrillo et al., 2015). Concerning the MHC-SF factor structure, the majority of studies confirmed its correlated three-factor structure of emotional, social, and psychological well-being (e.g., Franken et al., 2018; Lupano Perugini et al., 2017; Petrillo et al., 2015). However, some of these studies pointed out the high correlations (r above .80) found between the MHC-SF dimensions. Indeed, despite founding evidence of a three-factor structure, Franken et al. (2018) suggest caution in differentiating between the three dimensions of the MHC-SF.

Recently, some studies examined the factor structure of the MHC-SF by investigating competing models and found evidence that the structure of the MHC-SF was better explained by a bifactor model (e.g., de Bruin & du Plessis, 2015; Echeverría et al., 2017; Jovanović, 2015). The use of a bifactor model has been recommended to investigate multidimensional and complex constructs, which comprise different dimensions that are moderately associated (Reise et al., 2013). This type of measurement model allows us to investigate the presence of a general factor and the degree to which each domain-specific factor is significantly distinct from the general factor (Reise et al., 2013). Therefore, it is plausible to consider whether the MHC-SF comprises a general factor (i.e., positive mental health) that accounts for the commonality shared by its dimensions or whether it is best represented as domain-specific factors (emotional, social, and psychological well-being) that account for the unique influence of the specific dimensions over and above the general factor. Jovanović (2015) found that the MHC-SF was better explained by a bifactor model than by a correlated three-factor model in two samples of Serbian undergraduate students and adults. The same results were found by de Bruin and du Plessis (2015) and Echeverría et al. (2017) in a sample of South African students and Chilean adults, respectively. In these studies, the general factor accounted for a larger proportion of variance in the items, and only the general factor exhibited adequate reliability.

The Current Study

Due to the inconsistent findings regarding the structure and dimensionality of the MHC-SF, the aim of this study was to extend previous research into the reliability and factor structure of the MHC-SF by using a bifactor model. Specifically, the first goal of this study was to explore whether the bifactor model provides a better fit than a single-factor model or a correlated three-factor model. The second goal was to examine the reliability and validity of the MHC-SF scores to establish the psychometric robustness of the MHC-SF. To the best of our knowledge, this is the first study examining the reliability and validity of the MHC-SF in a sample of postpartum women. The measurement of positive mental health during this period

can contribute to a more comprehensive understanding of women's psychological adjustment to this period, and it should better inform the development of more effective interventions in clinical practice.

Method

Participants and Procedure

Women in the postpartum period (0-12 months) aged 18 years or older were invited to participate in the study. Data were collected through an online survey (LimeSurvey®) placed on the website of the Faculty of Psychology and Educational Sciences, University of Coimbra, and a link to the survey was posted on social media websites (Facebook and Instagram). The tagline to advertise the study was the following:

> Are you a mother who had a baby in the last 12 months? We would like to ask for your help on this research focused on the psychological well-being of mothers in the postpartum period. Please click on the link below to find more information about this study.

The enrolment in the study occurred between August and November 2018. Informed consent was obtained from all participants (by clicking on the option "I understand and accept the conditions of the study") after information was given about the study's goals and the voluntary and anonymous nature of participation. The ethical committee of the Faculty of Psychology and Educational Sciences, University of Coimbra approved all the procedures of sample recruitment and data collection.

In total, 903 women gave their consent to participate in the study. However, 21 women were removed from the sample due to having an infant older than 12 months. The final sample of this cross-sectional study consisted of 882 postpartum Portuguese women with a mean age of 31.97 years ($SD = 4.78$; range 18-45 years). Infants were aged between 0 and 12 months ($M = 5.56$; $SD = 3.32$), and this was the first child for most women ($n = 569$; 64.5%). The majority of women were married/living with a partner ($n = 804$; 91.1%), were employed ($n = 715$; 81.1%), had completed higher education ($n = 555$; 62.9%), and belonged to a medium socioeconomic status ($n = 750$; 85%). In addition, 63.2% ($n = 557$) of women were still on maternity leave and had not returned to work. In our sample, 25.5% ($n = 225$) of women reported having a prior history of psychopathological problems.

