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RESEARCH ARTICLE (ORIGINAL)

Preliminary study of the Portuguese version of the Childbirth Fear Prior to Pregnancy Scale in a sample of university students

Estudo preliminar da Escala do Medo do Parto antes da Gravidez numa amostra de estudantes universitários

Estudio preliminar de la Escala del Miedo al Embarazo en una muestra de estudiantes universitarios

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Abstract

Background: Childbirth is feared by both women and men, leading to increased elective caesarean section rates and medicalization. Although it is most feared during pregnancy, its assessment in non-pregnant populations contributes to an early intervention.

Objective: To translate, adapt, and test the psychometric properties of an instrument to measure childbirth fear prior to pregnancy in non-pregnant populations.

Methodology: Methodological study, forward-backward translation, and psychometric analysis (reliability and validity) of the Portuguese version of the Childbirth Fear Prior to Pregnancy Scale (EMPAG). Both the EMPAG and the Portuguese version of the 21-item Anxiety, Depression and Stress Scale (EADS-21) were applied.

Results: The adapted version of the scale, which was applied to 327 university students, met the criteria of semantic, idiomatic, experiential, and conceptual equivalence and had good internal consistency (α = 0.88) and temporal stability. It consists of 10 items and is explained by 3 factors, without correlation with the EADS-21.

Conclusion: The preliminary study of the EMPAG showed good psychometric qualities. It is suggested that the sample should be larger to support the results obtained in this study.

Keywords: fear; parturition; pregnancy; education; psychometrics

Resumo

Enquadramento: O parto é temido por ambos os sexos, conduzindo ao aumento das taxas de cesariana eletiva e medicalização. Embora seja mais temido na gravidez, a sua avaliação em populações não-grávidas contribui para uma intervenção precoce.

Objetivo: Traduzir, adaptar e verificar as propriedades psicométricas de um instrumento que se propõe medir o medo do parto antes da gravidez, em população não-grávida.

Metodologia: Estudo metodológico, recorrendo à tradução-retroversão e análise das propriedades psicométricas (fidelidade e validade) recorrendo à administração da Escala do Medo do Parto antes da Gravidez (EMPAG) e da Escala de Ansiedade, Depressão e Stress de 21 itens (EADS – 21).

Resultados: A versão da escala adaptada, junto de 327 estudantes universitários, cumpriu os critérios de equivalência semântica, idiomática, experiencial e conceitual e apresenta boa consistência interna (α = 0,88) e estabilidade temporal. É constituída por 10 itens e explicada por 3 fatores, não existindo correlação com a EADS-21.

Conclusão: O estudo preliminar da EMPAG apresentou boas qualidades psicométricas. Sugere-se o alargamento da amostra para sustentação dos resultados obtidos.

Palavras-chave: medo; parto; gravidez; educação; psicometria

Resumen

Marco contextual: Ambos sexos temen el parto, lo que lleva a un aumento de las tasas de cesárea electiva y de medicalización. Aunque se teme más en el embarazo, su evaluación en poblaciones no embarazadas contribuye a la intervención temprana.

Objetivo: Traducir, adaptar y verificar las propiedades psicométricas de un instrumento que se propone medir el miedo al parto antes del embarazo en una población no embarazada.

Metodología: Estudio metodológico, en el que se recurrió a la traducción-retroversión y al análisis de las propiedades psicométricas (fidelidad y validez) mediante la administración de la Escala del Miedo al Embarazo (EMPAG) y la Escala de Ansiedad, Depresión y Estrés de 21 ítems (EADS-21).

Resultados: La versión adaptada de la escala, junto con 327 estudiantes universitarios, cumplió los criterios de equivalencia semántica, idiomática, experiencial y conceptual, y tiene una buena consistencia interna (α = 0,88) y estabilidad temporal. Consta de 10 elementos y se explica por 3 factores, no existe correlación con EADS-21.

Conclusión: El estudio preliminar de EMPAG mostró buenas cualidades psicométricas. Se sugiere ampliar la muestra para respaldar los resultados obtenidos.

