Spanish Adaptation of the Perinatal Grief Intensity Scale

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Accepted for publication in Journal of Reproductive & Infant Psychology (29/02/24)

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Word count: 3495 words

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Abstract

Aims/Background: Assessing the intensity of perinatal grief is very important for identifying the more complex cases in mothers and fathers. Despite this, there are few assessment tools available. The aim of this study was to analyze the psychometric properties (factorial structure, reliability, and validity) of the Spanish version of the Perinatal Grief Intensity Scale (PGIS). Design/Methods: An online survey was completed by 291 mothers and fathers who had suffered perinatal loss in the previous six years. Results: The results showed adequate fit indexes for the three-factor model of the PGIS: reality, confront others, and congruence. Reliability values for the overall scale and subscales were adequate. Finally, with regard to validity, significant ($p < .05$) and positive relationships were found with levels of complicated grief, event centrality, guilt, anxiety, and depression. There were also differences depending on whether participants exhibited high or low levels of complicated grief, and on the number of weeks of pregnancy at the time of the loss. Conclusion: In conclusion, the Spanish adaptation of the PGIS has adequate reliability and validity scores and a factorial structure consistent with the original version.

Keywords: perinatal grief, stillbirth, neonatal death, miscarriage, scale

Introduction

For both mothers and fathers, perinatal loss can mean experiencing great emotional distress and considerable grief and sadness (Flach et al., 2022; Kersting & Wagner, 2012). Even with medical advances, epidemiological data point to global estimates of around 2.6 million stillbirths and 2.7 million neonatal deaths annually (Lawn et al., 2016). Spain's perinatal mortality rate in 2021 was 4.03 deaths per 1,000 live births (Instituto Nacional de Estadística, 2021). Perinatal death has traditionally been understood as the death of the fetus or infant between 22 weeks of pregnancy (around five months) and the first seven days of life. Nevertheless, when exploring the grieving process or perinatal loss, we should also look at losses before 22 weeks of pregnancy, regardless of their cause (Cassidy, 2023).

Perinatal grief is considered to be disenfranchised grief (Doka, 2020), as parental emotional responses to the loss are not usually validated by their social environment (Fernández-Alcántara et al., 2020). This aggravates not only grief-related symptomatology, but also levels of anxiety, depression, or post-traumatic stress (Davoudian et al., 2021; Horesh, 2018; Murphy et al., 2014; Wright & Carpenter, 2023). While grief is not necessarily a pathological process, in many cases the symptoms can be very intense and have a significant impact on the person's daily functioning, leading to prolonged grief (Treml et al., 2020). Even as late as five years after the loss, rates of complicated grief following perinatal loss can exceed 12%, and there are no differences between those who experienced stillbirth and those who experienced other losses (McSpedden et al., 2017).

Valid and reliable assessment tools that can help us to understand the different aspects of perinatal grief are important in identifying prolonged grieving processes. A total of seven instruments for measuring the intensity of perinatal grief were identified in the

recent review by Setubal et al. (2021). Of these, only the Perinatal Grief Scale (PGS) (Toedter et al., 1988) has been adapted into Spanish in both Mexican (Capitulo et al., 2010) and Spanish populations (Paramio-Cuevas, 2016). The PGS assesses different grief responses such as depression, anger, social functioning, spirituality, loss of control, and guilt (Wright & Carpenter, 2023). In our context, however, we do not have the tools to identify the perceptions that characterize the perinatal grief process, nor to explore specific aspects of it, such as stigma and disenfranchisement.

Internationally, the Perinatal Grief Intensity Scale (PGIS), developed by Hutti et al. (1998), is the second most widely used instrument for assessing perinatal grief (Setubal et al., 2021) and aims to predict the development of grief processes associated with perinatal losses occurring at different stages of pregnancy. It therefore focuses on assessing how the mother and father perceive the experience of perinatal loss by looking at three related factors: firstly, whether the loss has been experienced as something real, i.e., if prior to the death there had been a strong bond between the infant and the mother or father (the reality dimension); secondly, congruence between the experience of loss and the parents' ideal or expectations, which involves the parents' interaction with healthcare professionals, their emotional experience, and the social support they perceived (the confront others dimension); and, finally, the parents' ability to make decisions or act in ways that increase congruence throughout the grief experience. This third dimension is related to the parents' own coping abilities, i.e., their own behavior in the wake of the loss (the congruence dimension). This model suggests that the most intense grief responses will happen when mothers and fathers perceive that the loss has occurred when there was a strong bond with their baby, very different to what they had expected, and if they have perceived that there was nothing they could do about it (Hutti et al., 2013).

