

Childbearing Motivations Scale: Construction of a new measure and its preliminary psychometric properties

Maryse Guedes • Marco Pereira • Raquel Pires • Paula Carvalho • Maria Cristina Canavarro

Brief running head: Childbearing Motivations Scale

Acknowledgements

This study is part of the research project “*Transition to parenthood in advanced maternal age: Individual, marital and parental adaptation*”, conducted by the Relationships, Development & Health Research Group of the R&D Unit of the Institute of Cognitive Psychology, Vocational and Social Development of the University of Coimbra (PEst-OE/PSI/UI0192/2011). Maryse Guedes, Marco Pereira, Raquel Pires and Paula Carvalho are supported by scholarships from the Portuguese Foundation for Science and Technology (SFRH/BD/68912/2010, SFRH/BPD/44435/2008, SFRH/BD/63949/2009 and SFRH/BD/37685/2007, respectively).

M. Guedes ✉ • M. Pereira • R. Pires • M. C. Canavarro

Faculty of Psychology and Educational Sciences, University of Coimbra, Rua do Colégio Novo, Apartado 6153, 3001-802 Coimbra, Portugal

e-mail: maryseguedes@gmail.com

P. Carvalho

Department of Psychology and Education, University of Beira Interior, Covilhã, Portugal

Abstract

Given recent shifts in fertility patterns, the assessment of childbearing motivations is important for understanding reproductive decision-making. To overcome previous methodological and conceptual flaws, a self-report scale was developed to assess positive and negative childbearing motivations and their respective subdimensions. The present study aimed to construct the final version of the Childbearing Motivations Scale (CMS) and examine its factorial structure and preliminary psychometric properties. A sample of 614 participants from the general population, aged 19 to 49 years, provided sociodemographic information and completed the experimental version of the CMS. Preliminary analyses were performed to refine the item pool. The final version of the CMS consisted of two parts: a positive childbearing motivations subscale (26 items) and a negative childbearing motivations subscale (21 items). The factorial structure of the CMS was analyzed using a split-half validation method. Exploratory factor analyses provided evidence for a four-factor model for the positive childbearing motivations subscale (i.e., socioeconomic aspects, personal fulfillment, continuity and the couple relationship) and a five-factor model for the negative childbearing motivations subscale (i.e., childrearing burden and immaturity, social and ecological worry, marital stress, financial problems and economic constraints, and physical suffering and body-image concerns). Confirmatory factor analyses supported the stability of both models. The CMS demonstrated good internal consistency. The CMS may be a useful tool to better understand contemporary fertility patterns and prepare adequate familial policies and psychosocial interventions in reproductive health care systems. Future studies are needed to corroborate the psychometric properties of the CMS.

Keywords: Reproductive decision-making process; positive childbearing motivations; negative childbearing motivations; parenting; scale construction.

Introduction

Increasingly in Europe, social sustainability and reproductive health are being significantly impacted by the trend of decreasing birth rates and the postponement of first childbirth (Schmidt, Sobotka, Benzten, & Anderson, 2012). These fertility patterns have mainly been attributed to improvements in effective contraception, increases in women's education and labor market participation, partnership changes, economic uncertainty and the absence of supportive family policies (Mills, Rindfuss, McDonald, & Velde, 2011). However, these explanations have given little attention to an important individual component of the reproductive decision-making process, known as childbearing motivations. Childbearing motivations are dispositions to respond favorably or unfavorably to childbearing (Miller, 1994), which have significantly varied across time (Frejka, Hoem, Toulemon, & Sobotka, 2008). According to Frejka and colleagues, childbearing has less frequently been considered a "duty towards society" (p. 10) and has increasingly served personal fulfillment through private joy and extension of one's self. Simultaneously, childbearing has also been linked to responsible and intensive parenting (Liss, Schiffrin, Mackintosh, Miles-McLean, & Erchull, 2012) that often imposes partnership, lifestyle and economic constraints (Mills et al., 2011). In addition to varying across time, childbearing motivations are important determinants of reproductive intentions and behaviors (Miller, 1994) and influence psychosocial adjustment to several reproductive events, such as pregnancy and transition to parenthood (Miller, 2003), infertility and assisted reproduction treatments (Cassidy & Sintrovani, 2008). Therefore, it is important to develop new measures that allow for a comprehensive assessment of childbearing motivations in the current context. Aside from contributing for a better understanding of reproductive behaviors (i.e., decisions concerning first childbirth and whether having or not additional children), these new measures could also be useful in applied health settings. A comprehensive assessment of childbearing motivations could be helpful in reproductive counseling, to promote conscious and satisfactory decisions regarding family planning (Langdridge, Sheeran, & Connolly, 2005) or complex fertility issues (e.g., childbearing after cancer; Shover, 2005). It could also allow for an early identification of unrealistic childbearing motivations, to prepare interventions that might facilitate the psychosocial adjustment to normative (e.g., transition to parenthood; Gauthier, Sénechal, & Guay, 2007) and challenging reproductive events (e.g., infertility; Newton, Hearn, Yuzpe, & Houle, 1992).

Despite its relevance, the measurement of childbearing motivations is complex (Wijsen, 2002). Aside from being difficult to accede in the general population (Dyer, Mokoena, Maritz, & van der Spuy, 2008), childbearing motivations have been conceptualized multidimensionally (Miller, 1994). Childbearing motivations involve two dimensions, known as positive and negative childbearing motivations (Miller, 1995). These dimensions are distinct, not simply opposites of each other and manifest themselves through multiple subdimensions that propel individuals towards or away childbearing (Miller, 1994), such as enjoying the experience of childbirth or experiencing parental stress. These subdimensions have been systematized through a diversity of taxonomies that differ regarding their level of analysis (Miller, 2009), thus creating divergent operationalizations. Due to conceptual and methodological flaws, it has been difficult to provide a comprehensive assessment of the multiple subdimensions of positive and negative childbearing motivations, using presently available self-report instruments.

First, available instruments have rarely been constructed based on a multi-step approach (Miller, McIntire, & Lovler, 2011). In most instruments, construct definition and item development have exclusively been derived from literature reviews of existing measures, classical theoretical taxonomies and empirical research on childbearing motivations (Miller, 2009). Few studies have included exploratory procedures based on qualitative methodologies, with groups who have personal experience (e.g., pregnant couples or parents; Gauthier, 2007) or expertise (e.g., health professionals in family planning; Bell, Bancroft, & Phillip, 1985; Langdridge et al., 2005) in the field. Qualitative methodologies, in particular focus groups, have appeared to be useful to explore motivations, clarify complex constructs and their contextual variations, and enhance brainstorming about terms or phrases to be used later in the development of meaningful items (Abell, Springer, & Kamata, 2009; Krueger & Casey, 2009). Given the complexity of childbearing motivations and their changes across time, new measures should combine literature reviews and qualitative methodologies to allow a better understanding of the multidimensionality of the concept (Kennedy, 2002), in the current context. New measures should also improve procedures to test content relevance and scale comprehensibility before its administration in the target population (Miller et al., 2011), as expert panels and pilot studies have rarely been part of the construction of presently available instruments (e.g., Gauthier et al., 2007).