Palabras clave: miedo; parto; embarazo; educación; psicometría

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Introduction

Childbirth is a multidimensional and unique experience for those involved, still strongly influenced by the social context. Thus, the expectations of this life event can be positive or negative, involving feelings of joy but also worries, anxiety, and fears (Nilsson et al., 2018). Childbirth fear and mode of delivery preferences have been studied in several countries. However, these studies have focused mainly on women, neglecting the male partners who are involved through the entire process from pregnancy to the postpartum period and are also influenced by other people's experiences and opinions (Stoll et al., 2016). On the other hand, the studies only focus on the pregnant population, without including the next generation of parents. It is, therefore, important to consider a population that is likely to fear pain, loss of control, as well as physical and psychological changes due to fear of the unknown (Thomson, Stoll, Downe, & Hall, 2017). Even though childbirth fears are more prevalent during pregnancy, the young people who plan to have children are also influenced by the experiences shared by other people, which contributes to the development of positive or negative beliefs about this period of the life cycle (Stoll et al., 2016; Thomson et al., 2017).

Studies conducted on this topic in non-pregnant populations have shown high levels of fear associated with vaginal delivery. These results are explained by the conceptualization of high pain intensity by university students, which lead to a preference for caesarean sections as a way of escaping from pain (Hauck, Stoll, Hall, & Downie, 2016; Nilsson et al., 2018; Stoll & Hall, 2013; Stoll et al., 2016). In this way, the fear of childbirth contributes to an increase in elective caesarean sections and medicalization, capable of producing feelings of doubt and uncertainty about the ability to give birth to a child (Størksen, Garthus-Niegel, Adams, Vangen, & Eberhard-Gran, 2015). Underlying this extreme dimension of childbirth fear is *tokophobia* or *maieusiophobia*, that is, a psychological disorder that ranges from insignificant to extreme fear of childbirth, affecting the human being from childhood to old age and interfering with daily functioning (Demsar et al., 2018).

Ryding et al. (2015) found that university students with high levels of childbirth fear are more likely to suffer from psychological problems such as anxiety, depression, and obsessive-compulsive disorders associated with the adoption of hypervigilant behaviours to try to keep from getting pregnant, thus compromising their quality of life. Therefore, addressing childbirth fear during pregnancy might be too late. It is important to assess and early intervene in the non-pregnant population because fears become more intense during pregnancy (Stoll et al., 2016). Several countries have already adopted assessment and intervention measures through the development and adaptation of psychometric instruments capable of assessing childbirth fear prior to pregnancy, as well as the implementation of educational programs for secondary and higher education students (Stoll et al., 2016; Thomson et al., 2017). The effectiveness of these pre-birth interventions is demonstrated in several studies whose results show that students who benefited from childbirth educational programs had lower levels of fear than those who had contact with other people's experiences and lacked knowledge about this life event (McCants & Greiner, 2016; Stoll et al., 2016).

Thus, the adoption of assessment and intervention measures about childbirth contributes to demystifying fears and misconceptions, improving young people's well-being and quality of life and strengthening international efforts to reduce elective caesarean section rates and medicalization (Stoll et al., 2016). In view of the above, this study aimed to translate, adapt, and assess the psychometric properties of an instrument that intends to measure childbirth fear prior to pregnancy in a sample of Portuguese non-pregnant university students due to the lack of instruments for this purpose available in Portugal.

Background

The original version of the Childbirth Fear Prior to Pregnancy scale (CFPP, in Portuguese, *Escala do Medo do Parto antes da Gravidez*, EMPAG) was developed by Kathrin Stoll and collaborators (2016). This self-administered tool aims to assess childbirth fear in both female and male young adults who plan to have children, based on three dimensions: Fear of labour pain, Fear of bodily damage, and Fear of complications, mainly harm to the baby.

The EMPAG consists of 10 items rated on a Likert-type scale ranging from 1 - *strongly disagree*, 2 - *disagree*, 3 - *partially disagree*, 4 - *somewhat agree*, 5 - *agree* to 6 - *strongly agree.* The total score is the sum of the item scores, with highest scores representing a more intense childbirth fear. After the development of the EMPAG, the authors adapted it to several countries such as Australia (N = 654), Canada (N = 239), England (N = 303), Germany (N = 206), Iceland (N = 460), and the United States of America (N = 378), using a forward-backward translation process. After comparison of the versions by bilingual professionals, minor changes were made to the final versions of the scale, duly adapted for each country. Based on the psychometric properties obtained in the studies conducted with the above-mentioned populations, it can be concluded that the EMPAG has good internal consistency (Cronbach's alpha higher than 0.8 ($\alpha > 0{,}8$). Factor analysis extracted three factors which correspond to the dimensions of Childbirth fear: Fear of labor complications (including items 5, 7, and 8), Fear of physical changes following childbirth (including items 9 and 10), and Fear of pain and being out of control (including items 1, 2, 3, 4, and 6). The authors used other instruments such as the *Fear of Birth Scale* (FOBS) and the Depression, Anxiety and Stress Scale-21 (DASS-21) to analyse convergent and discriminant validity. The results showed that EMPAG is highly correlated with a scale that measures the same construct ($r > 0.7$) - convergent validity – and that it has weak correlations with DASS-21 ($r > 0.2$) – discriminant validity. In view of the above, it can be concluded that EMPAG has good psychometric properties

for the countries for which it was adapted, representing a starting point for planning future interventions related to childbirth fear prior to pregnancy.

