



Research Article

Adaptation and validation of the Portuguese version of the provider attitudes towards planned home birth (PAPHB) Scale



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ABSTRACT

Maternity health care professionals' attitudes on the option of home birth can influence the choices and decisions women and their partners make about place of birth. Midwives are particularly influential in this space. The study outlined in this paper aimed to translate and validate the Provider Attitudes towards Planned Home Birth (PAPHB) scale questionnaire for use in the Portuguese maternity context. Methods: A total of 118 Portuguese midwives were selected through intentional sampling. The procedure was divided into two phases. In the first phase, a triple translation from the original language into Portuguese and a cross-cultural adaptation of the Provider Attitudes towards Planned Home Birth (PAPHB) scale were carried out, obtaining three versions of the same questionnaire. The second phase consisted of the validation of the questionnaire, for which the Provider Attitudes towards Planned Home Birth (PAPHB) scale was submitted to a panel of 20 experts and to a pilot test. Subsequently, the reliability and statistical validity of the scale were evaluated. Results: After content analysis, the results confirmed a four-dimensional structure with a Cronbach's α value of 0.933 for the Provider Attitudes towards Planned Home Birth (PAPHB) scale as a whole, showing good internal consistency. Finally, a bivariate analysis was carried out identifying associations between variables and midwives' attitudes towards home birth. Positive attitudes towards homebirth were strongly influenced by previous clinical experience and exposure to home birth during midwives' academic education. Conclusion: The 18-item scale is a reliable and valid tool to quantify attitudes towards planned home births in Portugal as the results obtained in the study showed very good internal consistency.

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Introduction

In recent years, as rates of routine intervention in childbirth have risen in moderate- and high-income countries, there has been a movement towards 'humanising' birth (WHO, 1985; Borges et al., 2018; Opdam et al., 2021). As such, maternity reform advocates have called for universal access to a variety of place of birth options within mainstream models of maternity care. For example, in 2014 the United Kingdom (UK) National Institute for Health and Care Excellence (NICE) published guidelines recommending that low-risk women be offered and supported to choose any birth setting (obstetric unit, birth centre or home). In addition, the guidelines promoted birth at home or in a birth centre for

low- risk multiparous women as rates of intervention were particularly low in this cohort of childbearing women (NICE, 2014). However, despite the evidence on the safety of home birth for women deemed at low risk for complications (Murphy et al., 2022; Hollowell et al., 2017; Scarf et al., 2018; Thies-Lagergren et al., 2021; Davies-Tuck et al., 2018; Reitsma et al., 2020; Clancy and Gürgens, 2019; Galera-Barbero and Aguilera-Manrique, 2021) attitudes and opinions of maternity health care in many countries remain polarised (Barreda et al., 2017; Alcaraz-Vidal et al., 2021; Buchanan et al., 2022).

Maternity care professionals' attitudes on issues such as place birth, and home birth in particular, are important as research has demonstrated that these health care workers significantly influence the decisions women and their partners make (Galera-Barbero and Aguilera-Manrique, 2022; Jackson et al., 2020; Keedle et al., 2015).

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UK researchers, McNutt et al. (2014) used a cross-sectional survey, with opened ended questions, to explore the attitudes of different maternal and newborn health professionals towards home birth. Midwives were in favour of home birth, while general practitioners and obstetricians expressed neutral views. Neonatologists, however, were generally negative towards home birth. These authors stated that a seemingly neutral stance also negatively impacted on a woman's decision to pursue a home birth. Similarly, a US qualitative study examining the views of 15 obstetricians revealed negative attitudes to home birth. The participants stated they did not recommend home birth despite saying they supported a woman's right to choose the place of birth (Rainey et al., 2017). Leone et al. (2016) also measured obstetricians' attitudes, experiences and knowledge of planned home birth and compared the responses of obstetricians in Ohio with those in Arizona and New Mexico using a scale of 1 to 5, obtaining results similar to the studies cited above.