Second, most available instruments only allow for a partial assessment of childbearing motivations. Part of available instruments exclusively measures positive childbearing motivations, such as the Parenthood Motivation Scale (Cassidy & Sintrovani, 2008), the Motivation to have a Child Scale (Gauthier et al., 2007), the Reasons for Parenthood Scale (Newton et al., 1992), the Parenting Expectation Questionnaire (O’Laughlin & Anderson, 2001), or the Parenthood Motivation List (Van Balen & Trimbos-Kemper, 1995). These instruments have provided some understanding about the subdimensions of positive childbearing motivations, categorizing them as intrinsic and extrinsic motivations (i.e., based on the internal or external rewards of having a child; Gauthier et al., 2007; O’Laughlin & Anderson, 2001) or organizing them into more specific subdimensions (i.e., 4, 5 or 6), such as marital completion, social pressure, or continuity (Cassidy & Sintrovani, 2008; Newton et al., 1992; Van Balen & Trimbos-Kemper, 1995). However, these instruments have failed to measure negative childbearing motivations that distinguish themselves from positive childbearing motivations and also influence reproductive behaviors (Miller, 1995). Given its relevance, several instruments have attempted to assess positive and negative childbearing motivations. Some instruments have only provided global assessments of positive and negative childbearing motivations, such as the Bell Parenthood Motivation Scale (Bell et al., 1985) or the Reasons for and against having a child (Langdridge et al., 2005). In these instruments, the structure (i.e., perceived advantages and disadvantages of having children; Bell et al., 1985) and the small number of items (6 positive and 5 negative childbearing motivations; Langdridge et al., 2005) have limited the measurement of the subdimensions of positive and negative childbearing motivations that allow for a more precise understanding of reproductive behaviors (Miller, 1995). With the exception of the Leipzig Questionnaire on Motives for Having Children (Stöbel-Richter, Beutel, Fink, & Bräler, 2005), available instruments that have assessed the subdimensions of positive and negative childbearing motivations have been constructed in the late seventies (the Value of Children Attitudes Scale and the Parenthood Motivation Questionnaire; Arnold & Fawcett, 1975; Seaver, Kirchner, Straw, & Vegega, 1977) and mid-nineties (the Childbearing Motivation Questionnaire; Miller, 1995). Aside from often being outdated, some instruments have contributed for a limited assessment of the subdimensions of the negative childbearing motivations, restricting them to external controls (i.e., limits to population growth) and costs (i.e., restrictions to personal well-being; Arnold & Fawcett, 1975) or fear of personal and financial constraints (Stöbel-Richter et al., 2005). Other instruments have consisted of a higher number of subdimensions to assess positive (i.e., 5 to 12) and negative (i.e., 4 to 10) childbearing motivations

(Miller, 1995; Seaver et al., 1977); however, some subdimensions have included less than three items (e.g., discomforts of pregnancy and childbirth, partnership benefits or partnership costs), showing low internal consistency and limited utility. Therefore, new multidimensional measures should be developed to allow for a precise assessment of the multiple subdimensions of positive and negative childbearing motivations, in the present-day context.

Finally, most available instruments have been studied in samples of college students (O’Laughlin & Anderson, 2001) and pregnant or infertile couples (Bell et al., 1985; Cassidy & Sintrovani, 2008; Gauthier et al., 2007; Newton et al., 1992; Van Balen & Trimbos-Kemper, 1995). Few instruments have been studied in samples from the general population (Miller, 1995; Seaver et al., 1977), especially in the present-day context (Langdridge et al., 2005; Stöbel-Richter et al., 2005). These samples have mainly consisted of childless couples of reproductive age (Langdridge et al., 2005; Seaver et al., 1977). They have not often included respondents of reproductive age who are already parents (Miller, 1995), to examine positive and negative childbearing motivations to have a first child and additional children. Despite the recent partnership changes (i.e., increase in the number of divorces and short-time and multiple unions; Mills et al., 2011), samples have also rarely included respondents of reproductive age who are single, divorced or separated (Stöbel-Richter et al., 2005). Additionally, these studies have commonly defined reproductive age (18 or 20-40 years; Langdridge et al., 2005; Miller, 1995; Seaver et al., 1977), without accounting for the increase in birth rates among women aged 40 and over (The Health Reproductive Report, 2011). New measures should overcome these sampling limitations to allow for a better understanding of current reproductive patterns.

Given these conceptual and methodological flaws, a self-report scale was developed to assess the positive and negative childbearing motivations and their respective subdimensions. The new scale underwent four stages of development, which are presented in Figure 1.

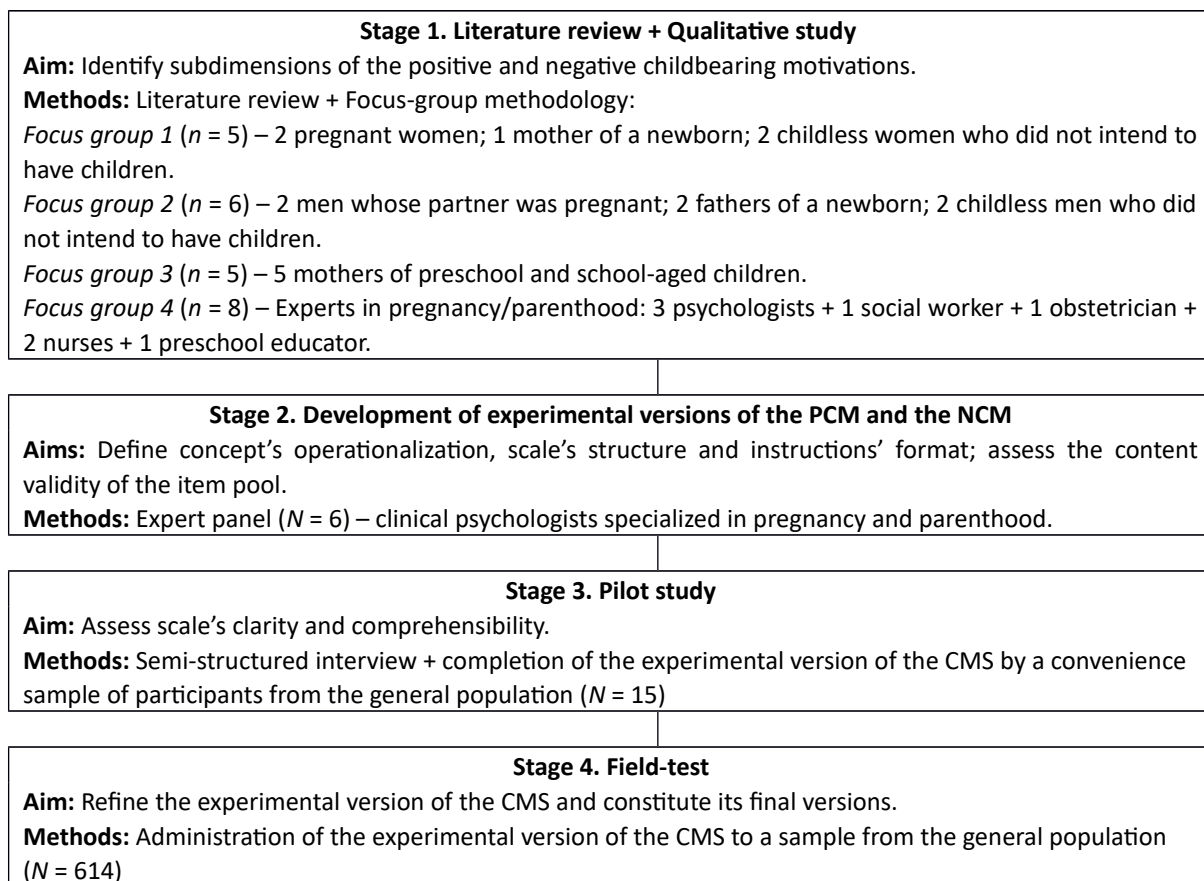


Figure 1. Flowchart of the four stages of the development of the CMS.

Stage 1 has been described previously (Guedes, Carvalho, Pires, & Canavarro, 2011b). In brief, Stage 1 began with a literature review of existing measures (i.e., dimensionality and content), theoretical taxonomies and empirical research on childbearing motivations. Literature review was followed by a qualitative approach based on a focus group methodology. A total of four focus groups were moderated by two clinical psychologists specialized in pregnancy and parenthood, based on a semi-structured interview. Participants were recruited among the patients and professionals from a Portuguese referral maternity and by invitation to individuals who had relevant personal experience or expertise in the field. As shown in Figure 1, patients and individuals who had relevant personal experience were distributed into three focus groups, based on gender and parental status (focus groups 1, 2 and 3). Focus group 4 consisted of professionals and individuals with expertise in the field. Content analysis was performed by two

independent raters, with Cohen's Kappa ranging from 0.83 to 1. Figure 2 summarizes the multiple subdimensions of the positive and negative childbearing motivations and their respective content areas that were identified through literature review and focus groups analysis.

