ORIGINAL ARTICLE

Hindi translation and validation of perinatal grief scale (short version): Assessing grief following stillbirth in bereaved mothers

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ABSTRACT

Background: Perinatal grief is the experience or emotions of parents following the loss of an infant by miscarriage, stillbirth, neonatal loss, or elective termination for fetal anomalies.
Aim: We aimed to translate and adapt the Perinatal Grief Scale (PGS) into Hindi and evaluate its psychometric properties in a sample of women who had recently experienced a stillbirth.
Method: The PGS was translated and adapted into Hindi following the process of translation and adaptation recommended by the World Health Organization. Internal consistency reliability was assessed by calculating Cronbach's alpha. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were carried out to assess discriminant validity and composite reliability. Additionally, the participants were assessed on four other questionnaires (State-Trait Anxiety Inventory, Edinburgh Postnatal Depression Scale, Generalized Anxiety Disorder Scale, and Patient Health Questionnaire) to test the convergent validity.
Results: The mean age of the participants was 27.57 years (SD = 4.42), and 7% of the mothers were of advanced age. The Cronbach's alpha of the three subscales of PGS was more than 0.85, which confirms the reliability of PGS-H. A significant positive correlation was found between PGS-H and scores of STAI, EPDS, GAD7, and PHQ9 ($P < 0.05$). EFA identified three domains of PGS. In CFA, the goodness of model fit was confirmed with a root mean square error of approximation of 0.06, a comparative fit index of 0.915, and a goodness of fit index of 0.812.
Conclusion: The PGS-H has been demonstrated to be a reliable and valid instrument for assessing grief in women following pregnancy loss.

Key words: Bereavement care, perinatal grief, perinatal grief scale, stillbirth, validation

INTRODUCTION

Perinatal grief is described as the emotional response following any pregnancy loss, which can be a miscarriage, induced termination of pregnancy, stillbirth, or neonatal loss.[1,2] Grieving is a normal, universal, and habitual reaction to any significant loss. The effects of perinatal grief are overwhelming as acceptance of the loss is difficult and the grieving period lasts longer than expected. Some individuals experience an excessive, persistent, distressing, and disabling grieving process that has been identified as complicated grief which is more frequently seen following perinatal loss.[3-5] Complicated grief has been recognized as a mental disorder, and it is also listed in the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

Out of the various kinds of pregnancy loss, stillbirth is one of the most challenging situations where a mother has to deal with the emotions of birth and death simultaneously.[6-8] According to the National Family Health Survey (NFHS-5) 2019–2021, the stillbirth rate in India is approximately 9.7 stillbirths per 1000 births; this translates into a huge burden, impacting the mental health and holistic wellbeing of mothers.[9] This emotional toll can further manifest into long-term psychological issues if not properly addressed. However, perinatal grief associated with stillbirth often goes unrecognized and untreated in both hospital and community-based settings at large. Therefore, to effectively tackle this issue, culturally appropriate tools and strategies are essential for identifying and supporting perinatal grief.[10-14]

The commonly used scale to assess grief following pregnancy loss is the Perinatal Grief Scale (PGS), which was developed by Toedter *et al*. in English (1988).[15] It was further modified to the short version of PGS by Potvin *et al*.[16] Since then, it has been modified and translated into various languages and validated in many countries.[17-21] However, the scale has not been translated and validated in Hindi. Accordingly, we aimed to translate and adapt the PGS into Hindi and evaluate its psychometric properties in a sample of women who had recently experienced a stillbirth.

MATERIALS AND METHODOLOGY

Design

This study was conducted in the Department of Obstetrics and Gynecology of a tertiary care hospital in North India from March 2019 to December 2019 after approval from the institutional ethics review committee. Permission was obtained from the authors of the PGS for its translation, adaptation, and validation.

The short version of PGS is a 33-item questionnaire with three subscales (11 questions in each): "Active grief", "Difficult coping", and "Despair". The 'Active grief' subscales quantify the normal reactions to loss like crying, missing the baby, and sadness. 'Difficult coping' measures the difficulties in performing day-to-day activities, lack of support from family members or partners, or social isolation. The third subscale 'Despair' assesses the long-term implications of loss like feelings of hopelessness and helplessness. The total PGS score ranges from 33 to 165, and the subscale score ranges from 11 to 55. The PGS score of more than 91 represents complicated grief. The scale was translated, culturally adapted, and validated based on the approach suggested by the World Health Organization.[22] The translation process involved 1) forward translation, (2) an expert panel, (3) back translation, (4) pretesting and cognitive interviewing, and the (5) final version.