Earlier work by Vedam et al. (2009) identified that research on maternity professionals' attitudes towards planned home birth was rather scarce, especially using validated instruments. To address this gap in the literature, this group of researchers developed a questionnaire labelled the Provider Attitudes Towards Planned Home Birth (PAPHB). The questionnaire, consisting of 20 items, was psychometrically tested with a group of US midwives. The PAPHB was found to be a reliable and valid tool to measure midwives' attitudes to home birth. When exploring associations, the authors found that educational background, professional experience and age were significant determinants of midwives' attitudes towards home birth. In addition, midwives' lack of confidence and their own ability to manage obstetric complications at home were associated with less favourable attitudes and less willingness to provide home birth services.

In Portugal the home birth rate is 1% (Galková et al., 2022). This very low rate is due, in the most part, to the social, economic and legal difficulties imposed on women's choice by giving birth outside the hospital system. In Portugal, home births are not illegal, but they are not clearly regulated either. The lack of public support and regulation for home birth has resulted in variation in organisational processes and clinical care between the midwives who provide home birth services. This has resulted in most midwives working as sole practitioners (Santos, 2018).

In Portugal, no recent national or regional study has been found that has explored and identified the attitudes of midwives, as the main professional dedicated to low-risk maternity care, towards home birth. This study, therefore, aimed to commence a program of work to address this gap by firstly validating a tool to measure midwives' attitudes towards home birth in Portugal.

Design

The study used a cross-sectional analytical design for the cross-cultural adaptation, validation, and reliability assessment of the PAPHB questionnaire to quantify midwives' attitudes towards planned home birth.

TRANSLATION and adaptation the papbh SCALE

Aim

The study's first objective was to translate and adapt the PAPHB questionnaire for use in the Portuguese maternity context.

The papbh questionnaire

The PAPHB questionnaire was developed and validated by Vedam et al., 2009. Content validation of a quantitative PAPHB scale ensures that it measures the intended phenomenon. The content validation process of the original HBSAP scale was based

on the guidelines established by Lynn (1986). It was developed by 14 experts based on their experience with home births, midwifery, obstetrics, paediatrics and research. In addition, the experts assessed the relevance of the instrument as a whole to the domain with a similar 4-point scale, and were able to provide comments on individual items or on the whole instrument. The level of inter-rater agreement was assessed by aggregating items rated 3 or 4 by the entire panel and dividing the sum by the total number of items (Vedam et al., 2009).

Language translation

Firstly, a translation process was carried out. For the translation from the original language into Portuguese, a triple translation of the original version of the PAPHB questionnaire was carried out independently by native Portuguese translators, thus obtaining three versions of the same questionnaire. The translated questions of the questionnaire were systematically compared and analysed, and confusing terms or concepts were discussed by the research team, thus obtaining the first consensual version in Portuguese. From this version, two native British translators who were not familiar with the original version performed a back translation and discrepancies in terms of alternative expressions and differences with the original version were discussed with another translator to obtain a second version.

This whole process took place in a meeting room at the University of Almeria. All the translators' comments were recorded and transcribed by the main researcher who was present at the meeting. There was unanimous consensus on the accepted Portuguese version of the questionnaire (see Annex 1).

Content validation

Twenty-five experts, with experience in home birth care, obstetrics, paediatrics and research, were selected through convenience sampling. The academics, from University of Almeria, and the health care professionals, working in the Spanish national health system, were sent an email invitation to participate. A study package was attached. This consisted of instructions, the assessment instrument, and a confidential questionnaire to collect background information on each participant. Responses were received from 20 experts: 14 midwives, three obstetricians- gynaecologists, two nurses and one perinatologist. All 14 midwives had home birth experience with four also having worked in a birth centre. Eight participants had experience in instrument development and testing (see table 1).

Data collection

The PAPHB questionnaire consists of 20 items rated on a Likert-type scale with response options ranging from (1) strongly disagree to (5) strongly agree, with (3) as a neutral midpoint. Items indicating negative attitudes or barriers to home birth were scored inversely, so that higher scores were consistently associated with a more favourable attitude towards planned home birth. For this reason, we refer to the scale scores as favourability scores. In addition to the scale items, the survey included socio-demographic data, data on the professional, theoretical and practical experience of the participants. Reliability, which checks the internal consistency of the scale, showed an excellent Cronbach's α of 0.93 (Vedam et al., 2009).