Measures

Sociodemographic (e.g., age, marital status, education, and infant's age) and clinical data (e.g., prior history of psychopathological problems) were collected through a self-report questionnaire developed by the authors.

Positive mental health was measured using the MHC-SF (Keyes et al., 2008). This questionnaire consists of 14 items divided into three dimensions: emotional (three items, e.g., "During the past month, how often did you feel happy?"), social (five items, e.g., "During the past month, how often did you feel that you belonged to a community?"), and psychological well-being (six items, e.g., "During the past month, how often did you feel that you had experiences that challenged you to grow and become a better person?"). Each item is rated on a 6-point response scale from 0 (*never*) to 5 (*every day*) in reference to the last month. The MHC-SF can be scored continuously (scores range from 0 to 70, and higher scores indicate better positive mental health) or categorically considering mental health status (flourishing, moderate mental health, languishing). According to the author of the MHC-SF, the items of this measure can be seen as symptoms that may diagnose different categories of positive mental health (Keyes et al., 2008). Thus, individuals who answered *every day* or *almost every day* at least once in the emotional well-being subscale and at least six times in the psychological and social wellbeing subscales were categorized as flourishing; individuals who answered *never* or *once or twice* for at least one item in the emotional well-being subscale and at least six items in the psychological and social well-being subscales were categorized as languishing; and individuals who did not fit the criteria for either flourishing or languishing were considered moderately mentally healthy.

The Satisfaction With Life Scale (SWLS; Diener et al., 1985; Portuguese Version [PV]: Neto, 1993) was used to measure global life satisfaction. The SWLS is composed of five items (e.g., "So far I have gotten the important things I want in life.") rated on a 7-point response scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores denoting a higher satisfaction with life. The Portuguese version of the SWLS has demonstrated adequate internal consistency ($\alpha = .78$). In our sample, the Cronbach's alpha was .89.

Quality of life was measured with the EUROHIS-QOL eight-item index (Schmidt et al., 2006; PV: Pereira et al., 2011). Each of the eight items has an individualized 5-point response scale, and scores range between 0 and 100, with higher scores indicating better quality of life. The Portuguese version has demonstrated good values of internal consistency ($\alpha = .81$) across different population groups (Pereira & Canavarro, 2015). In our sample, the Cronbach's α was .86.

The Resilience Scale (Wagnild, 2009; PV: Pinheiro & Matos, 2013) was used to assess resilience. This scale comprises 14 items (e.g., "I feel like that I can handle many things at a time.") scored on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate a greater ability to respond with resilience. The Portuguese version of the RS-14 has been shown to be