The PGS was first translated into Hindi by the bilingual group, consisting of two healthcare professionals (DS, BS) fluent in both the source and destination languages. The translators had a clear idea of both the concepts the questionnaire intended to measure and the target population. The two forward translations were then compared by an expert panel that consisted of obstetricians, psychologists, and original translators, and after slight modifications, discrepancies between the two translators were resolved. To ensure the accuracy of the primary translation, the questionnaire was then back-translated into English by two independent professional translators. They had not participated in the previous phase and had no knowledge of the original version of the scale. Then the expert panel along with the research team (forward and back translators) reviewed and compared the back-translated English version of the scale with the original version. Minor differences were promptly rectified, and a consensus on all items was reached; this led to the production of the prefinal version of the translation. Then the prefinal version of the translated questionnaire was subsequently pilot-tested on a small sample of 15 women who had experienced stillbirth and had never seen the questionnaire before. The participants were also interviewed in depth to assess their understanding of each questionnaire item and its corresponding response. They were also asked if they either faced any difficulties while comprehending the language or encountered any confusion while answering the questionnaire. Their suggestions were taken into consideration by the expert panel and incorporated to form the final version of PGS-H to make it culturally appropriate.

Participants

To be included in the study, the participants were required to be over 18 years of age and delivered a stillborn (≥20 weeks) at our institute, Postgraduate Institute of Medical Education and Research, Chandigarh, in 6 weeks period before enrollment and possessed the ability to understand and speak Hindi. Patients with limited knowledge of the Hindi language, with severe health

conditions, or those under pharmacological treatment that made it impossible for them to sit for the clinical interview and understand and answer the questions were excluded from the sample.

Sample size estimation

Based on previous recommendations, the sample size was estimated at 5:1 (5 participants per item). As per David Garson (2008), the subjects-to-variables ratio should be no lower than 5.[23] Hatcher (1994) recommended that the number of subjects should be larger than 5 times the number of variables, or 100.[24] Hutcheson and Sofroniou (1999) recommend at least 150–300 cases, more toward 150 when there are a few highly correlated variables, as would be the case when collapsing highly multicollinear variables.[25] Since there were 33 items in PGS-H, we recruited 5x33, which is 165 participants in the index study.

Measures and instruments

Besides the PGS-H, the participants were assessed on the following instruments:

State-Trait Anxiety Inventory: STAI is a 4-point Likert, self-report scale used to measure anxiety and trait anxiety. STAI-T scale asks people to describe how they generally feel, and STAI-S determines the actual levels of anxiety intensity induced by stressful procedures. The questionnaire consists of a total of 40 questions, and the range of possible scores varies from 20 to 80 on both the STAI-T and STAI-S subscales. STAI scores are commonly classified as "no or low anxiety" (20–37), "moderate anxiety" (38–44), and "high anxiety" (45–80). In this study, we used the validated vernacular translation of the Hindi edition of STAI that was constructed to facilitate cross-cultural research in 1973.[26] *Edinburgh Postnatal Depression Scale* (EPDS) is a 10-item self-reporting instrument. It was specifically designed for assessing both prenatal and postnatal depression and has been validated for detecting depression in both antepartum and postpartum mothers in many countries. This scale consists of ten short questions with a choice of four answers that assess how the subject was feeling over the past 7 days. Scores are recorded as 0, 1, 2, and 3 according to symptom severity. Certain question items (i.e., 3, 2, 1, and 0) are scored in a reverse manner. Respondents who score 13 and above are likely to be suffering from depression and require an intervention. It has a sensitivity of 86%, a specificity of 78%, and a positive predictive value of 73%, Cox and colleagues (1987).[27,28]

The Generalized Anxiety Disorder Scale-7 (GAD-7) is a 7-item, self-rated scale developed by Spitzer and colleagues (2006) as a screening tool and severity indicator for GAD.[29] It is easily scored and initially was created to increase recognition of GAD in primary care settings. The GAD-7 represents an anxiety measure based on seven items which are scored from 0 to 3. The scale's score can range from 0 to 21, and the cutoff scores for mild, moderate, and severe anxiety symptoms are 5, 10, and 15, respectively. For the study, we have used the Hindi version of the GAD-7 scale.

