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Health Concerns in Reproductive Motivations: Revision of the Childbearing Motivation Scale (CMS)

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Abstract

Background

Decisions regarding childbearing involve weighing anticipated rewards against perceived costs and fears related to parenthood. However, existing measures of childbearing motivations have largely overlooked concerns about a future child's health, despite their increasing relevance in reproductive decision-making. The present study aimed to revise and extend the Childbearing Motivations Scale (CMS) [5] by incorporating a theoretically grounded health-related dimension and adapting the instrument for use in the Polish cultural context.

Methods

New items addressing concerns about a future child's health were developed based on a targeted literature review and expert evaluation and were incorporated into the revised CMS. The sample comprised 386 childless Polish adults of reproductive age who completed the instrument. The factor structure, internal consistency, and construct validity of the revised scale were examined using psychometric analyses.

Results

The analyses supported the intended multidimensional structure of the CMS, with previously established dimensions successfully replicated. Health-related items formed two distinct subscales—Hereditary Risk Concerns and Altruistic Health Concerns—rather than a single factor. Both subscales demonstrated satisfactory internal consistency and theoretically meaningful associations with related constructs. Hereditary Risk Concerns were negatively associated with childbearing desire and uniquely predicted lower childbearing intention in multivariable models, whereas Altruistic Health Concerns were positively associated with childbearing desire.

Conclusions

The revised CMS broadens the assessment of childbearing motivations by capturing health-related considerations that have been underrepresented in previous research. The instrument provides researchers and practitioners with a more comprehensive tool for examining psychological factors underlying reproductive decision-making and may support evidence-informed counseling and policy related to family planning.

Introduction

Decisions regarding childbearing represent a critical area of inquiry across multiple disciplines [3, 11, 15, 33]. Understanding why people choose to have—or not to have—children is central not only to demographic forecasting, but also to designing effective policies that support reproductive autonomy and family well-being [1, 12–14, 34]. To support such efforts, there is a growing need for robust instruments capable of capturing the complex motivations underlying reproductive choices. The present study addresses this need by revising one of the most recent and comprehensive tools for assessing childbearing motivations and expanding the theoretical understanding of reproductive decision-making through the inclusion of a motivational dimension that has been largely omitted in previous studies—concern for the future child's health.

Researchers examining reproductive decision-making consistently emphasize the role of individual psychological factors—such as preferences, desires, and motivations—as key determinants of both the pursuit of parenthood and voluntary childlessness [5, 6, 20, 29, 38, 43]. Existing theoretical models and measurement tools have explored a wide array of childbearing motives, including emotional, relational, financial, and social dimensions. One of the most influential frameworks within psychological research is Miller's model [20, 22], which has served as the basis for the development of key instruments such as the Childbearing Questionnaire (CBQ) [21] and the more recent Childbearing Motivations Scale (CMS) [5]. These tools have significantly advanced empirical research in this area by distinguishing between positive motivation, defined as a general predisposition to view parenthood as rewarding and fulfilling, and negative motivation, reflecting a tendency to perceive it as burdensome or anxiety-provoking [20, 21]. However, the assessment of childbearing motivations—particularly those conveying negative responses to the idea of parenthood leaves important areas insufficiently explored. Among these underexplored domains are concerns about the health of the future child—an issue that appears to be gaining prominence in the minds of individuals considering parenthood [Authors, forthcoming, 37, 39].

To address this identified gap, the present study was designed with the following objectives: (1) to expand the CMS by incorporating a new dimension focused on concerns about the health of the future child, (2) to culturally and linguistically adapt the revised CMS to the Polish context, and (3) to assess the psychometric validity and reliability of the revised instrument in this cultural context.

Childbearing Motivation and its Measurement

Childbearing motivations (also referred to as motivational traits) are central to Warren Miller's [20–22] traits-desires-intentions-behavior (TDIB) model, which has been proven particularly useful in examining the psychological determinants of human reproduction [32, 45, 47]. They reflect internalized schemas that guide parental readiness and orientation toward childbearing. These schemas are shaped by broader affective and cognitive systems that underlie individuals' responses to the prospect of parenthood, such as emotional attraction or aversion to its anticipated consequences [23]. Miller distinguishes positive and negative childbearing motivations. Positive Childbearing Motivation (PCM) describes a general tendency to react favorably to the various rewarding aspects of childbearing. Individuals with strong positive motivation display positive affectional responses and recognize

numerous advantages of parenthood. On the other hand, Negative Childbearing Motivation (NCM) refers to a predisposition to negative reactions, such as anxiety or fear, in response to different costs of having children [20, 22, 23]. Individuals who exhibit strong negative motivation are more likely to perceive parenthood as demanding and stressful, focusing on its potential drawbacks rather than its rewards. It is also possible for one individual to have high levels of both PCM and NCM and thus experience a state of ambivalence about parenthood [24, 27]. Although childbearing motivations originate from inherited predispositions, they are further shaped during individual development through experiences in childhood and adolescence [19].

Based on TDIB model, childbearing motivations have been operationalized across various cultural contexts [10, 21, 30, 36, 45]. The most recent and most comprehensive measurement approach was suggested by Guedes & colleagues [5]. Their Childbearing Motivations Scale allows exploration of the various facets of childbearing motivations in today's society. The development of the scale incorporated a thorough review of existing measures and theoretical taxonomies of parenthood motivations, as well as qualitative analyses of data gathered from focus groups. The CMS also expands upon Miller's TDIB model by providing a more nuanced assessment of negative childbearing motivations. While Miller's work laid the foundation for understanding these motivations, the CMS incorporates a broader range of parental concerns and anxieties, including the unique additional dimension of social and ecological worries. This component captures apprehensions related to the unpredictable and potentially threatening future that children may face due to societal instability and environmental degradation.

Despite the CMS's advancement in addressing some of the emerging concerns, worries regarding the future child's health have received limited attention—both in this instrument and in earlier Childbearing Questionnaire, as developed by Miller [21].

Concern for Child's Health as a Separate Factor in NCM

In recent years, increasing awareness of genetic, perinatal, and developmental health risks has made child health a more prominent concern in reproductive thinking. Individuals are becoming more attuned to the possibility of transmitting hereditary conditions or facing adverse outcomes during pregnancy and childbirth [7, 37]. Health concerns now play a growing role in shaping perceptions of parenthood, often leading individuals to seek genetic counseling, undergo prenatal testing, or even reconsider their reproductive intentions [35, 39].

Despite their growing salience, such worries remain underrepresented in major conceptual and measurement frameworks. For example, Guedes et al.[4] initially considered including an item addressing the risk of passing on genetic conditions in the CMS, but it was excluded during empirical validation. Similarly, Miller's [21] questionnaire incorporated only a single item, narrowly focused on the fear of "having a baby who is born deformed." These omissions highlight a persistent gap in how health-related anxieties are accounted for in assessments of negative childbearing motivations.