Research questions

Does the translated and adapted version of EMPAG have adequate psychometric properties in a sample of university students of the Portuguese population?

Methodology

This study was conducted in two phases: the first phase was the cross-cultural adaptation of the instrument into Portuguese and, after data collection, the second phase was the analysis of the psychometric properties in a sample of university students.

Data collection tools

Data were collected using a sociodemographic questionnaire that was composed of items such as gender, age, marital status, and academic qualifications, the Portuguese version of DASS-21 for analysis of discriminant validity, and the EMPAG, which was described above.

Depression, Anxiety and Stress Scale-21

The short version of the 21-item Depression, Anxiety and Stress Scale was translated and adapted for the Portuguese population by Pais-Ribeiro, Honrado, and Leal (EADS-21, 2004), and aims to measure the symptoms of anxiety, depression, and stress. Each of these dimensions represents a subscale that is composed of 7 items, in a total of 21 items. The subscale of Anxiety includes items related to situational anxiety and subjective experiences of anxiety. The subscale of Depression is composed of items related to symptoms of dysphoria, hopelessness, devaluation of life, anhedonia, and inertia. Finally, in the Stress subscale, the items focus on symptoms such as difficulty relaxing, impatience, and irritability.

The items are scored on a Likert-type scale, in which 0 corresponds to *did not apply to me at all*, 1 corresponds to *applied to me to some degree, or some of the time*, 2 corresponds to *applied to me to a considerable degree, or a good part of the time*, and 3 corresponds to *applied to me very much, or most of the time*, representing the severity and frequency of the symptoms experienced over the past 7 days. The total score is the sum of the scores in all items, ranging from 0 to 21 points for each of the three subscales, with higher scores indicating more negative emotional states.

Phase I – Translation and adaptation of the EMPAG

The cross-cultural adaptation of the EMPAG into Portuguese followed the methodological steps suggested by Ribeiro (2010) and Borsa, Damásio, and Bandeira (2012). According to the authors, the translation and adaptation of an instrument into a new culture should be performed in six steps.

In the first step, an initial translation is performed independently by two bilingual individuals with knowledge on the topic under analysis. This initial translation allows for a first draft of the scale in the language of the target country for the cross-cultural adaptation. The second step is the backward translation, that is, two other bilingual professionals, without previous knowledge of the scale, will translate it again into the original language. In the third step, both versions will be compared to discuss and identify linguistic inconsistencies or discrepancies and, consequently, make some changes while preserving the original meaning of the items. The fourth step includes the participation of a panel of experts with scientific knowledge on the topic under analysis, bilingual expertise, and experience in the translation and adaptation of psychometric instruments. This panel of experts will assess the translated versions of the scale while meeting the criteria of semantic, idiomatic, experiential, and conceptual equivalence, thus leading to the final version. Based on this version, the fifth step was the creation of a simple layout with clear and objective instructions for the participants. Finally, in the sixth step, the target group assesses if the scale is well understood and if any changes are needed before data collection.

Phase II – Analysis of the psychometric properties of EMPAG

A methodological, quantitative, descriptive, cross-sectional study was conducted using a nonprobability sampling technique. For analysis of the psychometric properties, and in line with the statistical procedures performed in the other countries, both reliability (Cronbach's alpha, split-half, item-to-total correlation, test-retest) and validity (construct validity, factor analysis, discriminant validity) were assessed. The inclusion criteria were being a university student, above the age of majority, and without children. After permission from the authors to use the scale, the project was submitted and approved by the Ethics Committee of the University Fernando Pessoa on 23 January 2017. Data were collected using Google Docs and disseminated in social media, safeguarding the voluntary nature of participation, confidentiality, and anonymity.