Psychometrically, the PGIS consists of 14 items, showing a three-component factorial structure, with adequate reliability values for various types of perinatal losses (miscarriage, stillbirth, and neonatal death) (Hutti et al., 2013; 2017). In terms of validity, associations have been found with the anxiety and depression variables (Hutti et al., 2017). Compared to the PGS, Hutti et al. (2018) also found that the PGIS was much easier for mothers and fathers to complete and that it was able to predict those cases that would later be classified as prolonged perinatal grief. Lastly, a recent review of perinatal grief assessment tools identified the PGIS as one of the most useful, although it has not been validated in languages other than English (Wright & Carpenter, 2023). In view of these factors, a Spanish version of the PGIS would be very useful for the assessment of perinatal grief processes.

This study aimed to examine the psychometric properties (factorial structure, reliability, and validity) of the Spanish version of the PGIS in mothers and fathers who have suffered perinatal loss. The baseline hypotheses were as follows: (1) that Confirmatory Factor Analysis (CFA) of the PGIS will show an adequate fit to a three-subscale factorial structure; (2) that it will have adequate reliability values of greater than .70; (3) that the three subscales and the overall PGIS score will be moderately correlated with the grief intensity, event centrality, guilt, anxiety, and depression variables; and finally, (4) that the PGIS threshold used to distinguish between intense and more adaptive grief responses will adequately discriminate between the complicated grief groups, as well as by type of perinatal loss and number of weeks' pregnancy.

Method

Design

We conducted an instrumental study to obtain evidence of the reliability and validity of the Spanish adaptation of the PGIS (Carretero-Diez & Pérez, 2007).

Sample

Male and female volunteers who had suffered perinatal loss at any time during pregnancy (from conception to seven days of life) in the last six years were included in the sample. Participants also had to be of Spanish nationality, of legal age, and able to understand and express themselves in Spanish. The sample was made up of a total of 291 participants with a mean age of 37.04 years (SD=4.82). The mean time since the perinatal loss was 21.88 months (SD=19.33). The main sample data are shown in Table 1.

----------Insert Table 1 here----------

Variables & Instruments

- The *Perinatal Grief Intensity Scale* (PGIS; Hutti et al., 1998) is a 14-item scale used to measure the intensity of grief. It is based on the theoretical framework of perinatal grief developed by Hutti et al. (2013) and has a three-dimensional structure (subscales) exploring: a) the perceived reality of the pregnancy and the baby (reality), comprising six items (items 1 to 6); b) the congruence between the actual experience of loss and the parents' perceived ideal of how that experience of loss should unfold (confront others), made up of four items (items 7 to 10); and c) the parents' ability to make decisions and their ability to cope (congruence), with four items (items 11 to 14). It has a Likert-type response scale with four options (i.e., no neutral option), from 1 (strongly disagree) to 4 (strongly agree). A score can be obtained for each dimension, as well as an overall score, with higher scores indicating greater intensity of grief. In terms of its psychometric properties, several studies have confirmed its internal structure, finding a structure consistent with the theoretical model on which it is based and good reliability indexes (Hutti et al., 2013; 2017). It also shows good evidence of both construct and predictive validity (Hutti et al., 2018). An internationally recognized and standardized

process of translation and independent back-translation was carried out to validate the scale in Spanish linguistically and culturally (Muñiz et al., 2013). See Fernández-Alcántara et al. (2023) for a complete description of the cultural validation of the PGIS.

- The *Perinatal Grief Scale* (PGS), first devised by Potvin et al. (1989), measures the intensity and impact of grief resulting from perinatal loss and detects women whose grieving processes may be at risk of complications. In our study we used the Spanish version of the scale (Paramio-Cuevas, 2016). This 16-item scale has five Likert-type response options, varying from 1 (strongly disagree) to 5 (strongly agree). With a two-dimensional factorial structure, this Spanish adaptation makes it possible to calculate an overall score. Overall scores over 49 are indicative of complicated grief. The scale has adequate reliability and an overall internal consistency of .88 (Paramio-Cuevas, 2016). In the present sample, the reliability for the whole scale was adequate (α=.88).