This gap is especially notable given accumulating evidence that maternal health conditions can significantly increase risks of preterm birth, neonatal complications, or long-term developmental difficulties [40, 44, 46]. A personal history of health problems, particularly genetic diseases, is also associated with increased anxiety during pregnancy, including fears of mortality for both mother and child [41, 48]. Such concerns may contribute to pregnancy-related anxiety, a distinct psychological condition affecting expectant mothers [2]. As awareness of genetic risks continues to grow [7, 16, 42, 37], these anxieties become increasingly relevant to reproductive decision-making.

Present Study

The present study aimed to develop an expanded and revised version of the CMS that addresses limitations of previous measures by incorporating additional items relevant to contemporary reproductive decision-making. In line with the aim of expanding the CMS structure, particular emphasis was placed on developing a new subdimension within NCM, capturing concerns related to the health of a potential child. As such, the development of new items reflecting this domain constituted a central theoretical and methodological contribution of the current work.

The psychometric evaluation of the revised CMS was conducted in a sample of Polish-speaking adults (N = 386), aged 20–40, all of whom were childless at the time of the study. We assessed the internal consistency of each subdimension, the structural validity of the scale using factor-analytic techniques, and its external validity. The latter was examined by testing the associations between CMS subdimensions and participants' desire and intention to have (or not have) children, in line with theoretical predictions. Following the TDIB model [20], Positive Childbearing Motivation (PCM) subscales are expected to correlate positively with fertility desires and intentions, whereas Negative Childbearing Motivation (NCM) subscales should show inverse associations. This approach provides a theoretically grounded framework for evaluating the scale's external criterion validity.

Procedure and Measures

Revision of the Childbearing Motivations Scale

The CMS is a questionnaire developed by Guedes et al. [5] to assess individuals' motivations for having children. The CMS includes four scales to reflect different aspects of Positive Childbearing Motivation (PCM) and five scales measuring Negative Childbearing Motivation (NCM). The level of positive motivation is assessed based on responses to items concerning the following beneficial aspects of parenthood: Socioeconomic Aspects (e.g., "Being socially valued"), Personal Fulfillment (e.g., "Giving a meaning to my life"), Continuity (e.g., "Continuing my family name"), and The Couple Relationship (e.g., "Strengthening the bond with my partner"). Whereas, the level of negative motivation is assessed based on responses to items concerning five unfavorable aspects of childbearing: Childrearing Burden and Immaturity (e.g., "Facing the labor of childcare"), Social and Ecological Worry (e.g., "Worrying about the

future of a child in the current world"), Marital Stress (e.g., "Fearing that a child might lead us to separate as a couple"), Financial Problems and Economic Constraints (e.g., "Facing financial sacrifices"), and Physical Suffering and Body-Image Concerns (e.g., "Being afraid of suffering (being afraid that my partner will suffer) complications during birth"). The measure employed a 5-point Likert scale ranging from *not at all important* to *very important*. Brief descriptions of the subdimensions of the CMS are presented in Table 1.

Table 1
Descriptions of the Subdimensions of the Childbearing Motivation Scale

Subdimension		Brief Description
Positive Childbearing Motivation		
1	**Socioeconomic Aspects**	external motivations for having children, such as fulfilling societal expectations and affirming adult identity
2	**Personal Fulfillment**	the intrinsic rewards of parenthood, including forming bonds with children, experiencing pregnancy, and satisfying biological instincts
3	**Continuity**	motives related to family continuity, including the desire to perpetuate the family name and establish familial bonds
4	**The Couple Relationship**	enhanced partnership bonds or personal growth as a couple
Negative Childbearing Motivation		
1	**Childrearing Burden and Immaturity**	the challenges, fears, and concerns associated with parenthood, including perceived insufficient readiness and emotional immaturity
2	**Social and Ecological Worry**	concerns about the potential challenges facing children in an uncertain future, driven by social and environmental factors
3	**Marital Stress**	difficulties in maintaining partnership autonomy, lifestyle, and intimacy
4	**Financial Problems and Economic Constraints**	socioeconomic challenges such as unemployment and job insecurity in the current context
5	**Physical Suffering and Body-Image Worry**	the potential health challenges associated with childbearing, including elevated risks for maternal-fetal health and difficulties in physical recovery

[Table about here]

Prior to commencing the study, we obtained permission from the questionnaire's original author. A team of researchers specializing in childbearing decisions translated the items, which were then back-translated by a fluent English speaker to verify accuracy. In addition, the team developed new questions addressing concerns about the health of a potential child, thereby extending the negative childbearing motivation subdimension. The generation of these items was informed by Mikołajków et al. [18], who

examined pregnancy-related anxiety in their Polish adaptation of the Pregnancy-Related Anxiety Questionnaire – Revised 2 (PRAQ-R2). Four PRAQ-R2 items explicitly targeting concerns about the child's health and functioning were directly adapted and reformulated to fit the CMS framework (e.g. "Worry that our child will have health problems."). Additionally, new items were developed focusing on hereditary diseases within participants' families and possible future health risks (e.g. "Worry that the child will be prone to health issues like me.").

In addition, we modified The Couple Relationship subdimension by splitting the original item ("Taking a step forward in the relationship with my partner") into two slightly different Polish versions: "Taking a step forward in my relationship with my partner" and "Deepening my relationship with my partner." Both were retained to reflect distinct aspects of relationship development: formal or structural progression versus growing emotional closeness or intimacy. The complete set of Polish items can be found in Appendix A (Tables 1 & 2).

Table 2
Sample Characteristics

Variable	Categories/Values	*N*	%
Gender	Women	288	74.6
	Men	98	25.4
Place of Residence	Rural area	63	16.3
	City under 99,000 residents	53	13.7
	City with 100,000 to 499,000 residents	91	23.6
	City with 500,000 + residents	179	46.4
Education level	Primary vocational	3	0.8
	Secondary	76	19.7
	Post-secondary non-university education	8	2.1
	Bachelor's degree or equivalent	77	19.9
	Master's degree or higher	222	57.5

Measures of Childbearing Desire and Intention

The intensity of Childbearing Desire and Intention was assessed using short scales incorporated within the Polish adaptation of the Childbearing Questionnaire (CBQ) [21, 30], which demonstrated reliability and validity [10, 9, 29, 31]. The three items for Childbearing Desire focus on participants' general wish to have children, the importance they place on parenthood, and their emotional reaction to the idea of having children. For the Childbearing Intention scale, two items were included, referring to an actual plan to have a child within the next three years and the perceived likelihood of achieving this goal. The Desire

and Intention scales used responses ranging from 0 (*not at all*) to 10 (*as much as possible*). Scores were summed with higher scores indicating a stronger desire or intention to have children. Reliability estimates for both scales were excellent (Cronbach's α_{DES} = .97; Cronbach's α_{INT} = .95). Full Desire and Intention items are available in Table 3 of Appendix A.