Patient Health Questionnaire-9: The PHQ-9 is the 9-item depression module from the full PHQ. The items are measured over the time interval 'In the last two weeks' with a score range of 0 (not at all) to 3 (nearly every day). The internal reliability is excellent, with a Cronbach's α of 0.89. In this study, we used the Hindi-translated and adopted PHQ-9.[30]

Data collection

Data were obtained from women who experienced a stillbirth using purposive sampling using a structured interview after obtaining written informed consent. They were informed about the study and enrolled after informed consent. A participant information sheet that explained the purpose and nature of the study was handed over to those who were willing to participate in the study. Before participating in the study, they underwent their postpartum checkup, were asked to share their concerns, and were given contraception advice. The respondents were assured about the privacy and confidentiality of data as the collection was anonymous, without any reference to patients' identities. The interview process employed the use of a structured questionnaire booklet. All five scales were completed by each participant, and they were informed that if they required any help, the research team was available for assistance. Data were collected from March 2019 to December 2019.

Statistical analysis

The data analysis was done using SPSS Version 22.0 and AMOS Version 22.0. The continuous variables like active grief score, difficulty coping score, and despair score were presented as mean and standard deviation (SD), and qualitative or categorical variables like age category, sex of baby, and parity in absolute number and/or percentage. A two-tailed *P* value of <0.05 was considered statistically significant with a 95% confidence interval. Cronbach's alpha was calculated to determine the internal consistency of the scales used, and a cutoff of ≥0.70 is considered acceptable. To test the construct validity of the PGS-H tool, confirmatory factor analysis (CFA) was performed. To test the criterion validity, PGS-H scores were correlated with other scales (STAI, EPDS, PHQ9, and GAD-7) using Pearson's correlation coefficient. Concordances between criteria were computed by Pearson's correlation coefficients.[31] Goodness of fit parameters [root mean squared error of approximation known as ("RMSEA"), "Goodness-of-Fit index" (GFI), "Comparative Fit Index" (CFI), "Parsimonious Normed of Fit Index (PNFI)", and "Parsimonious Comparative of Fit Index" (PCFI)] were calculated.[31] Following the recommendations of Hu and Bentler, the values of these parameters were analyzed and interpreted to evaluate the model fit.[32] In our study, we employed both exploratory

factor analysis (EFA) and confirmatory factor analysis (CFA) to validate the PGS in Hindi.[33,34] EFA was done to enhance the reliability and validity of the Hindi version of PGS in our setting, and CFA provided robust evidence for model fit, that is, how well the data align with the proposed factor structure.

RESULTS

The study included 147 mothers who had experienced stillbirth. The mean age was 27.57 years (SD = 4.35). Only 7% of the mothers were of advanced age (35 years or more). Among these women, 57.1% were nullipara.

Initial exploratory factor analysis
Initial EFA was performed using principal component analysis (PCA) with Varimax with Kaiser normalization including all items. Six factors were derived with eigenvalues ≥1, having a cumulative percentage variance of 63.15%, and the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy was 0.888 along with Bartlett's test significance level of 0.0001, which indicated a significant model fit with adequate samples. However, there were some items with multiple and poor factor loading such as item numbers 3, 7, 9, 11, 25, and 33, which raised concerns about the discriminant and convergent validity as well as composite reliability [Supplementary File 1].[31] Hence, we omitted these items (item numbers 3, 7, 9, 11, 25, and 33) in the final EFA to achieve more valid and robust results.

Final exploratory factor analysis
Final EFA was performed using PCA with Varimax with Kaiser normalization excluding multiloaded and poorly loaded items (item numbers 3, 7, 9, 11, 25, and 33). The EFA identified three factors with eigenvalues ≥1, with a cumulative percentage variance of 56.67%, and the KMO measure of sampling adequacy was 0.900 along with a Bartlett's test significance level of 0.0001, indicating a significant model fit with adequate samples. The factor loading of each item ranged from 0.525 to 0.802, which was acceptable to establish the reliability and validity of the tool [Supplementary File 2].