Statistical techniques

Data were processed using IBM SPSS Statistics, version 23. The missing value was replaced with 999 to ensure no coincidences with valid values (Martins, 2011). The interpretation of Cronbach's alpha values followed the methodology by Oviedo and Campo-Arias (2005), considering an internal consistency of *very good* if $\alpha > 0.90$, *good* if α between 0.80 and 0.90, *acceptable* if α between 0.70 and 0.80, *poor* if α between 0.60 and 0.70, and *unacceptable* if $\alpha < 0.60$. Similarly, the analysis of correlation values followed the recommendations by Ribeiro (2010), who considers an $r \geq 0.80$ as a strong correlation, even though $r \geq 0.60$ can be accepted. The normality assumptions of the interval variable were analysed using skewness and kurtosis coefficients, as well as the Kolmogorov-Smirnov (*sig* = 0.08) and the Shapiro-Wilk (0.11)

tests for normality. The exploratory data analysis revealed that the assumptions underlying the normal distribution of the interval variable were met.

Results

With regard to the translation and adaptation of the EMPAG, after analysis of the versions resulting from the forward-backward translation process, the panel of bilingual experts in obstetric health with experience in the translation and adaptation of psychometric instruments concluded that the criteria of semantic, idiomatic, experiential, and conceptual equivalence were met. The target group that assessed the instrument was composed of 10 male and female university students who met the inclusion and exclusion criteria. The participants reported that the instrument was clear, accessible, easy to complete, and concise. Some male participants also added that the instructions and examples for the formulation of their own questions led to a greater understanding.

With regard to the psychometric assessment, the study consisted of a sample of 327 university students aged between 18 and 35 years, with a mean age of 23.68 years (Standard-deviation - *SD* = 3.46), mostly women (80.7%). The most prevalent marital status was single (53.2%), and the most representative academic degree was the bachelor's degree (55%).

Reliability analysis

The EMPAG has a total alpha of 0.88, revealing a good internal consistency similar to that found in those countries where it has already been adapted, as can be seen in Table 1.

Table 1
Reliability analysis (Cronbach's alpha) compared with the other countries

Country	Portugal	Australia	Canada	England	Germany	Iceland	USA
Cronbach's Alpha	**0.88**	0.87	0.87	0.88	0.87	0.88	0.86
N	**327**	654	239	303	206	460	378

As observed in Table 2, the split-half test shows that the alpha coefficients in parts 1 and 2 of the scale were 0.79 and 0.80, respectively. The split-half correlation proved to be strong (r = 0.72), as well as the Spearman-Brown coefficients (0.83), which are within the intended correlations (≥ 0.8).

Table 2
Results of the split-half test

Reliability statistics			
Cronbach's Alpha	Part 1	Value	0.792
		No. of items	5[a]
	Part 2	Value	0.806
		No. of items	5[b]
	Total no. of items		10
	Correlation between forms		0.720
Spearman-Brown Coefficient		Equal length	0.838
		Unequal length	0.838
Guttman split-half coefficient			0.837

Note. 5[a] – It includes the items: (1) I am worried that labour pain will be too intense; (2) I feel I (my partner) will not be able to handle the pain of childbirth; (3) I am afraid that I (my partner) might panic and not know what to do during labour and birth; (4) I am fearful of birth; (5) I am worried that harm might come to the baby; 5[b] – It includes the items: (6) I am afraid that I (my partner) will be out of control during labour and birth; (7) I fear complications during labour and birth; (8) Birth is unpredictable and risky; (9) I am afraid of what the labour and birth process will do to my (my partner's) body; (10) I am afraid that my (my partner's) body will never be the same again after birth.

Item-to-total correlations exceeded 0.45, supporting the uni-dimensionality of the EMPAG. The comparison between the results obtained in the sample of this study and those obtained in the other countries where the instrument was adapted showed that the majority of correlations are higher in this study, as can be seen in Table 3.

Table 3

Results of the item-to-total correlations compared with the other countries

Item	Total Scale						
	Portugal	Australia	Canada	England	Germany	Iceland	USA
1	**0.62**	0.62	0.66	0.66	0.61	0.66	0.61
2	**0.71**	0.59	0.62	0.67	0.49	0.59	0.60
3	**0.76**	0.60	0.57	0.66	0.55	0.63	0.61
4	**0.71**	0.65	0.66	0.74	0.70	0.71	0.65
5	**0.62**	0.58	0.63	0.49	0.55	0.51	0.48
6	**0.73**	0.65	0.50	0.58	0.51	0.61	0.61
7	**0.69**	0.60	0.58	0.51	0.67	0.67	0.56
8	**0.67**	0.57	0.64	0.52	0.54	0.50	0.52
9	**0.74**	0.56	0.52	0.58	0.58	0.64	0.53
10	**0.69**	0.49	0.54	0.63	0.57	0.60	0.48

The test-retest results (Table 4) allow concluding that the EMPAG has good temporal stability. The total scores of the first and second administrations of the scale to a group of 25 university students showed a strong and significant correlation (r = 0.79; *sig* = 0.00).