Table 3

Factor Loadings of PCM Items in CMS-R-PL

Item Code	Short Item Description	PCM Subdimensions		
		1	2	3
P_PF4	Creating a personality	1.007		
P_PF6	Creating a family	0.966		
P_C6	Family's relationships	0.930		
P_C5	Family's values	0.877		
P_PF8	Feeling useful and important for a child	0.835		
P_PF5	Maternal or paternal instinct	0.787		
P_C2	Family spirit	0.765		
P_PF3	Blood ties	0.682		
P_C4	Familial lineage	0.648		
P_CR3	Fulfilling a shared project	0.632		
P_PF7	Pregnancy experience	0.621		
P_PF1	Biological clock	0.597		
P_C3	Family heritage	0.595		
P_PF2	Life meaning	0.476		
P_SA6	Gender role expectations	0.470	0.461	
P_CR4	Fulfilling partner's project	0.455		
P_SA4	Family expectations		0.903	
P_SA2	Social valorization		0.879	
P_SA3	Responsibility affirmation		0.798	
P_SA8	Couple's recognition as a family		0.771	
P_SA1	Moral obligation		0.745	
P_SA7	Adult affirmation		0.692	
P_SA5	Economic support		0.438	
P_C1	Family's name		0.415	

Note. P_PF – Personal Fulfillment; P_C – Continuity; P_CR – The Couple Relationship; P_SA – Socioeconomic Aspects.

Item Code	Short Item Description	PCM Subdimensions		
		1	2	3
P_CR2_1	Closer as a couple	0.406		0.566
P_CR2	Growing as a couple	0.472		0.481
P_CR1	Strengthening partnership ties			0.455

Note. P_PF – Personal Fulfillment; P_C – Continuity; P_CR – The Couple Relationship; P_SA – Socioeconomic Aspects.

Participants

This research involved $N = 414$ Polish adults aged 20–40 years ($M = 29.88$; $SD = 5.69$). Participants were recruited online through general social media channels (e.g., Facebook, researchers' networks; $n = 185$) as well as a dedicated forum for voluntarily childfree adults ($n = 201$), which together allowed us to capture a broader range of perspectives on reproductive motivations.

All participants were volunteers who gave their informed consent. They were asked to provide information about their age, gender, place of residence, and education level. Participants who did not meet the inclusion criteria—were not within the 18–40 age group ($n = 15$); expecting or having a child ($n = 10$); and identifying with none of the two main gender categories ($n = 3$)—were excluded from the study. Ultimately, 386 complete questionnaires remained in the database for analysis. Sample characteristics are presented in Table 2. Data collection took place between August and October 2024. The data and Appendix A are available at https://osf.io/g69cm/overview?view_only=7639af50cad943b7ae2e747f2fa51206.

[Table about here]

Analyses

Following the procedure used by Guedes et al. [5] in the development of the original CMS, we first conducted exploratory factor analyses (EFA) with Oblimin rotation as an initial step to examine dimensionality and to refine items where necessary. We followed the authors' approach in applying an oblique rotation, as the latent constructs are theoretically expected to be interrelated. Because our primary objective was to integrate a new health-related subscale within the NCM domain, EFAs were run separately for NCM and PCM. This separation allowed us to evaluate the placement, distinctiveness, and internal coherence of the new items within NCM while preserving the established PCM structure.

Then, we conducted confirmatory factor analyses (CFA) to scrutinize the structure of the revised version of the CMS. To test the structural validity of CMS-R-PL, we applied the structural equation modelling

(SEM) framework using the Mplus software [28] with STDYX standardization and WLSMV estimator. Model fit was evaluated using three widely accepted fit indices: Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and SRMR (Standardized Root Mean Square Residual). Cutoff criteria for RMSEA and SRMR below 0.08 and CFI above 0.9 are used, indicating a good fit of the model to the data [8, 17].

Next, following the verification of the CMS-R-PL structure, its reliability was assessed in terms of internal consistency of its scales (Cronbach's alpha). Lastly, we examined validity by testing whether the relationship of childbearing motivations with desire and intention is in line with the Miller's TDIB theoretical model. To this end, we correlated dimensions of PCM and NCM with Childbearing Desire and Intention (CBQ) [21] and estimated multiple regression models to assess the predictive validity of CMS-R-PL, with all dimensions of PCM and NCM simultaneously entered as predictors of Desire and Intention.

Results

Structure of Childbearing Motivations—Preliminary Analyses

The assumptions for factor analysis were met for both PCM and NCM dimension. The Kaiser-Meyer-Olkin (KMO) measure indicated excellent sampling adequacy (.966 for PCM and .939 for NCM), and Bartlett's tests of sphericity were significant ($\chi^2(351) = 10325.78$, $p < .001$ for PCM; $\chi^2(496) = 9362.28$, $p < .001$ for NCM), confirming the suitability of the data for structure detection.

An exploratory factor analysis (principal axis method) with Oblimin rotation for the PCM subscales revealed a three-factor solution rather than the four-factor structure proposed by Guedes et al. [5]. The three components in the unrotated extraction jointly explained 68.12% of the total variance. The most notable deviation from the original structure was the empirical convergence of the Continuity and Personal Fulfillment dimensions into a single latent construct.

As for the NCM subscales, EFA revealed a six-factor solution, explaining 63.16% of the total variance before rotation. Although some components exhibited similarities to the original CMS structure, the overall factor configuration did not fully replicate. Furthermore, the newly introduced items related to health concerns yielded two empirically distinct factors. This observation led to the development and testing of two models in the confirmatory phase: one assuming a unified health dimension, and another distinguishing between maternal and child health concerns. The detailed factor loadings for both PCM and NCM items are presented in Tables 3 and 4, respectively.