- The *Centrality of Event Scale 7-item* (CES-7) is the abbreviated version of the Centrality of Event Scale (CES). Berntsen and Rubin (2006) developed this tool to evaluate to what degree an event is central to and a turning point for the individual. The Spanish adaptation of this 7-item version was developed by Galán et al. (2017). The response range for the items is between 1 (strongly disagree) and 5 (strongly agree). Its factorial structure is one-dimensional and it has an internal consistency of .84 (Galán et al., 2017). In our study, the relevant event was the experience of perinatal loss and the reliability values were adequate (α=.90).

- The *Bereavement Guilt Scale* (BGS) was developed by Li et al. (2015) and adapted into Spanish by Camacho (2018) to measure guilt feeling and grief-related guilt cognition in people who have suffered a bereavement (Li et al., 2017). It consists of 14 items with five Likert-type response options ranging from 1 (does not describe me at all) to 5 (describes me very well). Higher scores indicate a greater presence of grief-

related guilt cognition and guilt feeling. The 14 items are distributed in five subscales: responsibility for death (three items), hurting the deceased (three items), survivor guilt (three items), indebtedness guilt (three items), and guilt feeling (two items). Only three of the instrument's five subscales were used in this study: responsibility for death, survivor guilt, and guilt feeling. In terms of its psychometric properties, internal structure analysis revealed five theoretical factors. The scale's internal consistency ranged from .88 to .92 and test-retest reliability was .93 (Li et al., 2017). In the present sample the reliability values were adequate for the three subscales: responsible for death (α= .91), survivor guilt (α=.86) and guilt feeling (α= .89).

- The *SCL-90-R Anxiety and Depression Subscales*. Derogatis (1984) developed the Symptom Checklist-90-Revised (SCL-90-R) to measure an array of psychopathological symptoms occurring during the previous month. It is made up of 90 items on a 5-point Likert scale that ranges from 0 (not at all) to 4 (very or extremely). The higher the score, the higher the level of psychopathological symptoms. Our study used only two of the subscales: anxiety (10 items) and depression (13 items). This instrument was adapted by González de Rivera et al. (1989), has a similar factorial structure to the original (De las Cuevas et al., 1991), and has adequate reliability indexes varying between α= .81 and .90. In the present sample both scales had adequate reliability values (α= .94 for both subscales).

The data collection booklet also included basic self-reported sociodemographic variables (age, sex, civil status, employment, and level of education) and three variables relating to the loss (type of pregnancy, time of perinatal loss, and cause of perinatal death).

Procedure

Participants were e-mailed from the platforms of different organizations working with perinatal loss. They received a first e-mail explaining the objectives of the research and the link to a Google Forms questionnaire which included the different tools included in the study. An information sheet about the study and an informed consent form were included before the questionnaire. We contacted a total of 28 organizations, all of which agreed to collaborate in the present research. The first step was to complete the PGIS, which was then followed by the validity measures. In order to obtain test-retest evidence, a reminder to voluntarily complete the PGIS was sent to participants that shown interest in participate in the follow-up, three months later.

This study was approved by the Ethics Committee of the University of Alicante (Reference: UA-2020-03-11). The data was collected, processed, and used in accordance with the provisions of Organic Law 3/2018 of 5 December on the Protection of Personal Data and the Guarantee of Digital Rights and Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on Data Protection (GDPR).

Data Analysis

For sociodemographic variables we calculated measures of dispersion, for quantitative variables mean and standard deviation, and for qualitative variables absolute and relative frequencies. We tested the factorial structure using Confirmatory Factor Analysis (CFA) with the Weighted Least Squares Robust Method (WLSMV) of the Lavaan package in R (Yves Rosseel, 2012), as used for ordinal variables (Rhemtulla et al., 2012). We used the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) to analyze model fit for categorical variables (Beauducel & Herzberg, 2006). Values greater than .90 are considered adequate for the CFI and TLI statistics (Hu & Bentler, 1999). Values

between .05 and .08 indicate an adequate fit for the RMSEA index (Green & Yang, 2009). The analysis of internal consistency was achieved by calculating the ordinal alpha recommended for ordinal data, which is calculated with polychoric correlations (Zumbo et al., 2007). Internal consistency was also calculated using the Omega index. The Kruskal-Wallis test was employed to assess the normality of the variables. As the scores for the subscales of the PGIS did not conform to a normal distribution, we utilized Spearman's bivariate correlations (*rho*) and Mann-Whitney U tests for independent samples to analyze evidence of construct validity.Values exceeding ±0.7 were considered as strong correlations, values from ±0.4 to ±0.6 as moderate correlations, and values below ±0.4 as weak correlations (Akoglu, 2018). The PGS threshold (Paramio-Cuevas, 2016) was used for the analysis of between-group validity and Kruskal-Wallis' H test followed by Dunn-Bonferroni post hoc was performed. For the descriptive and validity analysis we used the software package SPSS version 22.