Childbearing motivations	Positive childbearing motivations		
	Emotional/ Psychological	<i>Relationship with a child</i> <i>The couple relationship</i> <i>Family ties</i> <i>Personal achievement</i>	Love, affective connectedness, caring and teaching Strengthening/growth, union stabilization, fulfilling a partner's wish Familial/generational union, companionship for another child Personal fulfillment/growth, life meaning
	Social/ Normative	<i>Social/moral expectations</i> <i>Social status/Adult identity</i> <i>Continuity</i>	Social/familial norms and pressure, religious/moral mandatories Social recognition, autonomy/responsibility affirmation Immortality, familial lineage, familial values, relations or heritages
	Economic/ Utilitarian	<i>Economical support</i> <i>Instrumental support</i>	Labour force, economical help, social subsidies Support in old age
	Biological/ Physical	<i>Biological instinct/clock</i> <i>Femininity/Masculinity/Fertility</i> <i>Pregnancy/birth</i> <i>Biological ties</i>	Maternal/paternal appeal, pressure of the biological clock Proof of biological functioning, sex role fulfillment Enjoying pregnancy experience and birth process Genetic/biological connectedness with a child
	Negative childbearing motivations		
	Emotional/ Psychological	<i>Childrearing burden</i> <i>Marital stress</i> <i>Family problems</i> <i>Life styles/Career constraints</i> <i>Emotional preparedness</i>	Dealing with child's constant needs, worries and responsibilities Loss of intimacy/autonomy, fear of marital distance/separation Fear to transmit health problems/negative relational patterns Loss of autonomy, changes in career, daily routines and social life Immaturity, concerns about personal ability or qualities to parent
	Social/ Normative	<i>Social worry</i> <i>Ecological worry</i>	Concerns about instability, insecurity and deviant trajectories Concerns about environmental degradation and pollution
Economic/ Utilitarian	<i>Financial problems</i> <i>Economic constraints</i>	Concerns about financial difficulties Concerns about financial well-being and economic sacrifices	
Biological/ Physical	<i>Physical suffering</i> <i>Body-image concerns</i> <i>Absence of instinct</i>	Physical discomforts/complications of pregnancy and childbirth Concerns about weight and fitness Absence of maternal/paternal appeal	

Figure 2. Subdimensions of the positive and negative childbearing motivations that were identified through the literature review and the focus group analysis.

Stages 2 and 3 have also been described previously (Guedes, Carvalho, Pires, & Canavarro, 2011a). In Stage 2, an experimental version of the Childbearing Motivations Scale (CMS) was developed. Following the recommendations of DeVellis (2011), an initial item pool was generated by a group of clinical psychologists specialized in pregnancy and parenthood to represent the multiple subdimensions of positive and negative childbearing motivations and respective content areas, which were identified in Stage 1. An expert panel reviewed the content relevance, clarity and conciseness of the initial item pool and discussed the formats of instructions and response scale. In Stage 3, the CMS was tested through a pilot study. As shown in Figure 1, a convenience sample filled the experimental version of the CMS and was interviewed to assess scale's comprehensibility. The present study is focused on Stage 4, which aimed to 1) refine the item pool of the experimental version of the CMS and 2) examine the factorial structure of the CMS and its preliminary psychometric properties.

Method

Participants

Participants were 614 individuals (436 women and 178 men), who were recruited from the general Portuguese population through internet-based approaches or direct contact, using a convenience sampling method. Inclusion criteria were as follows: 1) being 19 to 49 years of age, to include adult participants and account for recent shifts in fertility patterns, and 2) having the ability to read and understand Portuguese.

The mean age of the participants was 31.49 years ($SD = 7.93$). Most participants ($n = 315$, 51%) were married/cohabitating, 278 (45%) were single and 21 (4%) were divorced, separated or widowed. Regarding educational level, participants studied for a mean of 15.14 years ($SD = 2.67$). Most participants ($n = 437$, 71%) were of medium socioeconomic status, 94 (15%) were of high socioeconomic status and 83 (14%) were of low socioeconomic status (Simões, 1994). Regarding parity, 357 (58%) had no children and 257 (42%) had at least one child.

Procedures

All data collection occurred between July 2011 and January 2012. First, data were collected through a website, where an online version of the set of assessment measures was available. A link to the website was sent to e-mail contacts and posted on Facebook and parenting forums with a request to

participate in the study. Second, eligible participants were directly approached by the researchers and invited to complete a paper version of the set of assessment measures. Contact information about eligible participants who were available to fill a paper version of the measures was obtained through researchers' colleagues. In both procedures, participants who agreed to participate filled out an informed consent form. A total of 531 (86%) participants completed the online version and 83 (14%) completed the paper version.

Measures

Participants provided information on sociodemographic data, including age, marital status, educational level, current occupation, socioeconomic status (SES) and parity. SES was assessed using a Portuguese classification considering three categories (low, medium and high) defined in terms of education level and current occupation (Simões, 1994).

Participants also completed the experimental version of the CMS. This scale consisted of two parts that assessed positive childbearing motivations (100 items) and negative childbearing motivations (85 items) and their respective subdimensions (Figure 2). In the positive childbearing motivations subscale, the respondents indicated how much they presently valued each reason for becoming a mother or father (e.g., giving meaning to my life or affirming me as an adult), using a 5-point scale (1 – *Not at all*, 2 – *A little*, 3 – *Moderately*, 4 – *A lot*, 5 – *Completely*). In the negative childbearing motivations subscale, the respondents indicated how much they presently valued each reason against becoming a mother or father (e.g., changing our routines as a couple or assuming a lifelong responsibility), using the same response scale.

Data analyses

Data analyses were conducted using the Statistical Package for Social Sciences (SPSS 17.0). Confirmatory factor analysis (CFA) was performed using Analysis of Moment Structures (AMOS). Item Response Theory (IRT) analyses were performed using WINSTEPS (Linacre & Wright, 2000).

Data analyses were organized into two stages and carried out for each part of the scale separately. In Stage 1, we performed data analyses to refine the item pool, using the entire sample. In Stage 2, we computed data analyses for the selected items, using a split-half method.

Stage 1: Data analyses to refine the item pool.

In Stage 1, data analyses were organized into five steps that include the classical recommendations for item refinement and complementary approaches based on the Item Response Theory (IRT). In step 1, items' descriptive statistics (i.e., means, standard deviations, minima and maxima) and distributions (skewness and kurtosis) were computed, to examine items' metric characteristics (Carretero-Dias & Pérez, 2005). In step 2, assessment of corrected item-total correlations and Cronbach's alpha was carried out, to determine each item's discriminant validity and internal consistency (DeVellis, 2011). In step 3, Exploratory Factor Analyses (EFA) were performed, using Principal Component Analysis with Promax oblique rotation, as it was expected that the resulting factors would be correlated. In this step, EFA was used as an initial refinement procedure, to examine items' homogeneity (Carretero-Dias & Pérez, 2005). In step 4, analyses were conducted considering each factor of the positive childbearing motivations subscale and negative childbearing motivations subscale, due to the multidimensionality of each part of the scale (Abell et al., 2009). In this step, Cronbach's alpha and corrected item-total correlations for each factor, correlations between items and factors, and inter-item correlations were computed (Carretero-Dias & Pérez, 2005; DeVellis, 2011; Miller et al., 2011). In step 5, IRT analyses were performed, to examine item statistics (considering infit and outfit values, with expected values for both statistics being unity) and item functioning according to response scale (Wang, 2008).

The final selection of items was based on statistical and conceptual criteria as follows: a) items marked for possible elimination by a large number of statistical criteria were excluded, b) a minimum of three items per factor were required to maintain multidimensional representation, and c) content was required to be relevant (Carretero-Dias & Pérez, 2005).

Stage 2: Data analyses for the selected items.