Table 4

Factor Loadings of NCM Items in CMS-R-PL

Item Code	Short Item Description	NCM Subdimensions					
		1	2	3	4	5	6
N_MS3	Constraints for couple autonomy	0.809					
N_MS4	Constraints for couple proximity	0.804					
N_MS2	Constraints for couple routines	0.759					
N_MS1	Fear of couple separation	0.679					
N_PS3	Physical discomforts of pregnancy	0.630					
N_PS2	Negative body changes	0.576					
N_SE2	Childcare demands	0.518					
N_CBI6	Lifelong responsibility						
N_H9	Own health vulnerability		0.926				
N_H2	Fear of passing own illness		0.886				
N_H11	Inherited family disorders		0.842				
N_H6	Family-related health concerns		0.743				
N_H10	Partner's genetic inheritance		0.681				
N_H1	Partner's health vulnerability		0.660				
N_FP2	Increased expenses			-0.933			
N_FP1	Financial sacrifices			-0.867			
N_FP4	Financial difficulties			-0.852			
N_FP3	Constraints for financial well-being			-0.656			

Note. N_MS – Marital Stress; N_PS – Physical Suffering and Body-Image Concerns; N_SE – Social and Ecological Worry; N_CBI – Childrearing Burden and Immaturity; N_H – Health; N_FP – Financial Problems and Economic Constraints.

Item Code	Short Item Description	NCM Subdimensions					
		1	2	3	4	5	6
N_SE3	Social dangers				0.703		
N_SE1	Worry about the future				0.680		
N_SE4	Environmental degradation				0.641		
N_CBI4	Concerns about child's deviance				0.584		
N_CBI5	Constant worry				0.425		
N_H3	Intellectual or brain damage					-0.644	
N_H12	Fear of stillbirth or infant death					-0.530	
N_H4	Child's general health problems					-0.510	
N_PS1	Birth complications	0.406				-0.438	
N_H8	Physical defect or atypical look					-0.418	
N_H5	Risk of mental disorders						
N_CBI2	Concerns about parental qualities						0.605
N_CBI3	Parental unpreparedness						0.402
N_CBI1	Childcare labor						

Note. N_MS – Marital Stress; N_PS – Physical Suffering and Body-Image Concerns; N_SE – Social and Ecological Worry; N_CBI – Childrearing Burden and Immaturity; N_H – Health; N_FP – Financial Problems and Economic Constraints.

[Table 3 and Table 4 about here]

Overall, the exploratory analyses partially supported the theoretical model of the original CMS, while also revealing new directions and structural nuances in the revised version of the scale.

EFA allowed also testing of the two Polish versions of the item P_CR2 (P_CR2 "Taking a step forward in my relationship with my partner" and P_CR2_1 "Deepening my relationship with my partner"). Both items loaded on the Couple Relationship factor, as expected. However, as they capture complementary aspects of relationship development—formal/structural advancement and intimacy—it was decided to keep both

of them in the revised version of the scale. This decision was further supported in the CFA, where both items functioned as indicators of the same latent factor.

Structural Validity of CMS-R-PL

Based on the structure of the original CMS and the EFA findings, several alternative factor solutions were developed and tested using the CFA models. For the PCM, we compared a unidimensional model (P1) and a four-dimensional model (P2), including the following dimensions: Socioeconomic Aspects, Personal Fulfillment, Continuity, The Couple Relationship. Moreover, we tested three-dimensional model (P3), where Continuity and Personal Fulfillment factors were combined into a single factor, based on the results of the EFA presented in the previous section. For the NCM, we compared a unidimensional model (N1), a six-dimensional model (N2) including Childrearing Burden and Immaturity, Social and Ecological Worry, Marital Stress, Financial Problems and Economic Constraints, Physical Suffering and Body-Image Concerns and the newly introduced Health Concerns dimension, and a seven-dimensional model (N3) where the health factor was split into two dimensions: N_H1 (Hereditary Risk Concerns) and N_H2 (Altruistic Health Concerns), based on the results of EFA. The model fit indices are presented in Table 5.

Table 5
Model Fit Coefficients from CFA

	Chi^2(df)	CFI	RMSEA [90% CI]	SRMR
PCM				
Model P1 (1 factor)	4063.044(403)	.594	.153[.149-.158]	.137
Model P2 (4 factors)	874.963(291)	.907	.072[.067-.078]	.071
Model P3 (3 factors)	1042.194(294)	.881	.081[.076-.087]	.072
NCM				
Model N1 (1 factor)	6514.151(378)	.523	.147[.143-.152]	.132
Model N2 (6 factors)	6881.893	.891	.071[.066-.076]	.065
Model N3 (7 factors)	6881.893(406)	.920	.061[.056-.067]	.075

[Table 5 about here]

For the PCM, the four-dimensional model (P2) demonstrated the best fit, suggesting the existence of four types of positive childbearing motivations. For the NCM, the proposed seven-dimensional model (N3) showed the best fit. Notably, a few minor modifications had to be introduced (as suggested by the modification indices) to best represent the questionnaire structure. Firstly, in the PCM, item P_SA6 (“Fulfilling my woman’s or man’s role”) was removed because it lowered the overall model fit, had a low factor loading, and exhibited numerous cross-loadings (which was also visible in the EFA results, where the item showed rather low and almost identical loadings on two factors). Moreover, a correlation was also introduced between the error terms of the following items: P_CR2_1 (“Taking a step forward in the

relationship with my partner") with P_CR1 ("Strengthening the bond with my partner") and P_C4 ("Ensuring my familial lineage") with P_C3 ("Conveying my family heritage"). While first pair of items clearly load The Couple Relationship dimension, they may additionally share unique variance not fully accounted for by the latent factor alone. Specifically, both items refer to emotional development within the romantic relationship, rather than broader or more instrumental aspects of the partnership (e.g., fulfilling joint plans or aligning family goals). This suggests that they may form a tightly linked semantic pair within the broader construct, justifying the correlation of their error terms to improve model fit without distorting the theoretical structure. As for the second pair of items that load the Continuity dimension, their correlation of their error terms may reflect a particularly cohesive thematic subset within this subscale. Both items emphasize the symbolic transmission of familial identity across generations, which may not be fully captured by the broader Continuity factor that also includes items focusing on emotional closeness or value-based legacy.

Furthermore, given the relatively high correlation between the latent variables (Continuity and Personal Fulfillment) in model P2, we also tested model P3 where these factors were combined. However, as shown in Table 5, this model demonstrated a poorer fit to the data. Therefore, in line with theoretical assumptions, the distinction between these factors seems justified, despite the observed high correlation.

Moreover, three items related to negative motivation were removed: N_SE2, N_CBI3, and N_CBI4. Item N_SE2 ("Dealing with the constant needs of a child") presented low factor loading and cross-loadings on most of the latent factors. Items N_CBI3 ("Feeling unprepared to assume the mother's or father's role") and N_CBI4 ("Fearing that my child loses himself/herself in deviant trajectories (e.g., drug dependence, delinquency, …)") had factor loadings below .50 and worsened the overall model fit. One possible explanation for the poor performance of these items may lie in cultural attitudes toward parental responsibility in Polish society. Item N_SE2 ("Dealing with the constant needs of a child") may be interpreted as a natural and unavoidable aspect of parenting, rather than a burdensome concern. Such challenges are often met with pragmatic acceptance and a belief that difficulties are inherent to parenthood and must simply be endured. As such, this item may not have evoked sufficient motivational ambivalence to align with the other items in the Social and Ecological Worry dimension, which focus more on external threats beyond parental control.