Results

Factorial Structure and Reliability of the PGIS

We tested the goodness-of-fit of a three-dimensional model, based on the one proposed in the original version. Figure 1 shows the factor loadings for each item in the three factors from the original questionnaire. With the exception of items 4 (.39) and 14 (.48), all items had loadings greater than .5. The confirmatory factor analysis of the PGIS yielded the following fit indexes for this three-factor structure: CFI= .97; TLI=.97; SRMR=.065; and RMSEA= .037 (90% CI: .018-.053).

In terms of reliability, the internal consistency analyses showed a Cronbach's alpha value for the overall global scale of α=.69 (95% CI: .63-.74) and an omega of ω= .75 (.73-.86). The alpha values for each of the PGIS subscales were: reality α=.76 (.71-.80), confront others α=.82 (.75-.88), and congruence α=.70 (.63-.75), all of which

indicate an adequate degree of internal consistency. The results of the test-retest

analysis for the subsample that responded three months later (n=121) revealed a

moderate and strong correlation for each of the subscales as well as for the overall

score. To be specific, correlation values were found for Reality r=.76; Confront Others

r=.65, Congruence r=.71, and for the Overall Score r=.70 (p <.001 in all cases).

-----Insert Figure 1 here -----

Evidence of Validity

We first analyzed the relationships between the different PGIS subscales (see Table 2).

The Hutti et al. (2018) formula, which includes constant values, was applied to calculate

the overall PGIS score = 3.08 + (.41 x Mean Reality subscale score) - (.2 x Mean

Confront Others subscale score) - (.15 x Mean Congruence subscale score). The results

showed that the reality subscale did not correlate with the other two subscales, while the

relationship between confront others and congruence was positive and weak.

-----Insert Table 2 here -----

We then analyzed the convergent validity of the PGIS with measures of perinatal grief,

event centrality, guilt, anxiety, and depression. The reality subscale showed the weakest

associations, which were significant in relation to centrality and one dimension of the

guilt scale. The other two PGIS subscales showed moderate and significant

relationships with all the variables assessed (see Table 3).

-----Insert Table 3 here -----

Finally, participants were divided on the basis of two variables to assess discriminant

validity between known groups: the level of grief (measured by the PGS) and the

number of weeks' pregnancy at the time of the loss (0-24 weeks, 25-42 weeks, at birth,

and seven days after birth). In the first instance, the perinatal complicated grief group

was established for scores greater than 49 (n= 88) and the perinatal uncomplicated grief

group for all other cases (n= 203). The results showed statistically significant differences for the three subscales and for the overall PGIS. On the whole, participants in the complicated grief group had higher values on the overall scale and on the reality subscale, as well as lower values on the confront others and congruence subscales (see Table 4). Next, differences were found with respect to the number of weeks' pregnancy in the reality subscale. Post-hoc analyses using the Dunn-Bonferroni statistic showed that those who experienced a loss between 0 and 24 weeks scored lower than those who experienced a loss between 25 and 42 weeks (see Table 5).

-----Insert Table 4 and 5 here-----

Discussion

This study aimed to explore the psychometric properties of the Spanish version of the PGIS in mothers and fathers who had suffered perinatal loss. The results show that the Spanish version of the PGIS has a similar three-factor structure to the original version. Both the ordinal alpha and test-retest reliability values are adequate. Finally, with regard to validity evidence, the study corroborates the findings of previous studies and provides additional evidence.

As far as the factorial structure is concerned, the findings seem to support a structure with three factors that also appear to be relatively independent. These results are therefore consistent with the study by Hutti et al. (2017), who also found adequate fit indexes for the three-factor model. Only one of the items (i4) exhibited somewhat lower factor loadings, the rest being well above .40.

With respect to reliability, the results are also in line with previous psychometric studies of the PGIS, with alpha values between .70 and .89 for both the overall scale, as well as for the different subscales (Hutti et al., 1998; 2013; 2017). In our study, both Cronbach's alpha and the Omega values for the overall scale were close to .79. The

overall scale's alpha may be influenced by the lack of correlation between the reality factor and the other two. It is therefore necessary to apply the specific PGIS correction formula in order to use it properly.