Confirmatory factor analysis
CFA was performed for the assessment of construct validity on data using the goodness of fit as per Hu and Bentler's recommendation cutoff value of 0.06 for RMSEA. The value obtained was 0.06, indicating a good fit between the model and data.[32] The magnitudes of factor loadings for three subscales ranged from 0.503 to 0.803 [Supplementary File 3], and all were statistically significant ($P < 0.001$) [Table 1]. Therefore, the structure of the "PGS-H" was confirmed by deleting six items; under 'Active grief', item numbers 3 and 7 were removed, under 'Difficult coping', item numbers 11, 25, and 33 were removed, and under 'Despair', item number 9 was removed [Figure 1].

Composite reliability (CR) of final PGS-H
The CR of all the factors was greater than the average variance extracted (AVE) of all the factors; hence, PGS-H tool has good convergent validity. The AVE values are greater than maximum shared squared variance (MSV) values which are based on Fornell and Lacker criteria, which means that the Hindi translation has good discriminant validity, Table 2.[35]

Criterion validity of final PGS-H
The Active grief domain showed a significant positive relationship with STAI (r = .23**), EPDS (r = 0.37**), PHQ (r = 0.41**), and GAD (r = 0.36**). Difficulty in coping domain correlated positively with PHQ-9 (r = 0.26**), GAD-7 (r = 0.22**), EPDS (r = 0.16), and STAI (r = 0.22**). The final subscale, Despair, also shows a positive and significant relationship with PHQ-9 (r = 0.29**), GAD-7 (r = 0.31**), EPDS (r = .32**), and STAI (r = 0.29**) [Table 3].

The sample characteristics along with the mean score of final PGS-H subscales are depicted in Table 4 in detail. Cronbach's alpha was calculated to assess the internal consistency of the Hindi version of PGS. The Cronbach's alpha coefficient for each PGS-H subscale was more than 0.86, which confirms the internal consistency of the translated version of the PGS-H instrument in this study [Table 2].

DISCUSSION

The objective of this study was to have a context-specific, culturally acceptable, and validated PGS in Hindi. The

Table 1: Score for goodness of fit of PGS- H

PNFI[1]	PCFI[2]	GFI[3]	CFI[4]	RMSEA[5]
0.722	0.836	0.812	0.915	0.060

[1]Parsimonious Normed of Fit Index, [2]Parsimonious Comparative of Fit Index, [3]Goodness-of-Fit Index, [4]Comparative Fit Index, [5]Root Mean Squared Error of Approximation

Table 2: Reliability and validity of PGS-H

(a): Cronbach's alpha for the reliability of PGS-H

PGS-H subscales	Maximum	Minimum	Mean	SD	Cronbach's alpha
Active grief	45	9	29	8.97	0.905*
Difficulty coping	36	8	17.74	7.34	0.869*
Despair	49	10	23.80	9.77	0.908*

*>0.70 considered reliable

(b): Validity measures for convergent and divergent validity scores of the PGS-H scale

	CR	AVE	MSV	MaxR (H)	Active	Difficulty	Despair
Active	0.909*	0.503**	0.419	0.915	0.709		
Difficulty	0.907*	0.520**	0.419	0.911	0.648***	0.721	
Despair	0.870*	0.460	0.208	0.885	0.456***	0.416***	0.678