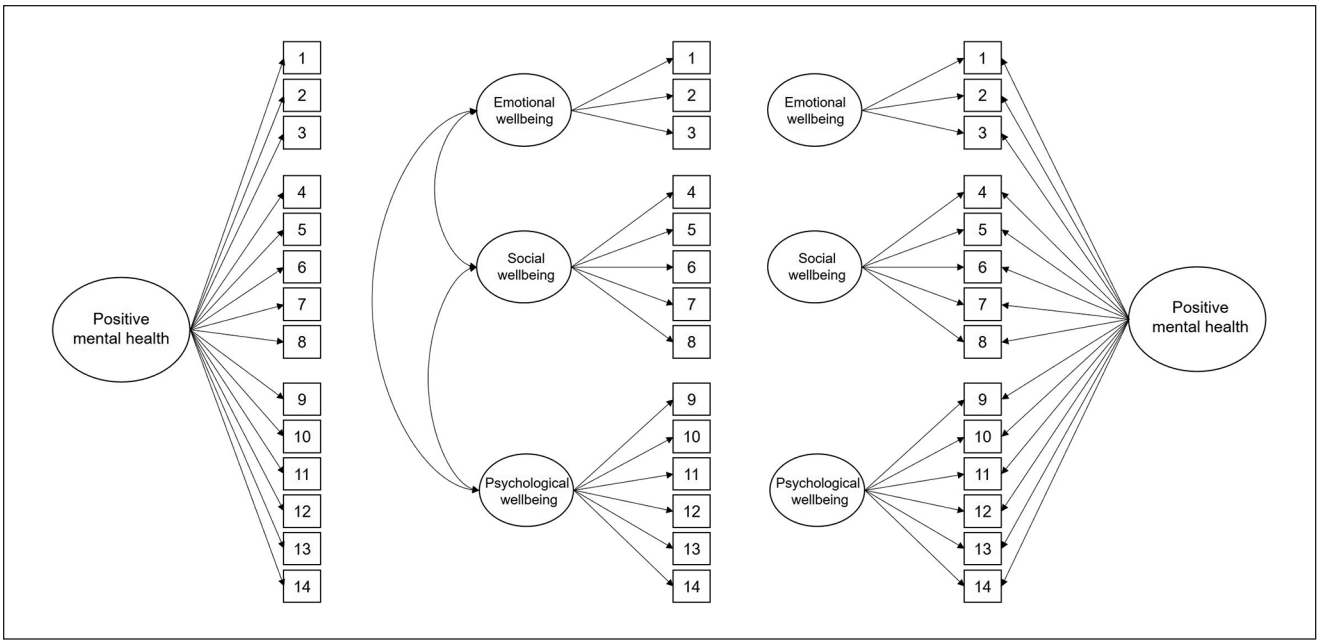

Figure 1. Single-factor, correlated three-factor, and bifactor models of the MHC-SF.

reliable and valid across multiple studies (e.g., Oliveira et al., 2015; Pinheiro & Matos, 2013). In our sample, the Cronbach's α was .92.

Maternal confidence was measured with the Maternal Confidence Questionnaire (Parker & Zahr, 1985; PV: Nazaré et al., 2013). The Maternal Confidence Questionnaire comprises 13 items (e.g., "I feel satisfied with my role as mother") answered on a 5-point response scale ranging from 1 (*never*) to 5 (*always*). Higher scores indicate higher perceived maternal competence. High internal consistency (α = .88) has been demonstrated for the Portuguese version. In our sample, the Cronbach's α was .84.

The Edinburgh Postnatal Depression Scale (PV: Areias et al., 1996; Augusto et al., 1996; Cox et al., 1987) is a 10-item self-report questionnaire of depressive symptoms in the perinatal period. In each item, participants are asked to indicate one of four individualized responses that are rated from 0 to 3. The total score ranges between 0 and 30, and higher scores are indicative of more severe depressive symptoms. In Portuguese validation studies, good internal consistency was found (α = .85). In our sample, the Cronbach's α was .89.

Data Analysis

Statistical analyses were performed with the *Statistical Package for the Social Sciences* (IBM SPSS, Version 23.0) and with M*plus* 7.4 (Muthén & Muthén, 2012).

Descriptive statistics were first calculated to explore the sample's sociodemographic and clinical characteristics. Confirmatory factor analyses (CFAs) using the robust maximum likelihood estimation method were performed to examine the best-fitting model for the MHC-SF, because Mardia's test indicated that our data violated the multivariate normality assumption (Mardia's kurtosis = 106.70, $p < .001$). Based on the theoretical background regarding positive mental health and previous research, three models of the MHC-SF were tested: (a) the single-factor model, (b) the correlated three-factor model, and (C) the bifactor model (Figure 1).

The goodness of fit of the CFA models was assessed using several indices. To indicate a good fit, the chi-square index (χ^2) should be nonsignificant, which is rarely obtained when the sample is large (Van de Schoot et al., 2012). Therefore, other fit indices were considered: a good model fit is also indicated by comparative fit index values above .95, root mean square error of approximation values of .06 or lower, and standardized root mean square residual values of .10 or lower (Hu & Bentler, 1999). To compare the models, $\Delta\chi^2$ (with a significant difference between the χ^2 scores indicating that the model with the lowest χ^2 presents a better fit) and Akaike information criterion values (with the lowest values being indicative of a better fit; Kline, 2011) were used.

Factor loadings for the single-factor model, the correlated three-factor model, and the bifactor model were examined. Factor loadings of .32 or above were considered meaningful (Tabachnick & Fidell, 2007). Similar factor loadings of the general factor in the bifactor model when compared with the single-factor model and lower factor loadings on the domain-specific dimensions in the bifactor model compared with the correlated factor model suggest a

Table 1. Fit Statistics for the Confirmatory Factor Analyses.