Finally, the evidence of validity is in line with previous research involving the PGIS, with significant and positive relationships being found with the perinatal grief, anxiety, and depression variables. Hutti et al. (2018) analyzed how high scores on the PGIS scale were predictive of anxiety and depression scores in the medium term. Our research also highlights the association between PGIS scores and measures of event centrality and guilt. Centrality of event has been associated with post-traumatic stress symptoms in many cases, while guilt is one of the most common emotions in the perinatal grief experience (Barr & Cacciatore, 2008; Flach et al., 2022). With regard to differences in the timing of loss, the study by Hutti et al. (2013) showed a higher intensity of PGIS scores in neonatal deaths when compared to stillbirths. In our study we observed differences between miscarriage and stillbirth for the reality subscale, with the latter scoring higher. This result may be due to the low number of participants in the *at birth* and *seven days* groups compared to the other two. It is therefore important to replicate these findings in a larger sample and with a wider distribution depending on the type of death.

Our research has several important implications. The PGIS is one of the briefest and quickest assessment tools for perinatal grief (Wright & Carpenter, 2023). As such, it can be of significant benefit in the early identification of mothers and fathers at risk of developing prolonged grief. Using these instruments will also make it possible to better study the effectiveness of interventions targeting perinatal grief, whether the loss occurred in the first months of pregnancy or towards the end.

One of the strengths of the present study is the sample size, which includes both women and men who have suffered different types of losses. We also provide psychometric evidence of the scale. This evidence demonstrates that not only is the scale well adapted to the Spanish context, but also serves to extend its utility and shows that it should be applied to samples in different contexts. The main limitation of the study is the small number of men who participated in the research, a common feature of perinatal grief research.

In conclusion, our study shows that the Spanish adaptation of the PGIS has adequate psychometric properties, with a three-dimensional factorial structure (reality, confront other, and congruence), adequate reliability values, and evidence of validity.

Disclosure statement

The authors report no conflict of interest.

References

Akoglu, H. (2018). User's guide to correlation coefficients. *Turkish Journal of Emergency Medicine, 18(*3), 91-93. https://doi.org/10.1016/j.tjem.2018.08.001

Barr, P., & Cacciatore, J. (2008). Problematic emotions and maternal grief. *OMEGA-Journal of Death and Dying, 56*(4), 331-348. https://doi.org/10.2190/OM.56.4.b

Beauducel, A., & Herzberg, P. Y. (2006). On the Performance of Maximum Likelihood Versus Means and Variance Adjusted Weighted Least Squares Estimation in CFA. *Structural Equation Modeling: A Multidisciplinary Journal, 13*(2), 186–203. https://doi.org/10.1207/s15328007sem1302_2.

Berntsen, D., & Rubin, D. C. (2006). The centrality of event scale: A measure of integrating a trauma into one's identity and its relation to post-traumatic stress disorder symptoms. *Behaviour research and therapy*, *44*(2), 219-231. https://doi.org/10.1016/j.brat.2005.01.009

Camacho, D. (2018). Predictores de la culpa en el duelo complicado. [Tesis Doctoral no publicada]. Universidad Camilo José Cela.

Capitulo, K. L., Ramirez, M., Grigoroff-Aponte, B., & Vahey, D. C. (2010). Psychometric testing of the new Spanish short version of the perinatal grief scale to measure perinatal grief in Spanish-speaking parents. *Hispanic Health Care International, 8*(3), 125-135. https://doi.org/10.1891/1540-4153.8.3.125

Carretero-Dios, H. &, Pérez, C. (2007). Standards for the development and review of instrumental studies: Considerations about test selection in psychological research. *International Journal of Clinical and Health Psychology, 7,* 863-82.

Cassidy, P. R. (2023). Tipos de pérdida y muerte perinatal. [Types of loss and perinatal death]. *Umamanita: Apoyo Para La Muerte Perinatal y Neonatal.* https://www.umamanita.es/tipos-de-perdida-embarazo-muerte-perinatal/

Davoudian, T., Gibbins, K., & Cirino, N. H. (2021). Perinatal loss: The impact on

>maternal mental health. *Obstetrical & Gynecological Survey, 76*(4), 223-233.