*Composite Reliability (CR) >0.70, **Average Variance Extracted (AVE) >0.5, Maximum Shared Squared Variance (MSV), Maximum Reliability [MaxR(h)] AVE>MSV ***
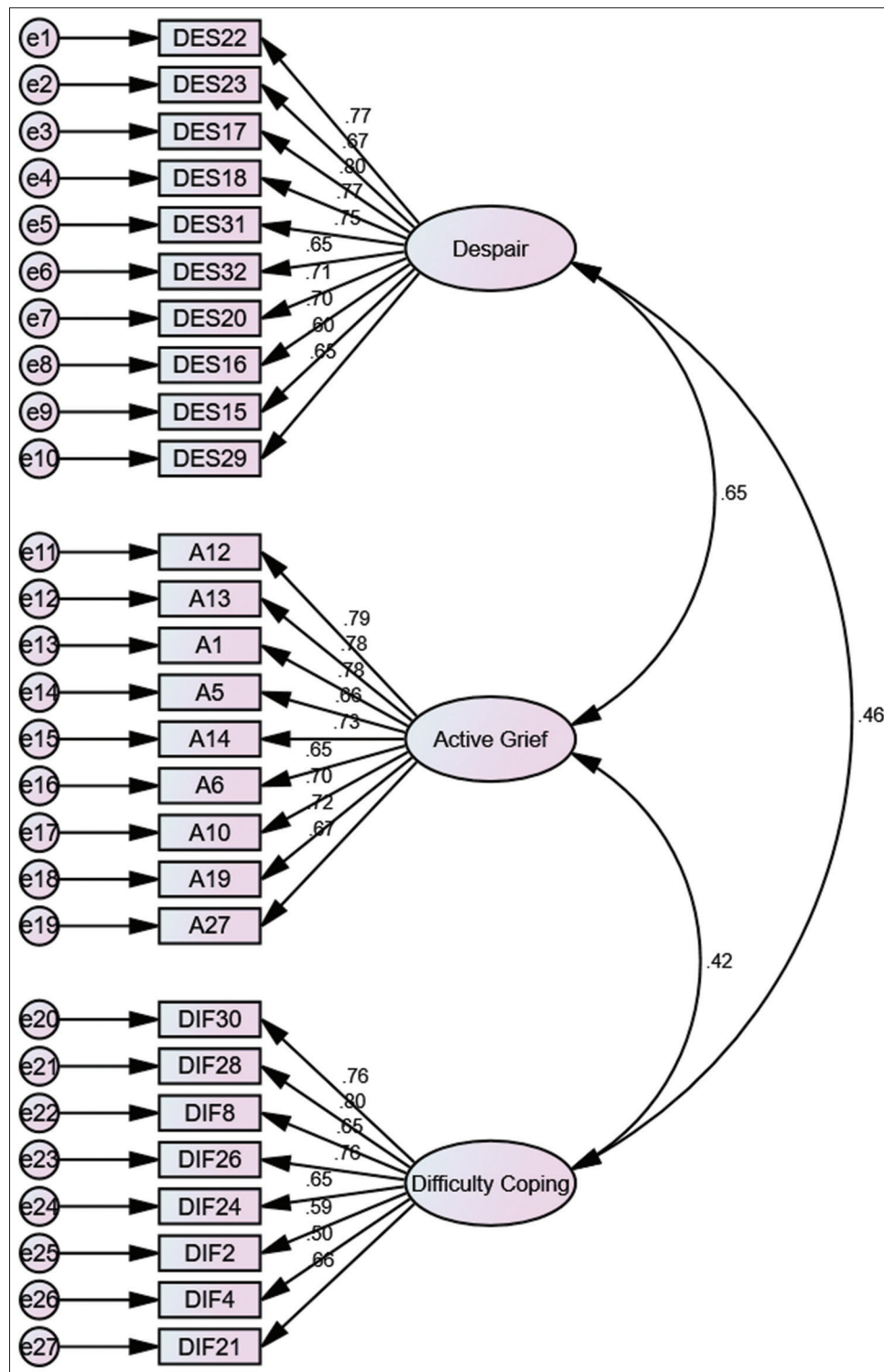
Figure 1: Conceptual model of confirmatory factor analysis "PGS-H"

translated version (PGS-H) was found reliable based on the statistical results obtained. During translation, certain changes were made to a few items to make it more culturally appropriate and simpler. Words used in common parlance were chosen to facilitate the understanding of the mothers. In the Likert scale, the option "not disagree, not agree" was translated as "koi Rai nahi", meaning that there was 'no opinion' to ease the comprehension for mothers. The PGS has been translated into different languages, and changes have been made as needed; as for the Czech translation, the same option was translated to "I don't know", whereas in the Swedish version, the Likert scale was replaced by a 10-option scale.[17,18] In the Index study, the title of the PGS was not translated into Hindi and kept as Perinatal Grief Scale- Hindi.

For internal consistency of the PGS-H, the Cronbach's alpha coefficient for each subscale, including active grief, difficulty coping, and despair, was more than 0.86, suggesting that the PGS-H is reliable. This finding is consistent with the Greek and Persian translation and validation of the PGS.[19,20] In contrast to the Spanish version, two methods, internal consistency assessment (Cronbach's alpha coefficients) and stability assessment (test–retest), were used to examine the reliability of the scale.[36] However, grief is a dynamic concept and its intensity changes over time; therefore, stability assessment was not considered in the majority of the studies.[15]