In Stage 2, a split-half method was used to ensure the internal validity of the results. Specifically, the entire study sample was randomly divided into two halves (subsample 1: $n = 315$; subsample 2: $n = 299$). In subsample 1, an Exploratory Factor Analysis (EFA) with Promax rotation was conducted to investigate the factor structure of the final version of the positive childbearing motivations subscale and the negative childbearing motivations subscale. In subsample 2, an item-level Confirmatory Factor Analysis (CFA) was performed to further corroborate the stability of the factor structure, using a significance level of .05. The method of estimation was maximum likelihood. Goodness of fit was

verified by the following fit indices: Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA; 90% confidence interval [CI]). According to Byrne (2010), these models are considered to have an acceptable fit when CFI > .90 and RMSEA < .08. Additionally, we examined the χ^2 statistic, which indicates whether the covariation pattern in the data can be explained by the postulated factor structure. We also examined the χ^2 /degrees of freedom ratio (χ^2/df), which decreases and approaches zero as the fit of the model improves. Generally, values between 2 and 5 indicate an acceptable fit (Byrne, 2010). Inter-correlations among the factors of the positive childbearing motivations subscale and among the negative childbearing motivations subscale were also estimated.

Results

Stage 1: Data analyses used to refine the item pool

In step 1, items were flagged (i.e., marked for possible elimination) upon meeting either of the following conditions: a) there was a significant distance between the mean and the midpoint of the scale (i.e., 3), standard deviations were lower than 1 and not all values of the response scale (1 to 5) were represented; or b) the absolute values of kurtosis and skewness were greater than 1 (Carretero-Dias & Pérez, 2005; DeVellis, 2011). A total of 37 items were flagged in the positive childbearing motivations subscale, and six items were flagged in the negative childbearing motivations subscale.

In step 2, items were flagged upon meeting either of the following conditions: a) Cronbach's alpha was improved if the item was deleted; or b) corrected item-total correlations were lower than .40 (DeVellis, 2011). In the positive childbearing motivations subscale, a total of two items were flagged. In the negative childbearing motivations subscale, three items were flagged.

In step 3, criteria for factor retention included meeting the Kaiser criterion (i.e., having an eigenvalue greater than one), conforming to a scree plot analysis and having a minimum of three items per factor. Items were flagged when their loadings were lower than .30 within factors or when multiple loadings (equal at less than two decimals) on several factors were observed (Abell et al., 2009).

Preliminary analyses supported sample adequacy for Principal Component Analysis of the positive childbearing motivations subscale (Kaiser-Meyer-Olkin - KMO = 0.97, Bartlett's test: $p < .001$) and the negative childbearing motivations subscale (Kaiser-Meyer-Olkin - KMO = 0.97, Bartlett's test: $p < .001$).

For the positive childbearing motivations subscale, EFA yielded 12 factors with eigenvalues greater than one, which aggregately explained 69% of the variance. However, only the first four factors consisted of a minimum of three items that did not show proximal loadings on multiple factors. The scree plot also suggested a four-factor solution that explained 56% of the variance. The first factor, which explained 39% of the variance, was formed from 29 items pertaining to Socioeconomic Aspects. The second factor, which explained 12% of the variance, was formed from 15 items pertaining to Personal Fulfillment. The third factor, which explained 4% of the variance, was formed from 10 items pertaining to Continuity. The fourth factor, which explained 3% of the variance, was formed from six items pertaining to The Couple Relationship. A total of 34 items were flagged.

For the negative childbearing motivations subscale, EFA yielded 12 factors with eigenvalues greater than one, which aggregately explained 74% of the variance. However, only the first seven factors consisted of a minimum of three items that did not show proximal loadings on multiple factors. The scree plot also suggested a seven-factor solution that explained 66% of the variance. The first factor, which explained 36% of the variance, was formed from 11 items pertaining to Social and Ecological Worry. The second factor, which explained 9% of the variance, was formed from 10 items pertaining to Marital Stress. The third factor, which explained 7% of the variance, was formed from 10 items pertaining to Financial Problems and Economic Constraints. The fourth factor, which explained 4% of the variance, was formed from 10 items pertained to Childrearing Burden. The fifth factor, which explained 4% of the variance, was formed from five items pertaining to Lifestyles and Career Constraints. The sixth factor, which explained 3% of the variance, was formed from four items pertaining to Physical Suffering and Body-Image Concerns. The seventh factor, which explained 2.57% of the variance, was formed from three items pertaining to Immaturity. A total of 25 items were flagged.

In step 4, Cronbach's alpha and corrected item-total correlations were examined for each factor. Items were flagged upon meeting either of the following conditions: a) Cronbach's alpha of the factor was improved if the item was deleted; or b) corrected item-total correlations in each factor were lower than .40 (DeVellis, 2011). For the positive childbearing motivations subscale, three items were flagged. For the negative childbearing motivations subscale, no items were flagged.

Correlations between items and factors were also performed. Items were flagged when correlations with any other factor were higher than or equal (at less than two decimals) to the correlations

with the factor in which they were expected to fit (Carretero-Dias & Perez, 2005). For the positive childbearing motivations subscale, 20 items were flagged. For the negative childbearing motivations subscale, 22 items were flagged.

Inter-item correlations were computed. Items were flagged when: a) inter-item correlations lower than .10 (Miller et al., 2011) and b) inter-item correlations were higher than .70, to control item redundancy (DeVellis, 2011). For the positive childbearing motivations subscale, 40 items were flagged. For the negative childbearing motivations subscale, 57 items were flagged.

In step 5, items were flagged when having an infit/outfit ratio > 1.4 or < 0.6 , indicating a lack of unidimensional fit (Wang, 2008). Both infit and outfit statistics were close to unity, and most of the infit/outfit values fell in the 0.6-1.4 range. For the positive childbearing motivations subscale, five items were flagged. For the negative childbearing motivations subscale, five items were flagged.

Stage 2: Data analyses for the selected items

The analyses described above resulted in the retention of 30 items for the positive childbearing motivations subscale and 25 items for the negative childbearing motivations subscale.

Preliminary analyses demonstrated support for sample adequacy for Principal Component Analysis of the positive childbearing motivations subscale (Kaiser-Meyer-Olkin - KMO = 0.94, Bartlett's test: $p < .001$) and of the negative childbearing motivations subscale (Kaiser-Meyer-Olkin - KMO = 0.90, Bartlett's test: $p < .001$).

EFA based on the 30 items of the positive childbearing motivations subscale yielded four factors with eigenvalues greater than 1. The scree plot also suggested a four-factor solution. However, two items pertaining to Socioeconomic Aspects and two items pertaining to Personal Fulfillment were excluded because they showed cross-loadings on other factors. After dropping cross-loading items, 26 items remained. A new EFA was conducted on the remaining items. The final factor model yielded four factors, which accounted for 63% of the variance. Table 1 presents the results of the Exploratory Factor Analysis (pattern matrix) for the final four-factor solution.

Table 1.

Positive Childbearing Motivations Subscale: Items Descriptive Statistics, Internal Consistency and Factor Loadings

Item content	<i>M (SD)</i>	<i>α</i>	% variance explained	Factor loadings			
				F1	F2	F3	F4
Socioeconomic Aspects (Factor 1)		.92	42.21				
13. Economic support	2.20 (1.41)			.88			
10. Responsibility affirmation	2.14 (1.28)			.84			
20. Adult affirmation	2.36 (1.26)			.79			
8. Social valorization	2.26 (1.19)			.73			
6. Moral obligation	2.16 (1.31)			.68			
11. Family expectations	2.45 (1.17)			.66			
17. Gender roles	2.10 (1.23)			.65			
23. Couple's recognition as a family	2.44 (1.21)			.56			
Personal Fulfillment (Factor 2)		.90	9.94				
3. Biological clock	2.84 (1.22)				.87		
19. Pregnancy experience	3.21 (1.33)				.75		
16. Maternal or paternal instinct	3.75 (1.20)				.70		
14. Creating a personality	3.63 (1.14)				.66		
18. Creating a family	3.74 (1.13)				.64		

7. Blood ties	3.26 (1.25)			.51
4. Life meaning	3.71 (1.12)			.33
25. Feeling useful and important for a child	3.79 (1.07)			.33
Continuity (Factor 3)		.86	6.51	
21. Familial lineage	2.82 (1.20)			.84
2. Family's name	2.43 (1.16)			.81
26. Family's relationships	2.94 (1.21)			.74
9. Family heritage	2.46 (1.23)			.64
24. Family's values	3.40 (1.15)			.64
5. Family spirit	3.47 (1.22)			.53
The Couple Relationship (Factor 4)		.85	6.51	
1. Strengthening partnership ties	3.58 (1.12)			.78
22. Fulfilling partner's project	3.16 (1.15)			.76
12. Growing as a couple	3.35 (1.14)			.73
15. Fulfilling a shared project	3.56 (1.19)			.70

The first factor, which explained 42% of the variance, was formed from eight items pertaining to Socioeconomic Aspects. The second factor, explaining 10% of the variance, was formed from eight items measuring Personal Fulfillment. The third factor, explaining 7% of the variance, was formed from six items measuring Continuity. Finally, the fourth factor, explaining 7% of the variance, was formed from four items measuring The Couple Relationship. Cronbach's alphas were all above .70 and ranged from .85 to .89.