Model	$\chi^2(df)$	*p*	CFI	RMSEA [90% CI]	AIC
Single-factor	1136.956 (77)	<.001	.814	.125 [.119, −.131]	34138.708
Correlated three-factor	446.599 (74)	<.001	.935	.076 [.069, .082]	33082.092
Bifactor	298.685 (64)	<.001	.959	.064 [.057, .072]	32875.563

Note. CI = confidence interval; CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; AIC = Akaike information criterion.

high influence of the general factor and that the specific dimensions have minor influence on the variance in the items (e.g., Zwaanswijk et al., 2017).

Additionally, explained common variance (ECV; i.e., the proportion of all common variance explained by the general factor) and the percentage of uncontaminated correlations (PUC) were computed to investigate the degree of unidimensionality of the total score of the general factor. In conjunction with the ECV, the PUC is useful in determining whether considering a unidimensional model will not lead to biased parameter estimates (Rodriguez et al., 2016b). Higher ECV values indicate little common variance beyond the variance accounted for by the general factor (Reise et al., 2013).

To evaluate reliability, McDonald's (1999) omega coefficients (ω), omega hierarchical (ω_H), and relative omega (ω_H/ω) were calculated. The standardized estimates from the bifactor model were used to compute both coefficients: the ω index reflects an estimate of the amount of variance in total (or domain-specific) scale scores due to all sources of common variance and corresponds to internal consistency, while the ω_H coefficient reflects how precisely the proportion of a total scale score variance is attributed to the general or domain-specific factors. An ω_H value greater than .50 and closer to .75 is suggestive of factor strength (Reise et al., 2013). The relative omega (ω_H/ω) corresponds to the percentage of reliable variance in the multidimensional total score that is due to the general factor and the percentage of reliable variance in the subscale scores that is independent from the general factor.

Factor determinacy (FD) and construct replicability (H index) were calculated to determine the adequacy of the model. High scores of FD (>.90) suggest that individual differences on the factor score estimates are good representations of true individual differences on the factor. The H index refers to how well a set of items represents a latent variable, and high values (>.80) suggest a well-defined latent variable that is more likely to be stable across studies (Rodriguez et al., 2016a).

To provide evidence of the validity of the MHC-SF scores and the categories of positive mental health proposed by Keyes et al. (2008) in relation to other measures, Pearson correlations were examined. Effect sizes were presented for all analyses (small effect: $r = .10$; medium effect: $r = .30$; large effect: $r = .50$; Cohen, 1992).

Results

Confirmatory Factor Analysis

A summary of the three competing models is shown in Table 1. The single-factor model presented a poor fit to the data. Although the correlated three-factor model presented an acceptable fit to the data, the bifactor model fit the data noticeably better ($\Delta\chi^2(10) = 147.91$, $p < .001$).

Latent Factor Intercorrelations

Regarding the correlated three-factor model, significant and high latent factor intercorrelations were found. The highest factor intercorrelation was between emotional and psychological well-being ($r = .83$, $p < .001$), followed by psychological and social well-being ($r = .77$, $p < .001$) and emotional and social well-being ($r = .67$, $p < .001$).

Factor Loadings and Dimensionality

Table 2 presents the standardized factor loadings of the three models tested. Considering the bifactor model, all items loaded strongly and significantly ($p < .001$) in the general factor, ranging between .635 and .870. These values were similar to those in the single-factor model. On the other hand, loadings on the emotional, social, and psychological well-being dimensions were significantly lower in the bifactor model than in the correlated three-factor model. In the bifactor model, all factor loadings were higher on the general factor compared with the domain-specific factors. Indeed, regarding the domain-specific factors, several items had nonmeaningful loadings (<.32), and in the case of item 14, no significance was found, which suggests that a large proportion of the variance of the items was explained by the general factor.

In addition, the values of the unidimensionality strength indices (ECV = .82, PUC = .69) indicated that the general factor explained a relatively large proportion of the variance of the items (approximately 82% of the common variance).