Data analysis

Data analysis replicated the same psychometric testing process used by Vedam et al. (2009) when developing the original PAPHB questionnaire. The items forming the scale were presented to the panel of experts sorted by attitudinal domains to assess their relevance and clarity on 4-point ordinal scales that were sent by email to each of the experts (Table 2). One point meant that the item

Table 1
Expert panel characteristics (N = 20).

Practice experience	Participants
Home birth experience	14 midwives
Hospital birth experience	14 midwives;
Practice experience	Participants
	3 obstetrician-gynecologists;
	1 perinatologist
Birth centre experience	4 midwives
Research experience	
Have participated in instrument development	5 midwives;
	obstetrician-gynecologists;
	nurses
Profession and education	
Nurses	2 nurses
Midwives	14 midwives
Physicians	3 obstetrician-gynecologists;
	1 perinatologist

Table 2
Sample of instrument sent to expert panel.

Item	Clarity	Relevance
1. The home setting is an ideal birth environment for mother–baby bonding.	1 - 2 - 3 - 4	1 - 2 - 3 - 4
2. If it were possible, I would consider offering home birth as part of my practice.	1 - 2 - 3 - 4	1 - 2 - 3 - 4
3. A mother's cultural background is easier to respect at home births than hospital births.	1 - 2 - 3 - 4	1 - 2 - 3 - 4
4. First-time mothers should have the option of having a planned home birth.	1 - 2 - 3 - 4	1 - 2 - 3 - 4
5. A move towards more home births in this country would save our medical system a significant amount of money.	1 - 2 - 3 - 4	1 - 2 - 3 - 4
6. Midwives who practice home birth have sufficient skills to handle emergencies safely.	1 - 2 - 3 - 4	1 - 2 - 3 - 4
7. I would feel comfortable if a close family member chose to have a home birth.	1 - 2 - 3 - 4	1 - 2 - 3 - 4

was neither relevant nor clear, 2 points meant that the item was not very relevant and clear, 3 points meant that the item was quite relevant and clear, and 4 points meant that the item was very relevant and clear. In addition, the experts assessed the relevance of the instrument as a whole to the domain with a similar 4-point scale, and were able to provide comments on individual items and the instrument as a whole. The level of inter-rater agreement was calculated by summing the items rated with 3 or 4 points by all experts and dividing the sum by the total number of items. An average level of agreement of 0.89 for clarity and 0.93 for relevance was obtained. These levels are above the recommended minimum levels of inter-rater agreement of 0.7–0.8 (Grant and Davis, 1997; Schilling et al., 2005).

After establishing the acceptable level of agreement amongst the experts, item-level content validity indexes (ICVIs) were calculated to determine whether each item was sufficiently relevant and clear. The ICVI was calculated by dividing the number of times an item was rated 3 or 4 by the total number of experts who rated it. Firstly, items were considered significant if they received a relevancy ICVI of > 0.80. Items that received a relevancy ICVI of < 0.80 were automatically removed from the item pool.

Results

Following the content analysis and subsequent discussion, a consensus version of the scale was developed in Portuguese, taking into account all the experts' contributions. All 20 items were retained (see Annex 1).

PILOT testing the paphb SCALE

Aim

The second phase aimed to validate the PAPHB questionnaire for use in the Portuguese maternity context.

Participants, recruitment, and data collection

To validate the PAPHB questionnaire for the Portuguese population, a pilot phase was conducted. Participants were 118 midwives

in Portugal. Inclusion criteria were: having a midwifery degree and giving consent to participate in the study.

Recruitment and data collection was by snowball sampling and email invitation. Each invitation explained the aim of the study, the inclusion criteria, provided the contact information of the study coordinator and requested informed consent from participants, reminding them of the voluntary nature of their participation, anonymity and confidentiality of the data.

Two hundred and ninety-six surveys were sent out at the beginning of the study, 205 surveys were sent by electronic email and 91 surveys were sent on paper by post.