EFA based on the 25 items of the negative childbearing motivations subscale yielded seven factors with eigenvalues greater than 1. The scree plot also suggested a seven-factor solution. However, three items pertaining to Lifestyles and Career Constraints and one item pertaining to Immaturity were excluded because they showed cross-loadings on other factors. After dropping cross-loading items, 21 items remained. A new EFA was conducted on the remaining items. The final factor solution yielded five factors, which accounted for 63% of the variance. Table 2 presents the results of the Exploratory Factor Analysis (pattern matrix) for the final five-factor solution.

Table 2.

Negative Childbearing Motivations Subscale: Items Descriptive Statistics, Internal Consistency and Factor Loadings

Item content	<i>M (SD)</i>	α	% variance explained	Factor loadings				
				F1	F2	F3	F4	F5
Childrearing burden and Immaturity (Factor 1)		.87	40.08					
15. Constant worry	2.56 (1.21)			.84				
18. Lifelong responsibility	2.80 (1.36)			.80				
9. Constant needs of a child	2.57 (1.18)			.76				
1. Childcare labor	2.37 (1.15)			.76				
2. Concerns about parental qualities	2.68 (1.31)			.72				
8. Concerns about parental preparedness	2.51 (1.29)			.50				
Social and Ecological Worry (Factor 2)		.90	10.01					
6. Worry about the future	2.86 (1.24)				.92			
19. Environmental degradation	2.65 (1.22)				.91			
13. Social dangers	2.92 (1.24)				.87			
10. Deviant trajectories	3.00 (1.32)				.62			
Marital Stress (Factor 3)		.88	9.57					
21. Constraints for couple proximity	2.44 (1.09)					.91		
14. Constraints for couple autonomy	2.46 (1.05)					.90		
12. Constraints for couple routines	2.44 (1.05)					.82		
4. Fear of couple separation	2.12 (1.10)					.70		
Financial Problems and Economic Constraints (Factor 4)		.88	6.08					
7. Increased expenses	2.78 (1.11)						.89	
5. Financial sacrifices	2.72 (1.11)						.84	
20. Financial difficulties	3.06 (1.17)						.81	
17. Constraints for financial well-being	2.42 (1.08)						.71	
Physical Suffering and Body-Image Concerns (Factor 5)		.77	5.50					
16. Physical discomforts of pregnancy	1.72 (1.08)							.89
11. Negative body changes	1.77 (1.11)							.80

The first factor, which explained 40% of the variance, was formed from six items pertaining to Childrearing Burden and Immaturity. The second factor, which explained 10% of the variance, was formed from four items pertaining to Social and Ecological Worry. The third factor, which explained 10% of the variance, was formed from four items pertaining to Marital Stress. The fourth factor, which explained 6% of the variance, was formed from four items pertaining to Financial Problems and Economic Constraints. The fifth factor, which explained 6% of the variance, was formed from three items pertaining to Physical Suffering and Body-Image Concerns. Cronbach's alphas were all above .70 and ranged from .77 to .90.

With the second subsample, we examined whether the factor structures identified in the EFAs could reliably be replicated using item-level CFA. Table 3 presents the fit indices associated with each model tested.

Table 3.

Summary of Fit Indices from CFA

	χ^2	<i>df</i>	<i>p</i>	χ^2/df	CFI	RMSEA (90% CI)	χ^2_{diff}	Δdf	<i>p</i>
<i>Positive Childbearing Motivations Sub-scale</i>									
One-dimensional model	1904.26	299	< .001	6.40	0.68	0.134 (0.128-0.140)			
Four-factors model	854.03	293	< .001	2.92	0.89	0.080 (0.074-0.086)	1143.7	8	< .001
Four-factors model (improved)	760.56	291	< .001	2.61	0.91	0.074 (0.067-0.080)	93.47	2	< .001
<i>Negative Childbearing Motivations Sub-scale</i>									
One-dimensional model	1822.37	189	< .001	9.64	0.59	0.170 (0.163-0.177)			
Five-factors model	471.47	179	< .001	2.63	0.93	0.074 (0.066-0.082)	1426.11	12	< .001
Five-factors model (improved)	396.26	177	< .001	2.24	0.95	0.064 (0.056-0.073)	75.21	2	< .001

The one-dimensional model of the positive childbearing motivations subscale served as a baseline model for the evaluation of the proposed four-factor model. However, this model did not fit the data well. The goodness-of-fit indices of the four-factor model were marginally acceptable. The modification indices, provided by AMOS, suggested several improvements to the four-factor model. To improve fit, we allowed a minimal number of supplementary correlated error residuals; suggestions that were considered implausible were not added. Thus, adding error covariances between two pairs of items (items 10 and 11; items 2 and 21) improved the model's fit significantly ($\chi^2_{\text{diff}} = 93.47, \Delta df = 2, p < .001$). The CFI was approximately .91, and the RMSEA was less than .08; these findings support the acceptability of the improved four-factor model. The χ^2/df ratio was also smaller than three, indicating a good fit. The fit of the improved four-factor model was significantly better compared with the fit of the one-factor model ($\chi^2_{\text{diff}} = 1143.7, \Delta df = 8, p < .001$).

The one-dimensional model of the negative childbearing motivations subscale also did not fit the data well. The goodness-of-fit indices of the five-factor model were acceptable. However, an examination of the modification indices suggested several improvements to the five-factor model. Adding error covariances between two pairs of items (items 5 and 13; items 2 and 8) improved the model's fit significantly ($\chi^2_{\text{diff}} = 75.21, \Delta df = 2, p < .001$). The CFI of the improved model was approximately .95, and the RMSEA was lower than .08; these findings support the acceptability of the model. In addition, the χ^2/df ratio was also smaller than three, indicating a good fit. The fit of the five-factor model was significantly better compared with the fit of the one-dimensional model ($\chi^2_{\text{diff}} = 1426.11, \Delta df = 12, p < .001$).

Table 4 presents the intercorrelations among the four factors of the positive childbearing motivations subscale and among the five factors of the negative childbearing motivations subscale.

Table 4.

Intercorrelations between the Factors of the Positive Childbearing Motivations Sub-scale and the Negative Childbearing Motivations Sub-scale

	Socioeconomic Aspects	Personal Fulfillment	Continuity	The Couple Relationship	Childrearing Burden and Immaturity	Social and Ecological Worry	Marital Stress	Financial Problems and Economic Constraints	Physical Suffering and Body-Image Concerns
Socioeconomic Aspects	–	–	–	–	–	–	–	–	–
Personal Fulfillment	.50**	–	–	–	–	–	–	–	–
Continuity	.66**	.70**	–	–	–	–	–	–	–
The Couple Relationship	.55**	.61**	.56**	–	–	–	–	–	–
Childrearing Burden and Immaturity	.31**	.10*	.18**	.11**	–	–	–	–	–
Social and Ecological Worry	.31**	.23**	.24**	.22**	.50**	–	–	–	–
Marital Stress	.32**	.10*	.18**	.29**	.62**	.38**	–	–	–
Financial Problems and Economic Constraints	.17**	.05	.06	.07	.55**	.40**	.45**	–	–
Physical Suffering and Body-Image Concerns	.33**	.07	.17**	.22**	.51**	.39**	.55**	.38**	–

* $p < .05$, ** $p < .01$.

The four factors of the positive childbearing motivations subscale had large positive intercorrelations (ranging from .55 to .70). The strongest intercorrelations were observed between Personal Fulfillment and Continuity. The lowest intercorrelations were observed between Personal Fulfillment and Socioeconomic Aspects.