A similar pattern may underlie N_CBI3 and N_CBI4. Admitting insufficient readiness (N_CBI3) or fearing a child's deviant future (N_CBI4) can be interpreted less as genuine reasons to delay or forgo parenthood, and more as self-referential evaluations to be endured or managed—consistent with cultural norms that emphasize obligation, endurance, and personal agency in parenting. Within such a context, these statements may register as personal inadequacy or challenges to be borne rather than as salient motivational barriers, thereby reducing their coherence with other Childbearing Burden and Immatuiry (CBI) items.

Modification indices also suggested introducing correlations between two pairs of item errors: N_H2 (“Worry about transmitting my disease to my child”) and N_H9 (“Worry that my child will be predisposed to the same health issues I have”), as well as N_MS1 (“Fearing that a child might lead us to separate as a couple”) with N_MS4 (“Losing intimacy with my partner”). In both cases, the correlated residuals can be justified by item-specific shared variance stemming from substantial thematic and affective similarity. This overlap may reflect content redundancy or a common subfacet within the construct that is not attributable to the latent factor. The first pair stands out within the health concerns subdimension by focusing directly on the participant’s own illness experience, rather than on broader hereditary risks related to the partner or extended family, which are the focus of the other items in this subscale. The second pair captures more intimate fears of relational disconnection, highlighting emotional and affective strain—distinct from the more practical or structural concerns reflected in the remaining Marital stress items, such as changes in lifestyle or daily routines.

The best-fitting models for positive and negative motivations, along with the factor loadings of the items and the correlations between latent variables, are presented in Figs. 1 and 2. As can be seen, all factor loadings of the items remaining in the model are at a satisfactory level.

[Figure 1 and Fig. 2 about here]

Descriptive Statistics and Reliability of the Scales

Following the verification of structural validity for the Positive and Negative Childbearing Motivation (PCM and NCM) subscales, descriptive statistics and internal consistency coefficients were computed for the final sets of items retained in the best-fitting models. Table 6 presents descriptive statistics also for Childbearing Desire and Intention scales [10], which are used in subsequent evaluation of external validity. All variables in our study were approximately normally distributed, as indicated by skewness and kurtosis values within acceptable limits (absolute values did not exceed 2).

Table 6

Descriptive Statistics of CMS-R-PL Subdimensions and Childbearing Desire and Intention Scales

Scale	Subdimension	*M*	*SD*	*S*	*K*
PCM	Socioeconomic Aspects (P_SA, Factor 1)	1.73	0.97	1.49	1.49
	Personal Fulfillment (P_PF, Factor 2)	2.49	1.28	0.29	-1.29
	Continuity (P_C, Factor 3)	2.54	1.25	0.25	-1.25
	The Couple Relationship (P_CR, Factor 4)	2.48	1.30	0.39	-1.16
NCM	Childrearing Burden and Immaturity (N_CBI, Factor 1)	3.93	0.94	-0.80	-0.13
	Social and Ecological Worry (N_SE, Factor 2)	3.41	1.16	-0.34	-0.85
	Marital Stress (N_MS, Factor 3)	3.71	1.16	-0.59	-0.78
	Financial Problems and Economic Constraints (N_FP, Factor 4)	3.75	1.17	-0.72	-0.49
	Physical Suffering and Body-Image Concerns (N_PS, Factor 5)	3.73	1.15	-0.62	-0.61
	Hereditary Risk Concerns (N_H1, Factor 6)	3.40	1.23	-0.38	-0.96
	Altruistic Health Concerns (N_H2, Factor 7)	3.74	1.05	-0.79	-0.09
Childbearing Desire		3.33	3.66	0.62	-1.18
Childbearing Intention		1.67	2.88	1.73	1.71

Note. S – skewness, *K* – kurtosis.

[Table 6 about here]

We assessed the reliability of CMS-R-PL subscales using Cronbach's alfa coefficients, as it was done in the original study [5]. As shown in Table 7, the PCM subdimensions in the original CMS demonstrated high internal consistency, which was largely retained in the revised CMS-R-PL version. The NCM subdimensions showed comparatively lower consistency than the PCM scales in both the original and the Polish versions, yet the reliability remained high overall, with only one subscale falling slightly below .80. Notably, the additional health-related subdimensions employed in CMS-R-PL exhibited strong internal consistency.

Table 7

Cronbach's Alpha Coefficients for Subdimensions in the Original and Polish Version of CMS

Scale	Subdimension	α (CMS-R-PL)	α (CMS)
PCM	Socioeconomic Aspects (P_SA)	.91	.92
	Personal Fulfillment (P_PF)	.94	.90
	Continuity (P_C)	.91	.86
	The Couple Relationship (P_CR)	.93	.85
NCM	Childrearing Burden and Immaturity (N_CBI)	.77	.87
	Social and Ecological Worry (N_SE)	.80	.90
	Marital Stress (N_MS)	.88	.88
	Financial Problems and Economic Constraints (N_FP)	.93	.88
	Physical Suffering and Body-Image Concerns (N_PS)	.81	.77
	Hereditary Risk Concerns (N_H1)	.94	-
	Altruistic Health Concerns (N_H2)	.86	-

[Table 7 about here]

External Validity of CMS-R-PL

To assess the external validity of the CMS-R-PL, we employed two scales from the CBQ questionnaire [30]: Childbearing Desire and Intention. These scales were used to examine the alignment between the motivation construct measured by the CMS-R-PL and the corresponding components of Miller's theoretical model [20–22], upon which both questionnaires are based. Thus, the hypothesis was tested that PCM dimensions will predict childbearing desire and intentions in a positive way, while negative relationship was expected for NCM subscales. As shown in Table 8, the results were consistent with our theoretical predictions, providing evidence for the external validity of both PCM and NCM. All correlations were significant with the exception of those for Altruistic Health Concerns.