A new test (Test-Retest) was conducted 4 weeks after the pilot questionnaire by email or post again, with the same initial sample to assess the temporal stability of the responses.

Data analysis

Firstly, to analyse the construct validity and reliability of the questionnaire, a factor analysis and temporal stability were carried out. The Cronbach's α test was used to assess internal validity, with values above 0.7 being considered acceptable. The measurement of the temporal stability of the responses was analysed using the intraclass correlation coefficient (ICC).

The data collected were analysed using SPSS version 20 (IBM SPSS Statistics, Armonk, NY). First, a descriptive analysis was carried out for the socio-demographic variables. For quantitative variables, measures of central tendency, dispersion and position were obtained, while for qualitative variables, data were tabulated and relative frequencies were calculated.

Finally, a bivariate analysis was carried out to identify associations between variables and midwives' attitudes towards home birth.

Results

Sociodemographic data. The participants returned 115 surveys electronically and 10 by post. The response rate for electronic surveys (56%) was higher than for paper surveys (11%). Once duplicate and incomplete survey entries were discarded, the final sample size

Table 3
Socio-demographic characteristics of participants (N = 118).

	%	N
Female	94.1	111
Male	5.9	7
Meanage (range [SD])	46.38 (29–64 [9.07])	
Children		
Yes	88.1	104
No	11.9	14
Regional Distribution		
Northern Region	58.5	69
Centre Region	10.2	12
Region of Lisbon	18.6	22
Region of Alentejo	3.4	4
Region of Algarve	2.5	3
Region of Açores	0	0
Region of Madeira	5.9	7
Midwives' education level		
Degree	61.9	73
Master's Degree	34.7	41
Doctorate Degree	3.4	4
Professional experience	%	N
Health centre	41.5	49
Third level hospital	72	85
County hospital	57.6	68
Private hospital	27.1	32
Teaching	31.4	37
Research	19.5	23
		Average years of experience
		14.96 (SD. 11.33)
		14.66 (SD. 9.10)
		19.55 (SD. 10.48)
		6.71 (SD.6.40)
		11.91 (SD.7.40)
		8.08 (SD.7.08)

was 118 participants. Therefore, the pilot test was conducted with 118 midwives with a mean age of 46.38 (SD, 9.07) years.

Of the total sample, 94.1% ($n = 111$) of midwives were female with 5.9% ($n = 7$) identifying as male. Nearly 60% ($n = 72$) lived in the northern region of Portugal with the remaining 40% spread across other regions of the country.

In total, 88.1% ($n = 104$) of the participants had children (see [table 3](#) for details).

Data were obtained on the academic background and professional experience of the sample. Nearly 35% ($n = 41$) had a post-graduate degree with 3.4% ($n = 4$) indicating they had a doctoral degree. The average years of midwifery experience was 13 years. Most midwives received education in home birth once trained as a midwife. Only 12% ($n = 14$) of the midwives had received for-

mal education in providing home birth care prior to registration. Nine midwives (7.6%) stated they provided home birth services in Portugal, with 7.22 years (SD. 4.84) mean years of experience. The demographics of the respondents are shown in [Table 3](#).

Construct validity of the paphb scale. To establish construct validity of the questionnaire, a factor analysis was carried out. For this purpose, the Kaiser-Meyer-Olkin index was used to examine the adequacy of the sample to the factor analysis, obtaining 0.92, i.e. higher than the minimum acceptable value of 0.50. In addition, Bartlett's test of sphericity was carried out and was significant ($\chi^2_{153} = 1434.062$, $P < 0.05$). The results of these tests indicated that the factor analysis was adequate. Next, the anti-image matrix was performed to check if any items needed to be removed. Eighteen items scored above 0.5 and were included in the final PAPHB scale represented in [Table 4](#). Thus, the item with the lowest score according to the authors, namely two items ([Krishnan, 2021](#)), was removed, leaving a scale of 18 items. Item 9 and item 11 of the PAPHB scale were excluded from the scale.