On EFA of 33 items of the original PGD scale, 27 items were correlated to the Grief of the North Indian population. The EFA was performed before CFA, and six poorly loaded items were removed. To avoid overfitting and validation bias, it is preferred to use different datasets or split the data. However, there is also evidence supporting the use of the same sample, as was done in our study.[36,37] The CFA for 27 items had a desirable expression which determined that model fitness, that is, confirmed nine items under "Active grief", eight items under "Difficulty Coping", and ten items under "Despair". In the Persian version of the scale, only one item (item 32) was removed, while the Spanish version was shortened to 19 items based on content validity assessment and CFA.[35,38] The 19 items of the Spanish version of grief were correlated with two subscales in place of three scales of the original scale.[38]

There are also significant positive correlations between the subscales of PGS-H and scores of other instruments (STAI, EPDS, PHQ9, and GAD7), providing support for its concurrent validity. The CR values should be 0.7 or greater, which is the case for all three subscales and shows that all factors have good construct reliability. The recommended values for AVE suggest that the value should be 0.5 or higher, which was not the case for the despair subscale, but for the other two subscales, it was above 0.5.

Although the objective of this study was to have a validated PGS in Hindi, the data showed a high score under "Active grief" compared to difficulty coping and despair, which indicates that their feeling of grief was less likely to have complicated grief.[39] Women or parents who scored higher on active grief were found more expressive, and women who scored more on 'Difficulty coping' and 'Despair' had long-term problems with complicated grief.

The present study shows that PGS-H is a valid instrument. However, our study has certain limitations. The sample size could have been further increased to generate even more valid results. The sample used is from a single tertiary care facility which cannot equally represent the diverse communities (rural and urban) of India.

CONCLUSION

The present study shows that PGS-H is a valid and reliable instrument in the Indian context and the same can be used to assess in the Indian context. This scale can be used to screen women who are at risk of developing complicated or high-intensity grief so that they can be referred well on time to a psychologist or psychiatrist for optimal care. It can be recommended to be used by all the healthcare providers who are actively involved with women with stillbirth and other adverse outcomes.

Table 3: Correlation of PGS with STAI, EPDS, PHQ, and GAD scale for the criterion validity of PGS-H subscales

	Active grief	Difficult coping	Despair
STAI	0.231**	0.228**	0.298**
EPDS	0.375**	0.161	0.327**
PHQ9	0.415**	0.263**	0.299**
GAD	0.365**	0.225**	0.319**

**Significant *P*<0.01 level (2-tailed)

Table 4: Demographic parameters among study participants for PGS-Hindi

Parameters	Category	Cases (*n*=147)	Perinatal grief score (Hindi version) Mean (Standard Deviation)		
			Active Grief	**Difficult Coping**	**Despair**
Age (year)	20-30	120 (81.6%)	28.88 (9.29)	17.78 (7.28)	23.60 (9.52)
	31-40	27 (18.4%)	29.55 (7.57)	17.55 (7.71)	24.70 (10.96)
Sex of baby	Boy	86 (58.5%)	30.03 (8.79)	18.01 (7.27)	25.43 (10.24)
	Girl	59 (40.1%)	27.52 (9.25)	17.57 (7.51)	21.52 (8.68)
	Ambiguous	2 (1.3%)	28.50 (3.53)	11.00 (2.82)	21.500 (10.60)
Parity	0 (nullipara)	84 (57.1%)	28.60 (9.62)	18.03 (7.67)	23.10 (9.83)
	≥1	63 (42.9%)	29.53 (8.08)	17.34 (6.92)	24.74 (9.60)

Author's contribution

BS, NA and VS conceptualized, planned, and conducted the study, BS, GG and NA drafted the manuscript, AK and GG performed the statistical analysis, and HAJ, SG, and RN reviewed and approved the final manuscript.

Conflicts of interest

There are no conflicts of interest.

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Supplementary File 1: Factor loading for the Initial Exploratory factor analysis (EFA)