Table 8

Correlations of Positive and Negative Childbearing Motivation with Desire and Intention

Scale	Subdimension	Desire	Intention
PCM	Socioeconomic Aspects (P_SA)	.45**	.36**
	Personal Fulfillment (P_PF)	.75**	.53**
	Continuity (P_C)	.71**	.46**
	The Couple Relationship (P_CR)	.67**	.49**
NCM	Childrearing Burden and Immaturity (N_CBI)	− .58**	− .44**
	Social and Ecological Worry (N_SE)	− .34**	− .24**
	Marital Stress (N_MS)	− .54**	− .37**
	Financial Problems and Economic Constraints (N_FP)	− .45**	− .33**
	Physical Suffering and Body-Image Concerns (N_PS)	− .46**	− .27**
	Hereditary Risk Concerns (N_H1)	− .19**	− .21**
	Altruistic Health Concerns (N_H2)	− .07	− .09

**$p < .01$ (two-tailed).

[Table 8 about here]

Next, we conducted multiple regression analysis, including all dimensions of PCM and NCM as predictors. In the first model, Childbearing Desire was the dependent variable (see Table 9), and in the second model, Childbearing Intention was predicted (see Table 10). The results largely confirmed the correlational patterns.

Table 9

Multiple Regression Analysis: The Role of Childbearing Motivations in Predicting the Childbearing Desire

Scale	Subdimension	β	*t*	*p*
PCM	Socioeconomic Aspects (P_SA, Factor 1)	− .079	-1.877	.061
	Personal Fulfillment (P_PF, Factor 2)	.327	4.362	< .001
	Continuity (P_C, Factor 3)	.125	1.814	.070
	The Couple Relationship (P_CR, Factor 4)	.236	4.266	< .001
NCM	Childrearing Burden and Immaturity (N_CBI, Factor 1)	− .168	-3.486	< .001
	Social and Ecological Worry (N_SE, Factor 2)	− .087	-2.192	.029
	Marital Stress (N_MS, Factor 3)	− .128	-2.583	.010
	Financial Problems and Economic Constraints (N_FP, Factor 4)	.022	.514	.607
	Physical Suffering and Body-Image Concerns (N_PS, Factor 5)	− .094	-2.091	.037
	Hereditary Risk Concerns (N_H1, Factor 6)	− .111	-2.563	.011
	Altruistic Health Concerns (N_H2, Factor 7)	.169	3.961	< .001

Table 10

Multiple Regression Analysis: The Role of Childbearing Motivations in Predicting the Childbearing Intention

Scale	Subdimension	β	*t*	*p*
PCM	Socioeconomic Aspects (P_SA, Factor 1)	.042	0.697	.486
	Personal Fulfillment (P_PF, Factor 2)	.350	3.276	.001
	Continuity (P_C, Factor 3)	− .163	-1.670	.096
	The Couple Relationship (P_CR, Factor 4)	.231	2.926	.004
NCM	Childrearing Burden and Immaturity (N_CBI, Factor 1)	− .254	-3.701	< .001
	Social and Ecological Worry (N_SE, Factor 2)	.026	0.469	.639
	Marital Stress (N_MS, Factor 3)	− .084	-1.194	.233
	Financial Problems and Economic Constraints (N_FP, Factor 4)	.037	0.614	.539
	Physical Suffering and Body-Image Concerns (N_PS, Factor 5)	.072	1.130	.259
	Hereditary Risk Concerns (N_H1, Factor 6)	− .212	-3.428	< .001
	Altruistic Health Concerns (N_H2, Factor 7)	.082	1.347	.179

The results for the first model, where childbearing desire was predicted, largely confirmed the hypothesized relations. Within the PCM, subdimensions related to Continuity and Socioeconomic Aspects were non-significant, although the *p* value of < .10 indicates some weak tendency in the expected direction. For the NCM, the original dimensions captured in the CMS were negative predictors of Childbearing Desire and only the one related to Financial Problems and Economic Constraints was non-significant. Hereditary Risk Concerns significantly and negatively predicted Childbearing Desire, reflecting concerns about the child's health—specifically, fears of inheriting genetic disorders. It may discourage individuals from having a child. The second health dimension Altruistic Health Concerns positively predicted Childbearing Desire, indicating that some health-related worries do not deter the desire for parenthood.

The second model, with Childbearing Intention as dependent variable, revealed a similar trend for the Hereditary Risk Concerns subdimension. Hereditary Risk Concerns remained a significant negative predictor, whereas Altruistic Health Concerns was non-significant. As for the remaining NCM dimensions, only the one related to the perceived childrearing burden showed significant, limiting effect on intention to have a child. Among PCM dimensions, Continuity and Couple relationship were significant and—as expected—positive predictors of intention, while the two other dimensions were non-significant.

[Table 9 and Table 10 about here]

Discussion

The primary objective of the present study was to extend the Childbearing Motivations Scale (CMS) and its theoretical foundations by introducing and incorporating a new health-related dimension. This extension addresses a gap in the existing framework by capturing health-related concerns that shape reproductive decisions, particularly in the context of increasing awareness of genetic disorders, advancements in prenatal testing, and evolving perceptions of responsible parenthood [7, 35, 37, 39].

To reach this objective, we first established that structure of the original CMS could be reproduced in the Polish context, providing support for multidimensional framework of childbearing motivations. Nevertheless, several items displayed weaker psychometric properties, indicating that some facets of childbearing motivations may carry culturally specific meanings. While the broader motivational dimensions (NCM and PCM) are likely grounded in biologically universal mechanisms [25], their specific facets may vary across cultures. In particular, the normative context surrounding parenthood—what is considered a natural, expected, or even obligatory aspect of becoming a parent—may shape how certain motivations are interpreted. Such culturally embedded understandings can determine whether specific concerns are seen as meaningful barriers or simply as inherent elements of parenting. Future studies should further examine the cultural relevance of individual items and consider refinements to improve their cross-cultural equivalence.

A central contribution of this study concerns the newly added health-related domain. Importantly, the empirical analyses supported its division into two distinct subdimensions: Hereditary Risk Concerns, capturing worries related to potential genetic risks, and Altruistic Health Concerns, reflecting broader concerns for the child's future health and well-being. Given their conceptual proximity to other risk-focused items, both subdimensions were integrated into the Negative Childbearing Motivation (NCM) scale. By incorporating these two health-related subdimensions, we enrich the CMS questionnaire's capacity to reflect relevant childbearing concerns that were not previously addressed.

Further examination of the scale's validity suggested that distinguishing between the two subdimensions of health-related concerns is essential, as they appear to relate differently to Childbearing Desire, either hindering or supporting it. The Hereditary Risk Concerns were more likely to negatively affect Childbearing Desire, reflecting fears related to the potential transmission of genetic conditions. In contrast, Altruistic Health Concerns may coexist with a strong desire to become a parent, as these concerns stem from a protective orientation toward the child's well-being and may represent a more prosocial or protective form of motivation.