>https://doi.org/10.1097/OGX.0000000000000874

De las Cuevas, C., González de Rivera, J. L., Henry-Benítez, M., Monterrey, A. L.,

>Rodríguez-Pulido, F., & Gracia Marco, R. (1991). Análisis factorial de la

>versión española del SCL-90-R en la población general [Factorial analysis of

>the spanish version of the SCL-90-R in general population]. *Anales de

>psiquiatría, 7*, 93-96.

Davoudian, T., Gibbins, K., & Cirino, N. H. (2021). Perinatal loss: The impact on

>maternal mental health. *Obstetrical & Gynecological Survey, 76*(4), 223-233.

>DOI: 10.1097/OGX.0000000000000874

Derogatis, L. (1994). *SCL-90-R. Symptom Checklist-90-R. Administration, Scoring and

>Procedures Manual.* Minneapolis: National Computer System.

Doka, K. J. (2020). Disenfranchised grief: An exposition and update. In *Readings in

>thanatology* (pp. 275-283). Routledge.

Fernández-Alcántara, M., Congost-Maestre, N., & Cabañero-Martínez, M.J. (2023).

>Translation, cultural adaptation and linguistic validation (English-Spanish) of

>two perinatal bereavement questionnaires (PGIS and SSS). *Panace@, 24, 67-76*

Fernández-Alcántara, M., Schul-Martin, L., García Caro, M. P., Montoya-Juárez, R.,

>Pérez-Marfil, M. N., & Zech, E. (2020). 'In the hospital there are no care

>guidelines': experiences and practices in perinatal loss in Spain. *Scandinavian

>Journal of Caring Sciences*, *34*(4), 1063–1073.

>https://doi.org/10.1111/scs.12816

Flach, K., Gressler, N. G., Marcolino, M. A. Z., & Levandowski, D. C. (2022).

>Complicated Grief After the Loss of a Baby: A Systematic Review About Risk

and Protective Factors for Bereaved Women. *Trends in Psychology,* 1-35.

https://doi.org/10.1007/s43076-021-00112-z

Galán, S., Castarlenas, E., Racine, M., Sánchez-Rodríguez, E., Tomé-Pires, C., Jensen,

M. P., & Miro, J. (2017). Factor structure, internal consistency and criterion

validity of the full-form and short-form versions of the centrality of events

scale in young people. *Applied Cognitive Psychology*, *31*(6), 662-667.

https://doi.org/10.1002/acp.3369

González de Rivera, J. L.; Derogatis, L.R.; de las Cuevas, C.; Gracia Marco, R.;

Rodríguez-Pulido, F.; Henry-Benítez, M; Monterrey, A. L. (1989). The spanish

version of the SCL-90-R. Normative data in the general population. *Towson:*

Clinical Psychometric Research.

Green, S. B., & Yang, Y. (2009). Reliability of Summed Item Scores Using Structural

Equation Modeling: An Alternative to Coefficient Alpha. *Psychometrika*,

74(1), 155–167. https://doi.org/10.1007/s11336-008-9099-3.

Horesh, D., Nukrian, M., & Bialik, Y. (2018). To lose an unborn child: Post-traumatic

stress disorder and major depressive disorder following pregnancy loss among

Israeli women. *General Hospital Psychiatry, 53*, 95-100.

https://doi.org/10.1016/j.genhosppsych.2018.02.003

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure

analysis: Conventional criteria versus new alternatives. *Structural Equation*

Modeling: A Multidisciplinary Journal, *6*(1), 1–55.

https://doi.org/10.1080/10705519909540118.

Hutti, M. H., Armstrong, D. S., & Myers, J. (2013). Evaluation of the perinatal grief

intensity scale in the subsequent pregnancy after perinatal loss. *Journal of*

Obstetric, Gynecologic & Neonatal Nursing, 42(6), 697-706.

https://doi.org/10.1111/1552-6909.12249

Hutti, M. H., Armstrong, D. S., Myers, J. A., & Hall, L. A. (2015). Grief intensity,

psychological well-being, and the intimate partner relationship in the

subsequent pregnancy after a perinatal loss. *Journal of Obstetric, Gynecologic*

*& Neonatal Nursing, 44(*1), 42-50. https://doi.org/10.1111/1552-6909.12539

Hutti, M. H., Myers, J., Hall, L. A., Polivka, B. J., White, S., Hill, J., ... & Grisanti, M.