Table 2. Factor Loadings for the Single-Factor, Correlated Three-Factor, and Bifactor Models.

	Single-factor	Three-factor			Bifactor			
Item	Positive mental health	EWB	SWB	PWB	Positive mental health (general)	EWB	SWB	PWB
1	.739***	.847***			.844***	.361***		
2	.770***	.844***			.848***	.255***		
3	.806***	.902***			.870***	.322***		
4	.775***		.718***		.822***		.143***	
5	.687***		.713***		.718***		.265***	
6	.695***		.867***		.685***		.572***	
7	.683***		.839***		.668***		.572***	
8	.659***		.829***		.635***		.609***	
9	.785***			.799***	.801***			.246***
10	.719***			.755***	.750***			.298***
11	.751***			.777***	.762***			.339***
12	.721***			.747***	.741***			.303***
13	.769***			.805***	.809***			.250***
14	.789***			.806***	.854***			.098
				ECV	.820	.120	.308	.103
				Factor determinancy	.966	.674	.871	.631
				H index	.960	.251	.624	.319
				ω	.971	.936	.926	.930
				ω_H	.909	.111	.253	.089
				Relative Omega	.937	.118	.273	.096

Note. EWB = emotional well-being; SWB = social well-being; PWB = psychological well-being.
***$p < .01$.

Accordingly, acceptable values of FD and the H index were only found for the general factor. Taken together with the factor loadings from the tested models, these results suggest that the MHC-SF has a strong general factor.

Reliability

In the present sample, high reliability was found both for the general factor (ω = .97) and for the emotional (ω = .94), social (ω = .93), and psychological well-being (ω = .93) dimensions (see Table 2). However, only a small amount of reliable variance was left within the subscales once the general factor was controlled statistically. The ω_H of the domain-specific factors ranged from .09 (psychological well-being) to .25 (social well-being), while the ω_H of the general factor remained high ($\omega_H = .91$), accounting for 93.7% of the reliable variance in the total score.

Categories of Positive Mental Health and Convergent Validity

In our sample, and based on the criteria by Keyes et al. (2008), the majority of women were flourishing ($n = 494$; 56%). Moreover, 4.1% ($n = 36$) of women were languishing, and 39.9% ($n = 352$) had moderate mental health. Pearson correlations between MHC-SF total/subscale scores and other measures related to mental health are reported in Table 3. Correlations between the presence of flourishing (vs. not flourishing) and other measures related to mental health are also presented. Higher scores in the MHC-SF and the presence of flourishing were significantly and largely associated with higher satisfaction with life, higher quality of life and higher resilience. A significant association was also found between lower postpartum depressive symptoms and higher scores on the MHC-SF, as well as the presence of flourishing. Although also significantly associated, higher levels of maternal confidence were only moderately correlated with higher scores on the MHC-SF total/subscales and the presence of flourishing.

Discussion

The main goal of the present study was to examine the factor structure of the MHC-SF in a sample of postpartum women and to determine whether this instrument was best represented by a single-factor, a correlated three-factor, or a bifactor model. CFA showed that a bifactor model provided a better fit to the data than the competing models. This finding is consistent with the results demonstrated in previous studies in general samples (de Bruin & du Plessis, 2015; Echeverría et al., 2017; Jovanović, 2015), supporting the bifactor structure of the MHC-SF. Moreover, the results of

Table 3. Pearson's Bivariate Correlations Between the MHC-SF Total and Subscales Scores, Presence of Flourishing and Other Variables Related to Positive Mental Health and Mental Ill Health.

	MHC-SF total	MHC-SF Emotional well-being	MHC-SF Social well-being	MHC-SF Psychological well-being	Flourishing
Satisfaction with life	.69**	.66**	.59**	.63**	.51**
Quality of life	.70**	.68**	.58**	.67**	.53**
Postpartum depressive symptoms	−.70**	−.74**	−.56**	−.65**	−.51**
Resilience	.65**	.58**	.51**	.68**	.54**
Maternal confidence	.35**	.28**	.25**	.40**	.31**

Note. MHC-SF = Mental Health Continuum–Short Form; Flourishing: [0 = absence of flourishing, 1 = flourishing].
**$p < .01$.

our study support a general positive mental health factor that is reliably measured by the MHC-SF total score, and that separately calculating the subscale scores of the MHC-SF is questionable. This is supported by different results, which will be discussed below.