The five factors of the negative childbearing motivations subscale also had moderate to large positive intercorrelations (ranging from .38 to .62). The strongest intercorrelations were observed between Childrearing Burden and Immaturity and Marital Stress. The lowest intercorrelations were observed between Social and Ecological Worry and Marital Stress as well as between Financial Problems and Economic Constraints and Physical Suffering and Body Image Concern Concerns.

The four factors of the positive childbearing motivations subscale had low to moderate correlations with the five factors of the negative childbearing motivations subscale (ranging from .05 to .33). The strongest intercorrelations were observed between Socioeconomic Aspects and Physical Suffering and Body Image Concerns. The lowest intercorrelations were observed between Personal Fulfillment and Financial Problems and Economic Constraints.

Discussion

Given recent fertility pattern shifts, this study attempted to overcome limitations in the currently available instruments to assess childbearing motivations. Specifically, it aimed to develop a multidimensional scale for assessing positive and negative childbearing motivations and to provide preliminary evidence for its reliability and factorial structure. The resulting version of the CMS consists of two subscales that assess positive and negative childbearing motivations.

The positive childbearing motivations subscale consists of 26 items, which are organized into four factors that have good internal consistency. The first two factors appear to represent a reorganization of several subdimensions (see Figure 1) into broader categories, representing underlying emotions, meanings or drives (Miller, 2009). Socioeconomic Aspects (Factor 1) includes extrinsic motivations that refer to the external rewards of having a child (Miller, 2009), such as conforming to familial expectations, affirming social status and adult identity or fulfilling gender roles. This first factor appears to suggest that childbearing may remain an important source of social recognition and responsibility affirmation, due to the lengthened postponement of the transition to adulthood (e.g., increases in education, delays in

departure from the parental home, delays in marriage and first childbirth) in the present-day context (Mills et al., 2011). However, childbearing has also increasingly served self-fulfillment and private joy (Frejka et al., 2008). Therefore, Personal Fulfillment (Factor 2) focuses on intrinsic motivations related to the inherent satisfactions of having a child (Miller, 2009), such as establishing ties with a child, experiencing pregnancy and fulfilling a biological instinct. Extrinsic and intrinsic motivations have also been identified as two main subdimensions in some instruments that exclusively measure positive childbearing motivations, such as the Motivation to have a Child Scale (Gauthier et al., 2007) and the Parenting Expectation Questionnaire (O’Laughlin & Anderson, 2001). Nevertheless, Continuity (Factor 3) and The Couple Relationship (Factor 4) also emerged as distinct factors in the present study. Continuity (Factor 3) also appears to be a distinct subdimension in prior instruments (Arnold & Fawcett, 1975; Cassidy & Sintrovani, 2008; Van Balen & Trimbos-Kemper, 1995), including motivations to carry on the family line, familial relationships or legacies. Factor 3 also seems to reflect the sense of traditional parenthood (Miller, 1995), aspirations of immortality and sharing of personal values (Seaver et al., 1977) that have been part of the structure of the Childbearing Motivation Questionnaire and the Parenthood Motivation Questionnaire. On its turn, The Couple Relationship (Factor 4) refers to strengthened partnership ties or growth as a couple, being similar to relationship (Cassidy & Sintrovani, 2008) and marital completion (Newton et al., 1992) subdimensions that have been identified in prior instruments. Given their underlying meaning, Factors 3 and 4 seem to support the notion that childbearing remains an opportunity of personal development through the expression and extension of one’s self (Mills et al., 2011) in familial and partnership relationships.

The negative childbearing motivations subscale consists of 21 items organized in five factors that have good internal consistency. This five-factor model partially corresponds to the subdimensions that were identified through the literature review and focus group analysis (Figure 1). Three subdimensions were removed (i.e., Family Problems, Absence of Instinct and Lifestyles and Career Constraints), and others were reorganized into broader categories (Factors 1 and 5). The first two factors seem to be consistent with the contemporary emphasis on responsible and intensive parenting (Liss et al., 2012), evidencing that it may be the most physically and psychologically demanding role that people encounter during their lives (Janisse, Barnett, & Nies, 2009). Childrearing Burden and Immaturity (Factor 1) includes the demanding responsibilities of childbearing and concerns about the personal resources to take on the parental role, reflecting the negatives of childcare, fears and worries (Miller, 1995), concerns about

ability to parent and emotional immaturity (Seaver et al., 1977) that have emerged as distinct subdimensions in prior instruments. On its turn, Social and Ecological Worry (Factor 2) focuses on concerns about the uncertain future of children due to social and environmental risks. This pessimistic world view has often been highlighted in adaptation studies of the Childbearing Motivation Questionnaire (Pezehski, Zeighami, & Miller, 2005) and Parenthood Motivation Questionnaire (Offer, 1994) in unstable backgrounds, suggesting that social insecurity may have a more generalized impact in current fertility patterns. Marital Stress (Factor 3) refers to constraints for partnership autonomy, lifestyle and intimacy, being quite similar to parental stress (Miller, 1995) and partnership constraints (Seaver et al., 1977) subdimensions that were identified in prior measures. These findings seem to reinforce that the instability of the partnership relationships (e.g., increasing numbers of divorces and short-time and multiple unions) has influenced current fertility patterns (Mills et al., 2011). Financial Problems and Economic Constraints (Factor 4) seem to highlight the strong impacts of socioeconomic challenges (e.g., unemployment or job insecurity) and financial crises on individuals in the present-day context (OCDE, 2011), as shown in more recent measures (Stöbel-Richter et al., 2005). These socioeconomic challenges may have also influenced the deletion of the items related to lifestyles and career constraints in the present sample, which have often emerged as distinct subdimensions in previously available instruments (Arnold & Fawcett, 1975; Seaver et al., 1977; Stöbel-Richter, 2005). Finally, Physical Suffering and Body-Image Concerns (Factor 5) refers to the effects of childbearing on women's well-being, suggesting that the emerging health concerns related to the postponement of first childbirth (e.g., increased risks for maternal-fetal health or difficulties in the physical recovery after birth) may have influenced our results (Schmidt et al., 2012). Sample composition may also explain these results, as these physical worries are essentially restricted to females.

Given its multidimensional structure, the CMS could allow for a comprehensive understanding of the nature of positive and negative childbearing motivations, by using the scores obtained in the subdimensions of each subscale. These subdimensions might conjugate themselves in several ways to influence someone's positive and negative childbearing motivations. For example, someone's positive childbearing motivations could express themselves through a confluence of aspirations of personal fulfillment and continuity's of one self, a focus on social and relational benefits of having a child, or a combination of the inherent and external rewards of becoming a parent. Similarly, someone's negative childbearing motivations could manifest themselves through a conjugation of burdening responsibilities

and socioeconomic concerns, attention to constraints for individual and marital well-being, or a combination of worries and constraints related to childbearing. A comprehensive assessment of these distinct motivational profiles could facilitate the understanding of individual reproductive behaviors (Miller, 1994), couple's reproductive decision-making (Miller, Severy, & Pasta, 2004) and psychosocial adjustment to reproductive events (Miller, 2003).

Some limitations should be considered when analyzing these findings. First, the sample was recruited using a convenience sampling method. Consequently, the resulting sample may have essentially consisted of individuals who are motivated or interested in the topic under investigation. Findings concerning the negative childbearing motivations may have been influenced by sample composition, namely the deletion of some subdimensions (e.g., absence of maternal and paternal instinct or lifestyle and career constraints). However, the use of internet-based approaches to collect data may have minimized this influence, enhancing anonymity and reducing social desirability. The use of a convenience sampling method also resulted in an unequal representation of genders and marital status that limits the generalization of the current findings to men and divorced or separated participants. Nevertheless, the sample was not only composed of childless individuals but also of respondents in reproductive age who were already parents and aged from 19 to 49 years, to take into account contemporary fertility patterns. Future studies should be developed in other sociocultural backgrounds and should strengthen the representation of males and divorced or separated participants, to test differential item functioning and measurement invariance (configural and metric invariance) across different groups (i.e., gender, marital status, parental status and age groups).