M. (2017). Predicting grief intensity after recent perinatal loss. *Journal of*

Psychosomatic Research, 101, 128-134.

https://doi.org/10.1016/j.jpsychores.2017.07.016

Hutti, M. H., Myers, J. A., Hall, L. A., Polivka, B. J., White, S., Hill, J., ... & Kloenne,

E. (2018). Predicting need for follow-up due to severe anxiety and depression

symptoms after perinatal loss. *Journal of Obstetric, Gynecologic & Neonatal*

Nursing, 47(2), 125-136. https://doi.org/10.1016/j.jogn.2018.01.003

Instituto Nacional de Estadística. (2021). Tasa de Mortalidad Perinatal por comunidad

autónoma según sexo. In *Indicadores de Mortalidad Infantil* (www.ine.es)

Kersting, A., & Wagner, B. (2012). Complicated grief after perinatal loss. *Dialogues in*

Clinical Neuroscience, *14*(2), 187–194.

https://doi.org/10.31887/dcns.2012.14.2/akersting

Lawn, J. E., Blencowe, H., Waiswa, P., Amouzou, A., Mathers, C., Hogan, D., ... &

Draper, E. S. (2016). Stillbirths: rates, risk factors, and acceleration towards

2030. *The Lancet, 387*(10018), 587-603. https://doi.org/10.1016/S0140-

6736(15)00837-5

Li, J., Stroebe, M.S., Chan C.L.W., & Chow, A.Y. (2014) Guilt in bereavement: A review and conceptual framework. *Death Studies 38,*165-71. https://doi.org/10.1080/07481187.2012.738770

Li, J., Stroebe, M., Chan, C. L., & Chow, A. Y. (2017). The bereavement guilt scale: Development and preliminary validation. *OMEGA-Journal of Death and Dying, 75*(2), 166-183. https://doi.org/10.1177/0030222815612309

McSpedden, M., Mullan, B., Sharpe, L., Breen, L. J., & Lobb, E. A. (2017). The presence and predictors of complicated grief symptoms in perinatally bereaved mothers from a bereavement support organization. *Death studies, 41*(2), 112-117. https://doi.org/10.1080/07481187.2016.1210696

Muñiz, J., Elosua, P., & Hambleton, R. K. (2013). Directrices para la traducción y adaptación de los tests: segunda edición [International Test Commission Guidelines for test translation and adaptation: Second edition]. *Psicothema, 25*(2), 151-157. https://doi.org/10.7334/psicothema2013.24

Paramio-Cuevas, J. C. (2016). *Adaptación transcultural y evaluación psicométrica de la escala de duelo perinatal [Transcultural adaptation and psychometric assessment of the perinatal grief scale]*. [Tesis Doctoral no publicada]. Universidad de Cádiz.

R Core Team (2022). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/

Rhemtulla, M., Brosseau-Liard, P. É., & Savalei, V. (2012). When can categorical variables be treated as continuous? A comparison of robust continuous and categorical SEM estimation methods under suboptimal conditions. *Psychological Methods*, *17*(3), 354–373. https://doi.org/10.1037/a0029315.

Setubal, M. S., Bolibio, R., Jesus, R. C., Benute, G. G., Gibelli, M. A., Bertolassi, N., ...

    & Bernardes, L. S. (2021). A systematic review of instruments measuring grief

    after perinatal loss and factors associated with grief reactions. *Palliative &*

    Supportive Care, 19(2), 246-256. https://doi.org/10.1017/S1478951520000826

Toedter, L. J., Lasker, J. N., & Alhadeff, J. M. (1988). The perinatal grief scale:

    Development and initial validation. *American Journal of Orthopsychiatry,*

    *58(*3), 435-449. https://doi.org/10.1111/j.1939-0025.1988.tb01604.x

Treml, J., Kaiser, J., Plexnies, A., & Kersting, A. (2020). Assessing prolonged grief

    disorder: A systematic review of assessment instruments. *Journal of Affective*

    Disorders, 274, 420-434. https://doi.org/10.1016/j.jad.2020

Viladrich, M. C., Brunet, A. A., & Diéguez, E. D. (2017). A journey around alpha and

    omega to estimate internal consistency reliability. *Anales de Psicología*, *33*(3),

    755–782. http://dx.doi.org/10.6018/analesps.33.3.268401

Williams, B., Onsman, A., & Brown, T. (2010). Exploratory factor analysis: A five-step

    guide for novices. *Australasian journal of paramedicine, 8,* 1-13.

    https://doi.org/10.33151/ajp.8.3.93

Wright, P. M., & Carpenter, J. (2023). A Review of the Psychometrics of Perinatal

    Grief Instruments. *Illness, Crisis & Loss*, 10541373231163260.