The mechanism underlying the Altruistic Health Concerns subdimension may resemble the process proposed for the *Fears and Worries of Parenthood* scale in Miller's Childbearing Questionnaire (CBQ) [21], which likewise captures child-centered, altruistic concerns. Although the newly introduced CMS-R-PL subdimension focuses narrowly on safeguarding a future child's physical and mental health, both constructs reflect worries grounded in a protective sense of responsibility for the child. Previous research supports the idea that such concerns do not necessarily suppress reproductive desire.

Previous studies have suggested that—under certain circumstances—the *Fears and Worries of Parenthood* dimension may be positively associated with childbearing desire [31, 23]. In particular, a moderation effect was identified: child-centered fears were positively linked to childbearing desire when perceived caregiving costs (e.g., time, energy, career constraints) were low, whereas this association weakened as anticipated burdens increased [31]. It is therefore plausible that the Altruistic Health Concerns subdimension in the CMS-R-PL operates in a similar way, especially given that its positive relation to Childbearing Desire emerged only when all subdimensions of childbearing motivations were considered simultaneously, but not in a bivariate correlation. Notably, we found no evidence on such concerns being related to short-term Childbearing Intention. Thus, the question remains open on how fears for child's health translate into concrete reproductive plans.

Limitations and Future Research Directions

Several limitations of our study must be acknowledged. The sample was self-selected, which introduces the potential for selection biases. Notably, there was an overrepresentation of women, which could limit the generalizability of the findings. Furthermore, the study participants were recruited entirely online. Although the sampling strategy allowed us to reach individuals with diverse attitudes toward parenthood, it does not permit strong conclusions regarding population-level trends. Nevertheless, these findings

represent an initial step in establishing the validity of the instrument, and further studies are needed to replicate and extend the current results to support their cross-cultural equivalence.

Future research based on larger and more diverse samples could bring more robust evidence on the psychometric properties of the revised Childbearing Motivations Scale. The scale should also be examined in cross-cultural studies, especially in light of the weaker performance of several items in the Polish context. Applying the revised, extended version of the CMS-R-PL in different populations will help determine whether the newly identified health-related structure within NCM is universal across cultural settings. Further studies on the relevance of two health-related subdimensions for childbearing desires and intentions and on how they relate to other components of positive and negative parental motivations may also strengthen the theoretical foundations of research on childbearing motivations.

Conclusion

The present study contributes to the advancement of the conceptualization and measurement of childbearing motivations by introducing an additional health-related dimension, which proved to be relevant in understanding reproductive decision-making. Our findings underscore the importance of recognizing health-related motivations as multifaceted, rather than treating them as a single construct. The dual nature of the health dimension within the CMS-R-PL provides a more nuanced understanding of how individuals balance concerns related to potential genetic risks with altruistic desires to ensure the well-being of future children. This differentiation may contribute to a more comprehensive understanding of childbearing motivations, particularly in cultural contexts where health awareness—potentially shaped by factors such as access to healthcare, public health discourse, and trust in medical systems—may be increasingly integrated into reproductive decision-making.

Abbreviations

CBQ
Childbearing Questionnaire
CMS
Childbearing Motivations Scale
TDIB
Traits–Desires–Intentions–Behavior Model
NCM
Negative Childbearing Motivation
PCM
Positive Childbearing Motivation
PRAQ
R2–Pregnancy–Related Anxiety Questionnaire–Revised 2
SEM
Structural Equation Modeling

CFA
Confirmatory Factor Analyses
EFA
Exploratory Factor Analyses
RMSEA
Root Mean Square Error of Approximation
CFI
Comparative Fit Index
SRMR
Standardized Root Mean Square Residual
P_PF
Personal Fulfillment
P_C
Continuity
P_CR
The Couple Relationship
P_SA
Socioeconomic Aspects
N_MS
Marital Stress
N_PS
Physical Suffering and Body–Image Concerns
N_SE
Social and Ecological Worry
N_CBI
Childrearing Burden and Immaturity
N_FP
Financial Problems and Economic Constraints
N_H1
Hereditary Risk Concerns
N_H2
Altruistic Health Concerns

Declarations

Ethics Approval and Consent to Participate:

The study received the approval of the Ethical Board for Scientific Research of the Institute of Psychology at Cardinal Stefan Wyszynski University in Warsaw. The evaluation was conducted in accordance with the WMA Declaration of Helsinki, European Federation of Psychology Associations

Meta-Code of Ethics, Universal Declaration of Ethical Principles for Psychologists and applicable local guidelines and regulations.

Conflict of interests:

The Authors report no conflict of interest.

Consent for publication:

Not applicable.

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Author Contribution

Conceptualization : A. C., M. M.; **Methodology** : A.C., M. M.; **Software** : A. C., D. K., I. H., J. L.; **Validation** : A. C., D. K., I. H., J. L.; **Formal analysis** : A. C., D. K., I. H.; **Investigation** : A.C., M. M. **Data Curation** : A. C., J. L.; **Writing – Original Draft:** A. C., M. M., D. K., J. L., I. H.; **Writing – Review & Editing:** A. C., M. M., D. K., J. L., I. H.; **Visualization:** A. C., J. L.; **Supervision** : M. M.; **Project administration** : A. C.; **Funding acquisition** : M. M.

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Data Availability

The datasets analyzed during the current study are available at [https://osf.io/g69cm/overview?view_only=7639af50cad943b7ae2e747f2fa51206](https:/osf.io/g69cm/overview?view_only=7639af50cad943b7ae2e747f2fa51206) . Authors of the dataset on the osf.io will be revealed after the review process.