First, high intercorrelations were found among the latent factors in the correlated three-factor model. This is congruent with previous research using the MHC-SF (e.g., Franken et al., 2018) and highlights the interrelatedness of these dimensions, reinforcing the use of the MHC-SF total score. Moreover, omega indices showed high reliability for both the general factor of the MHC-SF and the dimensions of emotional, social, and psychological well-being. However, after controlling for the variance associated with the general factor, the three dimensions explained little variance beyond that explained by the general factor, which is congruent with the results found in previous studies (e.g., Jovanović, 2015). Indeed, values ranged from .09 in the psychological wellbeing dimension to .25 in the social well-being dimension, which are below the threshold of .50 recommended by Reise et al. (2013) to consider a subscale a valid representation of a separable dimension. Thus, although the dimensions do explain some variance over and above the general factor, this is not sufficient to warrant the use of the subscale scores.

Additionally, standardized factor loadings were similar between the single-factor model and the general factor from the bifactor model. In turn, there was a noticeable difference between loadings on the specific factors in the bifactor and the correlated three-factor model. Overall, this result is in line with previous research on the bifactor structure of the MHC-SF (e.g., Echeverría et al., 2017; Jovanović, 2015). However, we found differences in the factor loadings from other studies. Specifically, although the overall pattern of the loadings is similar to our findings (e.g., social wellbeing items loaded lower in the general factor), we found generally higher loadings in the general factor and lower loadings in the domain-specific factors when comparing with the results from other studies (de Bruin & du Plessis, 2015; Jovanović, 2015). This suggests that the items of the MHC-SF may function differently in women with infants when comparing with general population samples. Our results also showed a greater percentage of flourishers when comparing with previous findings (Karaś et al., 2014; Keyes et al., 2008; Petrillo et al., 2015). It has been previously suggested that the transition to parenthood is associated with a boost in life satisfaction with relatively higher levels of positive emotions and meaning in life (Dyrdal & Lucas, 2013; Nelson et al., 2013). The higher percentage of flourishers could also be explained by the characteristics of the sample of this study. Most participants were in a relationship, employed, and had completed higher education and these sociodemographic characteristics have been suggested as predictors of flourishing (Schotanus-Dijkstra et al., 2016; Westerhof & Keyes, 2010). Moreover, external influences, such as parental leave policy, could have an influence on our results and the majority of the participants of our study were still on maternity leave at the time of data collection. A recent UNICEF report suggests that Portugal is among the countries with friendlier family policies (Chzhen et al., 2019), since parents can have up to 180 days of fully paid shared parental leave. It has been suggested that longer parental leaves could facilitate work–family balance and are associated with higher life satisfaction and positive affect (Grice et al., 2007).

Finally, the values of the unidimensionality strength indices indicate that the general factor explains approximately 82% of the common variance. According to Reise et al. (2013), this value suggests that the MHC-SF can be considered as primarily unidimensional. However, stating that the MHC-SF is unidimensional and that it measures a single variable needs further research and clarification, as the domain-specific factors presented different results. Indeed, the social well-being subscale presented a higher ω_H (.25), H index (.62), and ECV (.31), specifically when compared with the psychological well-being subscale (ω_H = .09; H index = .32; ECV = .10). This indicates that the social well-being dimension is the most distinct of the three factors, as it captures a more substantial proportion of specific variance. In contrast, the results of the psychological well-being subscale suggest that this dimension almost overlaps with the general factor of positive mental health.

Thus, further research is needed to determine the (uni) dimensionality of the MHC-SF.