Yang, Y., & Green, S. B. (2015). Evaluation of Structural Equation Modeling Estimates

    of Reliability for Scales with Ordered Categorical Items. *Methodology*, *11*(1),

    23–34. https://doi.org/10.1027/1614-2241/a000087.

Yves Rosseel (2012). Lavaan: An R Package for Structural Equation Modeling. *Journal*

    of Statistical Software, 48(2), 1-36. https://doi.org/10.18637/jss.v048.i02

Zumbo, B.D., Gadermann, A.M., & Zeisser, C. (2007). Ordinal versions of coefficients

    alpha and theta for Likert rating scales. *Journal of Modern Applied Statistical*

    Methods,6, 21-29. https://doi.org/10.1177/10541373231163260

Table 1. Sociodemographic data of the study sample

Variables	n (%)
Sex	
Male	18 (6.2)
Female	273 (93.8)
Civil Status	
Single	12 (4.1)
Married or living with a partner	272 (93.5)
Widowed, divorced, or separated	7 (2.4)
Employment	
Part-time	44 (15.1)
Full-time	178 (61.2)
Unemployed	28 (9.6)
Retired	28 (9.6)
Homemaker	13 (4.5)
Educational Level	
No formal education	1 (0.3)
Primary	23 (7.9)
Secondary	63 (21.6)
University	204 (70.1)
Type of pregnancy	
Single	264 (90.7)
Multiple	27 (9.3)
Time of perinatal loss	
0-24 weeks	159 (54.6)
25-42 weeks	104 (35.7)
Birth and 7 days after birth	28 (9.6)
Cause of perinatal death	
Spontaneous interruption	123 (42.3)
Therapeutic interruption	52 (17.9)
Death of a newborn baby	33 (11.3)
Other causes	83 (28.5)

Table 2. Spearman's bivariate correlations between the PGIS subscales (mean of the raw scores) and the overall score calculated using the formula.

	Mean Score (SD)	Confront Others	Congrue nce	Total
Reality	21.36 (2.9)	.01	-.01	.61***
Confront Others	8.68 (3.07)	1	.33***	-66***
Congruence	10.30 (2.54)		1	-.53***
PGIS Overall (Formula)	3.72 (.29)			1

Note. *** $p < .001$

Table 3. Spearman's bivariate correlations between the PGIS and the perinatal grief, event centrality, guilt, anxiety, and depression variables.

	PGS Overall	CES	BGS – Survivor Guilt	BGS – Responsibility	BGS – Guilt Feeling	Anxiety	Depression
Reality	.07	.24***	.17**	.02	.07	.06	.07
Confront Others	-.33***	-.19**	-.33***	-.32***	-.32***	-.24***	-.30***
Congruence	-.46***	-.30***	-.31***	-.29***	-.38***	-.32***	-.43***
PGIS Overall (Formula)	.42***	.36***	.38***	.30***	.37***	.30***	.39***

Note. *** $p < .001$, ** $p < .01$

Table 4. Between-group differences in PGIS scales and subscales in variables by PGS scale score.

	Group	Mean	SD	*U*	*p*
Reality	CPG	3.66	.39	7666.5	.050
	No CPG	3.52	.51		
Confront Others	CPG	1.83	.68	5719.5	<.001
	No CPG	2.31	.76		
Congruence	CPG	2.20	.60	4548	<.001
	No CPG	2.74	.58		
Total	CPG	3.88	.26	4602	<.001
	NO CPG	3.64	.27		

Note: CPG= Complicated Perinatal Grief, No CPG= No Complicated Perinatal Grief

Table 5. Between-group differences in variables by timing of perinatal loss.

	0-24 weeks (n=159)	25-42 weeks (n=104)	Birth and 7 days after birth (n=28)	*H*	*p*	*Post-Hoc*
	Mean (SD)	Mean (SD)	Mean (SD)			
Reality	3.44 (.52)	3.72 (.38)	3.65 (.43)	24.52	<.001	1<2
Confront Others	2.16 (.76)	2.17 (.76)	2.23 (.86)	.12	.942	
Congruence	2.51 (.59)	2.66 (.68)	2.64 (.68)	4.73	.094	
Total	3.69 (.32)	3.77 (.23)	3.73 (.31)	4.96	.084	

Figure 1. Results of the Confirmatory Factor Analysis of the PGIS (3 factors)