Table 4
Results of the test-retest using Pearson's correlation

Correlations			
		Total EMPAG Test	Total EMPAG Retest
Total EMPAG Test	Pearson's Correlation	1	**0.793****
	Sig. (2-tailed)		**0.000**
	N	25	25
Total EMPAG Retest	Pearson's Correlation	**0.793****	1
	Sig. (2-tailed)	**0.000**	
	N	25	25
**Correlation is significant at 0.01 (2-tailed).			

Note: EMPAG - *Escala do Medo do Parto antes da Gravidez.*

Validity analysis

Construct validity was tested using the contrasting groups' method. The EMPAG was administered to a group of women without children (N = 25) and a group of women with children (N = 25). The results suggest that, on average, women with children have higher levels of childbirth fear (μ = 38.6; *SD* = 9.18), without significant differences between groups (*sig* = 0.81 ≥ 0.05). The Kaiser-Meyer-Olkin (KMO) test and the Bartlett's test of sphericity revealed that the factor analysis technique can be performed in the EMPAG (r = 0.83; *sig* = 0.00). The principal components analysis extracted three factors with eigenvalues greater than 1, which explained around 70% of the total variance. This analysis, combined with Varimax rotation, showed that factor 1 is composed of items 1, 2, 3, 4, and 6 and corresponds to the Fear of pain and being out of control; factor 2 comprises items 5, 7, and 8 and corresponds to the Fear of labour complications; and factor 3 includes items 9 and 10 about the Fear of physical changes following childbirth. Therefore, the

EMPAG is explained by the same factors as the original scale, as can be observed in Table 5.

Table 5
Principal components analysis with Varimax rotation and communalities

Items	Components			h^{2*}
	1	2	3	
(1) I am worried that labour pain will be too intense.	**0.49**	0.34	0.23	0.50
(2) I feel I (my partner) will not be able to handle the pain of childbirth.	**0.81**	0.06	0.25	0.73
(3) I am afraid that I (my partner) might panic and not know what to do during labour and birth	**0.80**	0.32	0.12	0.75
(4) I am fearful of birth	**0.73**	0.15	0.28	0.63
(5) I am worried that harm might come to the baby	0.21	**0.83**	0.05	0.74
(6) I am afraid that I (my partner) will be out of control during labour and birth	**0.63**	0.53	0.06	0.68
(7) I fear complications during labour and birth	0.24	**0.83**	0.19	0.78
(8) Birth is unpredictable and risky	0.13	**0.57**	0.50	0.59
(9) I am afraid of what the labour and birth process will do to my (my partner's) body	0.28	0.16	**0.90**	0.90
(10) I am afraid that my (my partner's) body will never be the same again after birth	0.24	0.11	**0.91**	0.89

Note. h^{2*} = Communality value.

The results from the correlation analysis between the EADS-21 subscales and the EMPAG total scores allow concluding that there is no significant correlation between both instruments (*sig* = 0.69 ≥ 0.05), thus meeting the assumptions of discriminant validity.

Discussion

This study was divided into two phases, respecting the objectives initially set out: (1) cross-cultural adaptation of the EMPAG and (2) analysis of the psychometric properties of the instrument in a Portuguese sample of non-pregnant university students.

The translated and adapted version of the EMPAG followed the methodological steps recommended by Ribeiro (2010) and Borsa et al. (2012). After the forward-backward translation process, the expert panel concluded that the EMPAG met the semantic, idiomatic, experiential, and conceptual equivalence, keeping the same structure and content as the original scale. Following the methodological steps proposed by the above-mentioned authors, the pilot study was conducted with 10 university students who described the EMPAG as accessible, easy to complete, and concise. With regard to the results of the adaptation process in the other countries, only Germany and Iceland adapted the scale using the forward-backward translation technique (Stoll et al., 2016).

The psychometric properties of the version that was translated and adapted into Portuguese were analysed using a sample composed of 327 university students, mostly women (80%), with a mean age of 24 years, predominantly single (53%) and with a bachelor's degree (55%). The sociodemographic characteristics of this sample are similar to those found in studies conducted in the other countries, mainly due to the similar inclusion and exclusion criteria used for all populations (Stoll et al., 2009; Stoll & Hall, 2013; Stoll, Hall, Janssen, & Carty, 2014; Stoll et al., 2016).