The convergent validity of the MHC-SF among women in the postpartum period was supported by the results of the correlations between the MHC-SF and other measures. The MHC-SF total and subscale scores were significantly associated with other relevant constructs related to positive aspects of mental health, specifically satisfaction with life, quality of life, resilience, and maternal confidence. Additionally, postpartum depressive symptoms were negatively correlated with the MHC-SF total score and with its three dimensions. These findings are congruent with those found in other psychometric studies of the MHC-SF (e.g., Guo et al., 2015; Keyes et al., 2008). Nevertheless, they add to the existing research on the validity of the MHC-SF by including variables more specific to the psychological adjustment to the postpartum period, such as postpartum depressive symptoms and maternal confidence. This supports the use of the MHC-SF as a valid instrument to measure positive mental health among postpartum women. Furthermore, our results also showed that the presence of flourishing (vs. not flourishing) was significantly associated with higher levels of satisfaction with life, quality of life, resilience, maternal confidence, and lower levels of postpartum depressive symptoms. This is congruent with findings in general samples (e.g., Petrillo et al., 2015) and suggests that postpartum women who are flourishing function better than those who are not. Although the literature is still scarce, a few studies have shown that flourishing individuals have better psychosocial functioning (i.e., higher resilience, lower perceived helplessness, clearer goals in life; Keyes, 2005), higher levels of conscientiousness and extraversion, and lower levels of neuroticism (Schotanus-Dijkstra et al., 2016).

Our study also highlights the relevance of validating positive mental health measures in the postpartum period. Many generic measures have not been tested in this context, and certain psychometric properties may not apply to the unique nature of this period (Meades & Ayers, 2011). Additionally, there is a substantial lack of research concerning positive mental health in perinatal women. Although the measurement of psychopathology in this context is relevant to promptly identifying at-risk women, adding the assessment of positive mental health may provide a more comprehensive knowledge of the psychological adjustment to this period. Indeed, there has been increasing evidence showing that mental illness and mental health, although related, are two different constructs (e.g., Lamers et al., 2015). Thus, the absence of mental illness in postpartum women does not imply the presence of positive mental health and its associated benefits. Positive mental health has been associated with better physical and mental health, less missed days of work and has a positive influence on the recovery of diagnosed mental disorders (Dyrbye et al., 2012; Keyes, 2007; Schotanus-Dijkstra et al., 2019). Additionally, positive mental health in the postpartum period could contribute not only to women's overall mental health but also to the child's development, as it has been found that positive mental health in mothers was associated with positive development outcomes in children (Phua et al., 2017). Therefore, the screening and monitoring of positive mental health during this period is as significant as the screening and monitoring of mental illness. Furthermore, the measurement of positive mental health could also benefit research on the effectiveness of psychological interventions in the perinatal period, which focuses mostly on mental illness outcomes (e.g., Sockol, 2015).

Although the present study provides an important step in the shift of postpartum period research from focusing on negative and mental ill health to a more positive approach, it has several limitations. The cross-sectional design and the self-selected convenience sample of the online recruitment (i.e., women participating in the study could be more interested in the study theme) limit the interpretation and generalizability of these findings to all women in the postpartum period. Additionally, the sample of this study was mainly composed of highly educated and employed mothers. This could explain the high percentage of flourishers in our sample and possibly influenced our results. Future studies could build on current findings by investigating the validity of the MHC-SF in more heterogeneous and representative samples. Furthermore, the test–retest reliability was not determined. Additional test–retest reliability as well as sensitivity to change studies should be also conducted. Finally, it should be noted that it has been advised that the bifactor model has shown tendencies to outperform other models regarding fit statistics (Murray & Johnson, 2013). Therefore, we cannot dismiss the possibility that the bifactor model may have capture unwanted noise and showed a superior fit due to an inbuilt tendency to overfit data. Nonetheless, when understanding the psychometric properties of assessment scales, the bifactor model can provide significant and invaluable information in determining whether a measure's subscale scores are reliable after accounting for the general factor or whether there is only support for the use of a total score (Bonifay et al., 2017).

Despite these limitations, the present study provides important results that may help further develop research on positive mental health in the postpartum period. Overall, our findings suggest a general factor of positive mental health and consequently do not provide adequate support for the use of its subscales as measures of distinct dimensions. In addition, our findings suggest that the MHC-SF is a valid instrument to measure positive mental health among postpartum Portuguese women. This may provide a more comprehensive understanding of women's psychosocial

adjustment to this period and be used in the assessment of interventions targeting the prevention and promotion of maternal mental health.

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