Rotated Component Matrix^a

	Factors					
	1	2	3	4	5	6
DES23	0.794	0.072	0.005	-0.002	0.056	-0.039
DES22	0.791	0.161	0.114	0.026	0.040	0.140
DES17	0.710	0.270	0.194	-0.133	0.154	0.078
DES20	0.703	0.267	0.228	-0.145	-0.041	-0.085
DES31	0.675	0.273	0.092	-0.039	0.226	0.172
DES15	0.653	0.314	0.039	0.095	-0.179	0.007
DES18	0.638	0.247	0.069	-0.019	0.396	0.249
DES32	0.593	0.142	0.082	0.148	-0.031	0.517
DES16	0.550	0.166	0.208	-0.172	0.237	0.399
DES29	0.538	0.259	0.210	-0.078	0.116	0.190
A13	0.183	0.799	0.071	-0.086	0.047	0.068
A12	0.222	0.793	0.061	-0.117	0.082	-0.055
A1	0.230	0.749	0.171	0.030	0.165	0.049
A5	0.124	0.734	0.087	-0.125	0.009	-0.139
A10	0.191	0.703	0.270	-0.120	-0.037	0.009
A14	0.238	0.693	-0.012	0.221	0.151	0.166
A6	0.146	0.652	-0.037	0.283	0.271	0.193
A19	0.393	0.554	0.150	0.072	0.370	0.002
A27	0.320	0.501	0.341	0.099	0.245	0.140
DIF28	0.196	0.185	0.757	-0.023	0.147	0.048
DIF8	0.081	-0.021	0.735	0.195	0.015	0.017
DIF30	0.194	0.100	0.732	0.226	-0.007	0.024
DIF26	0.268	0.072	0.719	0.040	0.225	-0.118
DIF24	0.179	0.063	0.657	0.090	-0.019	0.333
DIF4	-0.135	0.174	0.642	0.127	-0.157	0.131
DIF2	-0.125	0.217	0.624	-0.011	0.246	0.305
DIF21	0.331	0.070	0.596	0.187	0.278	-0.221
DIF33	-0.112	-0.155	0.214	0.767	0.138	0.111
DIF11	-0.156	0.049	0.210	0.648	-0.049	-0.120
DIF25	0.187	0.039	0.462	0.566	-0.002	-0.123
A7	0.123	0.391	0.233	0.135	0.680	-0.023
A3	0.169	0.545	0.099	-0.051	0.602	0.039
DES9	0.348	-0.026	0.173	-0.127	0.000	0.757

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^aRotation converged in 8 iterations

Supplementary File 2: Factor loading for the final EFA

Rotated Component Matrix^a

	Factors		
	1	2	3
DES22	0.793	0.161	0.124
DES23	0.767	0.063	-0.006
DES17	0.734	0.281	0.173
DES18	0.723	0.289	0.103
DES31	0.718	0.295	0.114
DES32	0.676	0.103	0.141
DES20	0.672	0.243	0.173
DES16	0.665	0.179	0.208
DES15	0.609	0.254	0.037
DES29	0.596	0.247	0.196
A12	0.222	0.802	0.038
A13	0.203	0.789	0.067
A1	0.248	0.753	0.191
A5	0.097	0.732	0.054
A14	0.261	0.712	0.060
A6	0.184	0.685	0.059
A10	0.194	0.683	0.238
A19	0.405	0.605	0.199
A27	0.360	0.525	0.387
DIF30	0.180	0.069	0.767
DIF28	0.225	0.189	0.754
DIF8	0.053	-0.013	0.743
DIF26	0.259	0.099	0.717
DIF24	0.239	0.025	0.684
DIF2	-0.023	0.226	0.659
DIF4	-0.118	0.119	0.645
DIF21	0.279	0.111	0.635

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^aRotation converged in 5 iterations

Supplementary File 3: Factor loading for the CFA

Standardized Regression Weights

			Estimate	*P*
DES22	<---	1	0.773	0.001
DES23	<---	1	0.675	0.001
DES17	<---	1	0.797	0.001
DES18	<---	1	0.771	0.001
DES31	<---	1	0.748	0.001
DES32	<---	1	0.648	0.001
DES20	<---	1	0.710	0.001
DES16	<---	1	0.696	0.001
DES15	<---	1	0.600	0.001
DES29	<---	1	0.649	0.001
A12	<---	2	0.789	0.001
A13	<---	2	0.777	0.001
A1	<---	2	0.780	0.001
A5	<---	2	0.662	0.001
A14	<---	2	0.729	0.001
A6	<---	2	0.653	0.001
A10	<---	2	0.698	0.001
A19	<---	2	0.719	0.001
A27	<---	2	0.667	0.001
DIF30	<---	3	0.765	0.001
DIF28	<---	3	0.803	0.001
DIF8	<---	3	0.653	0.001
DIF26	<---	3	0.756	0.001
DIF24	<---	3	0.655	0.001
DIF2	<---	3	0.586	0.001
DIF4	<---	3	0.503	0.001
DIF21	<---	3	0.656	0.001