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Figures

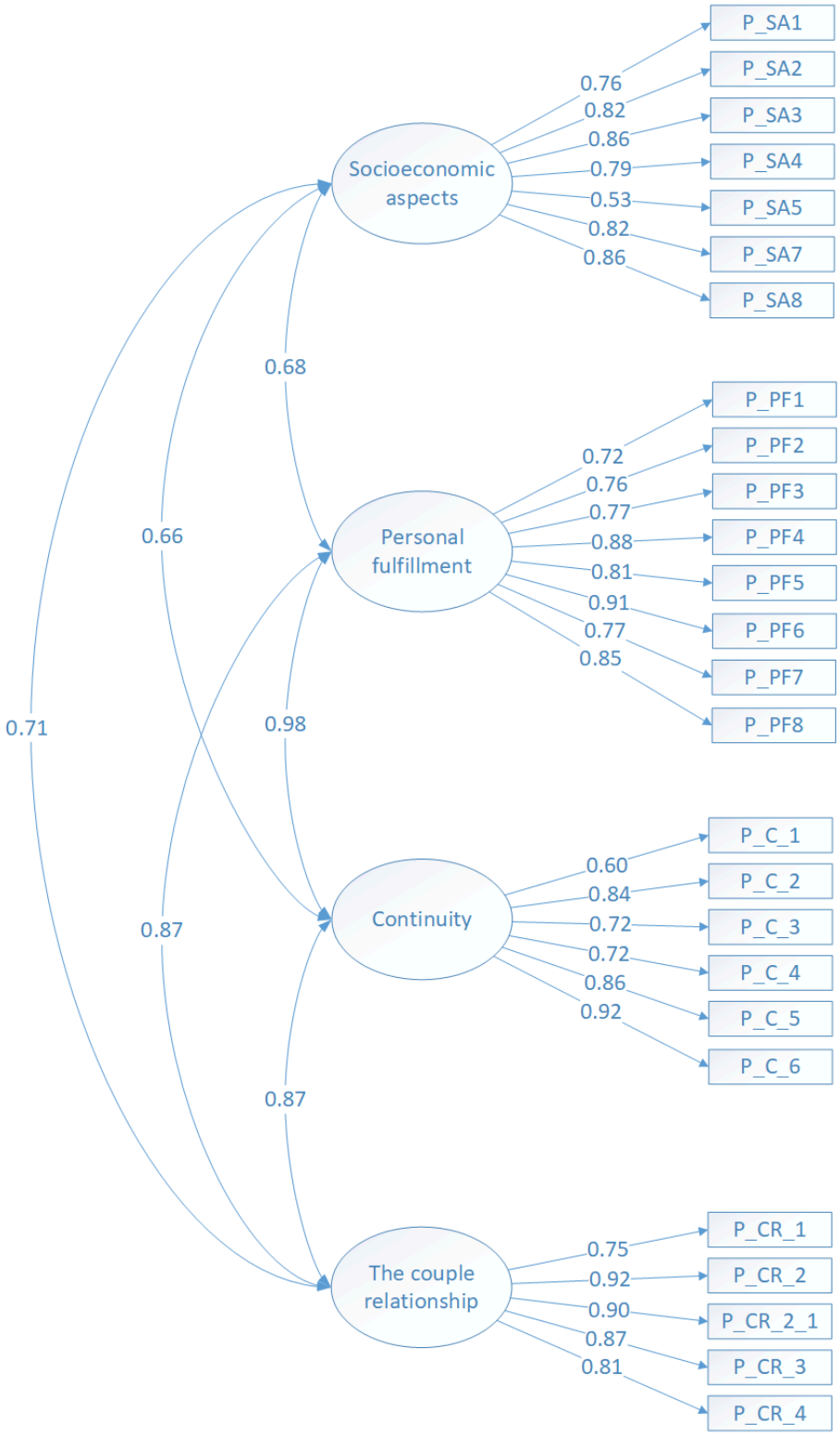


Figure 1

Model P2: Positive Childbearing Motives—Factor Loadings and Correlation Coefficients Between Latent Variables

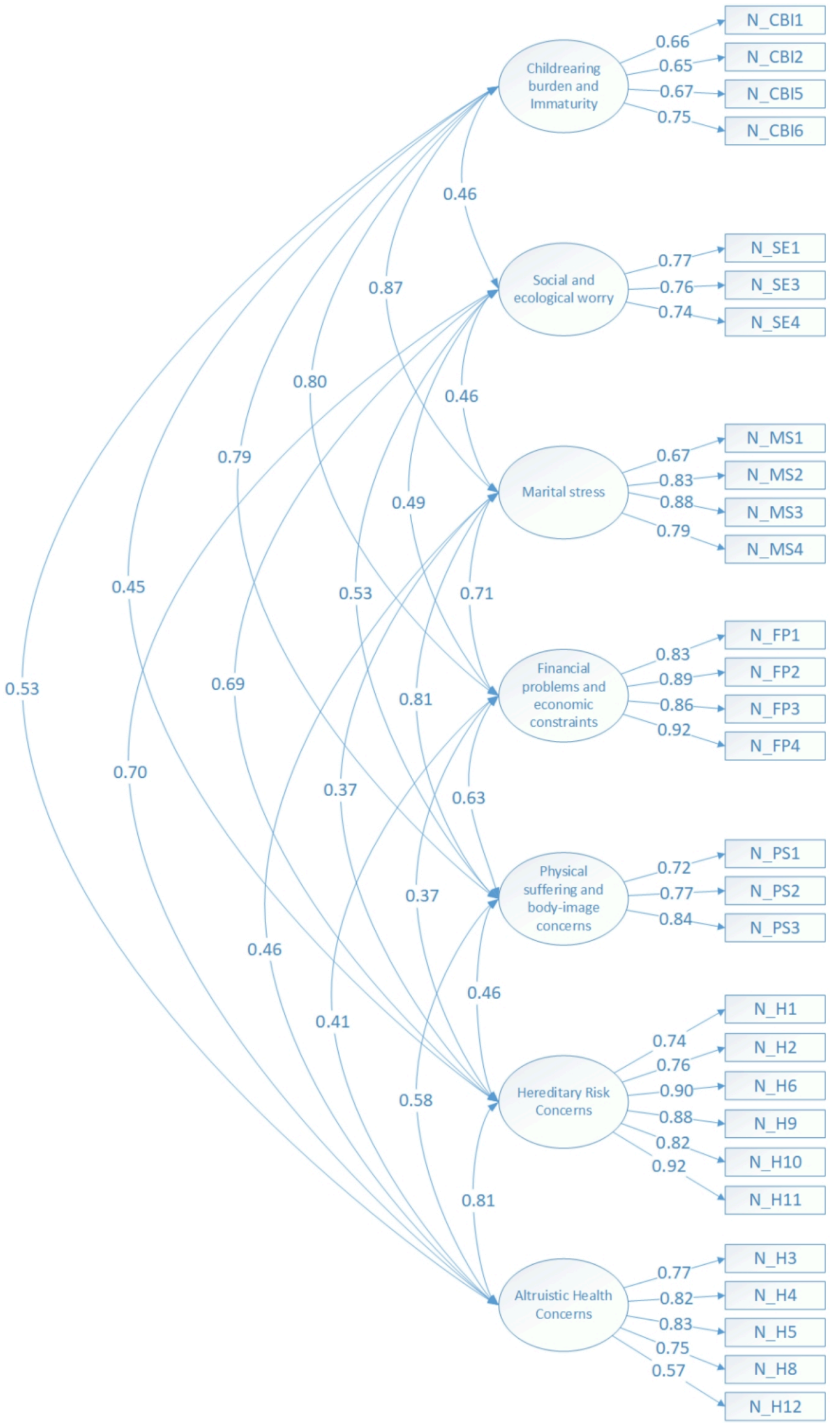


Figure 2

Model N3: Negative Childbearing Motives—Factor Loadings and Correlation Coefficients Between Latent Variables

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- AppendixA.pdf