Second, this study explored the internal consistency and the internal validity of the CMS, using a split-half method. As this study constitutes a preliminary phase in the construction of the scale, future studies should estimate the test-retest reliability and external validity of the CMS. Therefore, the relationship of the CMS scores with reproductive intentions (predictive validity) and other instruments that are expected to be either related or unrelated (convergent and discriminative validity) should be tested.

Third, the CFA results should be interpreted with caution, especially regarding the positive childbearing motivations subscale. The data fitted the model to a sufficient degree only when error variances of paired items were included. Although this procedure does not yield a parsimonious model, it

constitutes a common practice in research (Chou & Huh, 2012) and scale's development (Worthington & Whittaker, 2006), providing useful information about scale's structure and nature of the misfit of the hypothesized model (Furr, 2011). Following the recommendations for the effective use of this procedure, we exclusively allowed a minimal number of modifications (no more than two in each subscale) that were theoretically justified and had a clear conceptual rationale (Furr, 2011; Worthington & Whittaker, 2006). In the positive childbearing motivations subscale, items 10 and 11 highlight that childbearing may remain important for adulthood affirmation in the family, while items 2 and 21 emphasize traditional forms of continuity. In the negative childbearing motivations subscale, items 5 and 13 focus on worries about socioeconomic uncertainty, while items related to 2 and 8 underscore concerns about the psychological resources needed to take on the parental role. Although these minimal modifications were theoretically justified, future studies are needed to investigate the replicability of both models in different samples and whether higher-order factors may be identified.

Despite these limitations, this study has several strengths and overcome several conceptual and methodological flaws that have characterized previously available instruments. Construction procedures followed a multi-step approach that combined a literature review with a focus-group methodology, providing a better understanding of the nature of positive and negative childbearing motivations, in the current context. The sample consisted of childless participants and parents from the general population, considering the recent changes in partnership and fertility patterns. The multidimensional structure of the CMS allows a comprehensive assessment of the subdimensions of positive and negative childbearing motivations, giving the possibility of identifying distinct motivational profiles that could influence reproductive behaviors and psychosocial adjustment to several reproductive events. Future studies will be necessary to corroborate its psychometric properties. Nevertheless, the CMS may have important applications in research and clinical practice. Given its multidimensionality, the CMS may allow for a specific analysis of the predictive role of the subdimensions of positive and negative childbearing motivations on reproductive behaviors and for exploring their articulation in the present-day context. Therefore, it could enable a comprehensive understanding of reproductive decisions to delineate supportive social policies that might facilitate the articulation between socioeconomic challenges and family life (e.g., job flexibility, parental leave or childcare facilities). The CMS may also be a useful tool in several applied health settings, to guide the preparation of effective counseling and psychosocial interventions. The comprehensive assessment of positive and negative childbearing motivations might

facilitate the definition of problem solving strategies that promote a realistic reflection about the pros and costs of having or not having a first child or additional children. Based on this comprehensive assessment, health professionals might promote conscious decisions regarding family planning (e.g., decisions whether to have or not a first child or additional children; decisions when to have children) or complex reproductive issues (e.g., childbearing after cancer, (dis)continuation of assisted reproduction treatments or adoption). The CMS might also be valuable to identify incongruent childbearing motivations among couples that might interfere with the quality of the reproductive decision-making process and subsequent satisfaction with childbearing prospects. The identification of these incongruent motivational profiles might guide the preparation of counseling strategies that could mobilize and/or develop effective couple's communication, conflict resolution and negotiation skills. Additionally, the CMS may also be useful to prepare preventive interventions that might facilitate the psychosocial adjustment to normative (e.g., pregnancy and transition to parenthood) and challenging reproductive events (e.g., infertility). This measure may allow an early identification and cognitive restructuring of parental misconceptions (e.g. social identity, partnership benefits or intensive parenting beliefs), which could have a detrimental effect on mental health (Cassidy & Sintrovani, 2008; Rizzo, Schiffrin, & Liss, 2012) and family's well-being.

Appendix

Childbearing Motivations Scale (CMS)

Positive childbearing motivations sub-scale

1. Strengthening the bond with my partner.
2. Continuing my family name.
3. Listening to the demands of my biological clock.
4. Giving a meaning to my life.
5. Feeling the familial spirit.
6. Fulfilling a moral obligation.
7. Being connected to a child through blood ties.
8. Being socially valued.
9. Conveying my family heritage.
10. Showing that I am responsible.
11. Meeting my family's expectations.

12. Taking a step forward in the relationship with my partner.
13. Having a source of economic support.
14. Creating a person, a personality.
15. Making real a project that I share with my partner.
16. Realizing my maternal or paternal instinct.
17. Fulfilling my woman's or man's role.
18. Creating my own family.
19. Enjoying the experience of pregnancy.
20. Affirming me as an adult.
21. Ensuring my familial lineage.
22. Making real a project of my partner.
23. Ensuring that my partner and I are recognized as a family.
24. Conveying my family's values.
25. Feeling useful and important for a child.
26. Continuing family relationships.

Negative childbearing motivations sub-scale

1. Facing the labor of childcare.
2. Having no required qualities (e.g., patience, ...) to become a mother or a father.
3. Being afraid of suffering (being afraid that my partner will suffer) complications during birth.
4. Fearing that a child might lead us to separate as a couple.
5. Facing financial sacrifices.
6. Worrying about the future of a child in the current world.
7. Assuming increased expenses with a child.
8. Feeling unprepared to assume the mother's or father's role.
9. Dealing with the constant needs of a child.
10. Fearing that my child loses himself/herself in deviant trajectories (e.g., drug dependence, delinquency, ...).
11. Being afraid of suffering (being afraid that my partner will suffer) negative changes in my (her) body.
12. Changing our routines as a couple.

13. Being afraid of exposing a child to the social dangers of the world.
14. Losing autonomy as a couple.
15. Having constant worries with a child.
16. Being afraid of suffering (being afraid that my partner will suffer) the physical discomforts (e.g., nausea, ...) of pregnancy.
17. Abdicating my financial well-being.
18. Assuming a lifelong responsibility for a child.
19. Being afraid of exposing a child to environmental degradation.
20. Being afraid of facing financial difficulties.
21. Losing proximity with my partner.

Coding

For the positive childbearing motivations sub-scale and the negative childbearing motivations sub-scale, items are presented on a scale ranging from 1 – *Not at all* to 5 – *Completely*.

Positive childbearing motivations sub-scale

Socioeconomic aspects: 6, 8, 10, 11, 13, 17, 20, 23

Personal fulfillment: 3, 4, 7, 14, 16, 18, 19, 25

Continuity: 2, 5, 9, 21, 24, 26

The couple relationship: 1, 12, 15, 22

Negative childbearing motivations sub-scale

Childrearing burden and immaturity: 1, 2, 8, 10, 15, 18

Social and ecological worry: 6, 9, 13, 19

Marital stress: 4, 12, 14, 21

Financial problems and economical constraints: 5, 7, 17, 20

Physical suffering and body image worry: 3, 11, 16

References

- Abell, N., Springer, D. W., & Kamata, A. (2009). *Developing and validating rapid assessment instruments*. New York: Oxford University Press.
- Arnold, F., & Fawcett, J. T. (1975). *The value of children: A cross-national study* (vol. 3). Honolulu: East-West Population Institute.
- Bell, J. F., Bancroft, J., & Phillip, A. (1985). Motivation for parenthood: A factor analytic study of attitudes towards having children. *Journal of Comparative Family Studies*, 16(1), 111-119.
- Byrne, B. (2010). *Structural equation modeling with AMOS: Basic concepts, applications and programming* (2nd ed.). New York: Taylor & Francis Group.
- Carretero-Dios, H., & Pérez, C. (2005). Normas para el desarrollo y revisión de estudios instrumentales [Norms for the development and revision of instrumental studies]. *International Journal of Clinical and Health Psychology*, 5(3), 521-551.
- Cassidy, T., & Sintrovani, P. (2008). Motives for parenthood, psychosocial factors and health in women undergoing IVF. *Journal of Reproductive and Infant Psychology*, 26(1), 4-17. [doi:10.1080/02646830701691392](https://doi.org/10.1080/02646830701691392)
- Chou, C-P., & Huh, J. (2012). Model modification in structural equation modeling. In R. H., Hoyle (Ed.), *Handbook of structural equation modeling* (3rd Ed.) (pp. 232-246). New York: The Guilford Press.
- DeVellis, R. F. (2011). *Scale development: Theory and applications* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Dyer, S., Mokoena, N., Maritz, J., & van der Spuy, Z. (2008). Motives for parenthood among couples attending a level 3 clinic in public health sector in South Africa. *Human Reproduction*, 23(2), 352-357. [doi:10.1093/humrep/dem279](https://doi.org/10.1093/humrep/dem279)
- Frejka, T., Hoem, J., Toulemon, L., & Sobotka, T. (2008). *Childbearing trends and policies in Europe: An overview*. Norderstedt: Books on Demand.