In line with these studies, this study also analysed the psychometric properties of the EMPAG based on reliability and validity.

With regard to reliability, the scale showed good internal consistency ($\alpha = 0.88 > 0.80$). Given the Cronbach's alpha values of the versions used in the other countries, it can be concluded that the Portuguese version has a higher internal consistency than that found in Australia, Canada, Germany, and the USA (Stoll et al., 2016). Also, the Spearman-Brown coefficient, which was only used in the Portuguese version, showed that both parts of the scale had a strong correlation, thus keeping a good internal consistency ($r = 0.72$; $\alpha = 0.79$; 0.80). The item-to-total correlation demonstrates the uni-dimensionality of the scale because the correlations in every item exceeded 0.45. The majority of the correlations were higher than those obtained in the other countries, namely in Germany and the USA (Stoll et al., 2016). The test-retest and the contrasting groups' technique were only performed in the Portuguese version, so these results cannot be compared with those found in the other countries. The test-retest results in this sample confirm the temporal stability of the scale ($r = 0.79$; *sig* = 0.00). In turn, the results of the contrasting groups' technique revealed no significant differences regarding childbirth fear between women with children and women without children (*sig* = 0.81). These results are in line with those found in the literature showing that fears become more

intense during pregnancy and that experiences influence the perceptions, attitudes, and beliefs regarding childbirth (Stoll et al., 2016; Thomson et al., 2017).

Similarly, in a study conducted in Ireland with 531 women who had experienced labour, Larkin, Begley, and Devane (2017) found that childbirth fear is influenced by its experience. Women with children had higher levels of childbirth fear, mainly in case of a vaginal birth, where pain is more intense. Therefore, in line with these authors, it is important to assess childbirth fear and implement educational programs as early as possible (Stoll et al., 2016).

With regard to validity, the results of the KMO test (r = 0.83) and Bartlett's test of sphericity (sig = 0.00) showed that the factor analysis could be applied to the EMPAG. The principal components analysis, with Varimax rotation, revealed three factors that explain around 70% of the variance. The first factor corresponds to the Fear of pain and being out of control and includes items 1,2,3,4, and 6. The second factor corresponds to the Fear of labour complications and includes items 5,7, and 8. The third factor corresponds to the Fear of physical changes following childbirth and includes items 9 and 10. Based on the literature review, these three factors represent the greatest fears of university students (Hauck et al., 2016; Nilsson et al., 2018; Stoll & Hall, 2013; Stoll et al., 2016). All items have communalities equal to or higher than 0.5, which allows preserving the original structure of the scale, without deleting any items. Therefore, similarly to the original scale, the EMPAG consists of 10 items and is explained by three factors, as in the remaining six countries (Stoll et al., 2016).

The scale is not significantly correlated with the EADS-21 subscales (r = - 0.08; sig = 0.70), meeting the theoretical assumptions of discriminant validity (Pasquali, 2007).

Given the objectives set out, the EMPAG proved to have good psychometric qualities regarding its reliability and validity in the sample used in this study. Nevertheless, more studies are needed with a higher number of participants to confirm and extend the statistical analysis performed in this study. On the other hand, despite the advantages of online data collection, the responses to the questionnaire can be biased and consequently have an impact on statistical analysis. Finally, although the instrument intends to measure childbirth fear prior to pregnancy, collected data does not describe the fear of labour but rather the dimensions such as the fear of pain, the fear of labour complications, and the fear of physical changes following childbirth. Therefore, the majority of the items reflect the fears associated with the postpartum period, for which reason it would be important to include items for assessing the dimension of childbirth fear in the narrow sense.

Conclusion

After the translation and cross-cultural adaptation of the EMPAG, the scale showed good psychometric qualities regarding reliability and validity in a sample of non-pregnant university students.

The objective proposed in this study was achieved; however, a larger sample, representative of the Portuguese population, should be used to allow for the generalization of the results for Portugal. Similarly, because the total score of the EMPAG only allows for a general interpretation of childbirth fear, cut-off points should be determined to stratify the levels of fear more accurately.

The EMPAG is thus available to the scientific community and can serve as a starting point for future multidisciplinary studies and educational programs aimed at pre-education and demystification of misbeliefs because intervening only during pregnancy might be too late.

Author contributions

Conceptualization: Ferreira, M., Teixeira, Z.
Methodology: Ferreira, M., Teixeira, Z.
Data curation: Ferreira, M.
Writing - original draft: Ferreira, M
Writing - review and editing: Teixeira, Z.

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