- Furr, M. (2011). *Scale construction and psychometrics for social and personality psychology*. Thousand Oaks, CA: Sage Publications.
- Gauthier, L., Sénécal, C., & Guay, F. (2007). Construction and validation of the Motivation to have a Child Scale (MCS). *Revue Européenne de Psychologie Appliquée*, 57, 77-89.
- Guedes, M., Carvalho, P., Pires, R., & Canavarro, M. C. (2011a). Desenvolvimento de uma escala de avaliação das motivações para a parentalidade [Development of a scale to assess childbearing motivations]. In A. S. Ferreira, A. Verhaeghe, D. R. Silva, L. S. Almeida, R. Lima, & S. Fraga, *Actas do VIII Congresso Iberoamericano de Avaliação Psicológica/Evaluación Psicológica* (pp. 1454-1466). Lisboa: Sociedade Portuguesa de Psicologia.
- Guedes, M., Carvalho, P., Pires, R., & Canavarro, M. C. (2011b). Uma abordagem qualitativa às motivações positivas e negativas para a parentalidade [A qualitative approach to positive and negative childbearing motivations]. *Análise Psicológica*, 4(XXIX), 535-551.
- Janisse, H. C., Barnett, D., & Nies, M. A. (2009). Perceived energy for parenting: A new conceptualization and scale. *Journal of Child and Family Studies*, 18, 312-322. doi:10.1007/s10826-008-9232-z
- Kennedy, D. P. (2002). *Gender, culture change, and fertility decline in Honduras: An investigation in anthropological demography* (Unpublished doctoral dissertation). University of Florida, Gainesville.
- Krueger, R. A., & Casey, M. A. (2009). *Focus groups: A practical guide for applied research* (4th ed.). New York: Sage Publishers.
- Langdrige, D., Sheeran, P., & Connolly, K. (2005). Understanding the reasons for parenthood. *Journal of Reproductive and Infant Psychology*, 23(2), 121-133. doi:10.1080/02646830500129438
- Linacre, J. M., & Wright, B. D. (2000). WINSTEPS: Multiple-choice, rating scale, and partial credit Rasch analysis [computer program]. Chicago: MESA Press.

- Liss, M., Schiffrin, H. H., Mackintosh, V. H., Miles-McLean, H., & Erchull, M. J. (2012). Development and validation of a quantitative measure of intensive parenting attitudes. *Journal of Child and Family Studies*. doi: 10.1007/s10826-012-9616-y
- Miller, L. A., McIntire, S. A., & Lovler, R. L. (2011). *Foundations of psychological testing* (3rd ed.). Thousands Oaks, CA: Sage Publications.
- Miller, W. B. (1994). Childbearing motivations, desires and intentions: A theoretical framework. *Genetic, Social & Social Psychology, 120*(2), 223-253.
- Miller, W. B. (1995). Childbearing motivation and its measurement. *Journal of Biosocial Science, 27*, 473-485. doi:10.1017/S0021932000023087
- Miller, W. B. (2003). The role of nurturant schemas in human reproduction. In J. L. Rodgers, & H. P. Kohler (Eds.), *The biodemography of human reproduction and fertility* (pp. 43-55). Boston: Kluwer.
- Miller, W. B. (2009). The reasons people give for having children. In W. B. Miller (Ed.), *Why we have children: Building an unified theory of the reproductive mind* (pp. 1-19). Aptos, CA: Transnational Family Research Institute.
- Miller, W. B., Severy, L., & Pasta, D. (2004). A framework for modeling fertility motivation in couples. *Population Studies, 58*(2), 193-205. doi: 10.1080/0032472042000213712
- Mills, M., Rindfuss, R. R., McDonald, P., & Velde, E. (2011). Why do people postpone parenthood? Reasons and social policy incentives. *Human Reproduction Update, 17*(6), 848-860. doi:10.1093/humupd/dmr026
- Newton, C. R., Hearn, M. T., Yuzpe, A. A., & Houle, M. (1992). Motives for parenthood and responses to failed in vitro fertilization: Implications for counseling. *Journal of Assisted Reproduction and Genetics, 9*(1), 24-31. doi:10.1007/BF01204110
- OCDE (2011). *Doing better families*. Paris: Author.
- Offer, G. (1994). *An interpersonal model of motivation for parenthood: Structure and application* (Unpublished doctoral dissertation). Bar-Ilan University, Ramat-Gan, Israel.

- O'Laughlin, E. M. & Anderson, V. N. (2001). Perceptions of parenthood among young adults: Implications for career and family planning. *The American Journal of Family Therapy*, 29(2), 95-108. [doi:10.1080/01926180152026098](https://doi.org/10.1080/01926180152026098)
- Pezeshki, M. Z., Zeighami, B., & Miller, W. B. (2005). Measuring the childbearing motivation of couples referred to the Shiraz Health Center for premarital examinations. *Journal of Biosocial Science*, 37, 37-53. [doi:10.1017/S0021932003006485](https://doi.org/10.1017/S0021932003006485)
- Rizzo, K. M., Schiffrin, H. H., & Liss, M. (2012). Insight into the parenthood paradox: Mental health outcomes of intensive mothering. *Journal of Child and Family Studies*. doi: 10.1007/s10826-012-9615-z
- The Reproductive Health Report (2011). The state of sexual and reproductive health within the European Union. *The European Journal of Contraception and Reproductive Health Care*, 16(Suppl. 1), 1-70.
- Schmidt, L., Sobotka, T., Benzten, J. G., & Andersen, A. N. (2012). Demographic and medical consequences of the postponement of parenthood. *Human Reproduction Update*, 18(1), 29-43. [doi:10.1093/humupd/dmr040](https://doi.org/10.1093/humupd/dmr040)
- Seaver, W., Kirchner, E., Straw, M., & Vegega, M. (1977). Parenthood motivation questionnaire: Scales for measuring motivations for and against parenthood. *JSAS Catalog of Selected Documents in Psychology*, 7(3), 1-23.
- Simões, M. (1994). Investigações no âmbito da aferição nacional do teste das Matrizes Progressivas de Raven [Raven's Progressive Matrices: Aferition studies]. Unpublished doctoral dissertation, Universidade de Coimbra, Coimbra, Portugal.
- Shover, L. R. (2005). Motivation for parenthood after cancer: A review. *Journal of the National Cancer Institute Monographs*, 34, 2-5.
- Stöbel-Richter, Y., Beutel, M. E., Fink, C., & Brähler, E. (2005). The “wish to have a child”, childlessness and infertility in Germany. *Human Reproduction*, 20(10), 2850-2857. [doi:10.1093/humrep/dei121](https://doi.org/10.1093/humrep/dei121)

- Van Balen, F., & Trimbos-Kemper, T. C. (1995). Involuntary childless couples: Their desire to have children and their motives. *Journal of Psychosomatic Obstetrics & Gynecology*, *16*(3), 137-144.
[doi:10.3109/01674829509024462](https://doi.org/10.3109/01674829509024462)
- Wang, W. C. (2008). Assessment of differential item functioning. *Journal of Applied Measurement*, *9*, 387-408.
- Wijsen, C. (2002). *Timing children at a later age*. Amsterdam: Rozenberg Publishers.
- Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, *34*(6), 806-838.
doi: 10.1177/00110000062