Cattell's screening test was also used to determine the construct validity of the scale. Using this approach, the 18-item PAPHB scale was shown to measure four distinct underlying constructs. To explore which items belonged to which construct, a principal components factor analysis with varimax rotation was performed. As a result of the initial values, four factors showed 71.09% of variance with initial values greater than one. The results after this rotation were as follows: Factor I Homebirth safety, with 33.95% of the variance; Factor II Benefits of planned homebirth with 24.04% of the variance; Factor III Professional training, with 6.83% of the variance; and finally, Factor IV Environment, with 6.26% of the variance. These results indicate the importance of the factors for the questionnaire ([Table 4](#)).

Another criterion used to confirm the structure of our factors was the interpretation of the scatter plot graph, as the values start to decrease when they are less than one after factor IV ([Fig. 1](#)).

The mean score of the 18-item PAPHB scale was 58.05 (range 20 - 90; SD.16.71). This is considerably lower than the results of [Vedam et al. \(2009\)](#) original study where midwives mean score was reported to be 78.77 (range, 20–100; standard deviation, 15.9). However, since a score of 54 on our revised scale indicated a

Table 4
Factor loadings of items used in the final 18-item provider attitudes to planned home birth scale (N = 118).

Factor I Homebirth safety	Loading factor
Item 2. If it were possible, I would consider offering home birth as part of my practice.	0.71
Item 4. First-time mothers should have the option of having a planned home birth.	0.60
Item 6. Midwives who practice home birth have sufficient skills to handle emergencies safely.	0.51
Item 7. I would feel comfortable if a close family member chose to have a home birth.	0.81
Item 8. I am willing to collaborate with a midwife who offers home birth.	0.79
Item 10. I would be willing to lobby for improved access to home birth in my state.	0.71
Item 12. There is good scientific evidence demonstrating the safety of home births with midwifery.	0.72
Item 13. Because of the risk of haemorrhage, homes are not an ideal birth setting.	0.72
Item 15. It concerns me when people I care about decide to have home births.	0.71
Item 16. I am a home birth advocate.	0.82
Item 18. Home birth is never as safe as hospital birth.	0.67
Factor II Benefits of planned homebirth	
Item 3. A mother's cultural background is easier to respect at home births than hospital births.	0.72
Item 5. A move towards more home births in this country would save our medical system a significant amount of money.	0.68
Item 14. Women who give birth in the hospital are more likely to experience morbidity associated with medical interventions than women who give birth at home.	0.62
Item 17. Mothers who have home births are more likely to breastfeed than mothers who have hospital births.	0.62
Item 19. Home birth is more empowering for the mother than hospital birth.	0.67
Factor III Professional training	
Item 20. Home birth clinical experiences within the nurse- midwifery educational programs are only important for those few students who plan to work in home settings.	0.85
Factor IV Environment	
Item 1. The home setting is an ideal birth environment for mother-baby bonding.	0.79

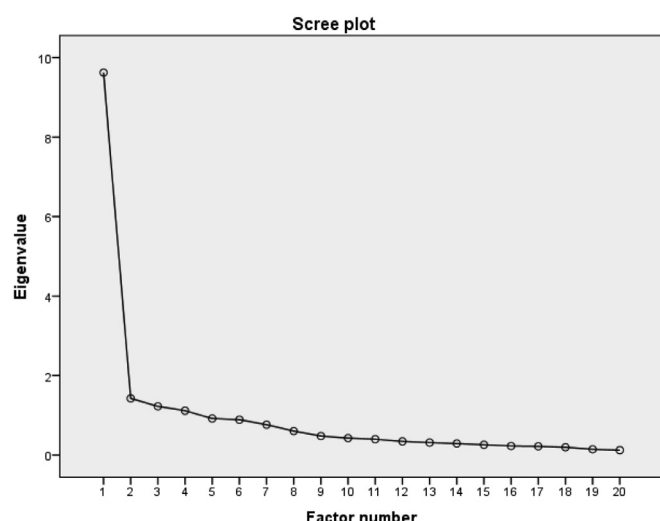


Fig. 1. Scree plot for the PAPHB scale.

Table 5
Means and standard deviations for each of the items in the test-retest.

Item	Test, Mean (SD)	Retest, Mean (SD)
Item 1	4.33 (0.88)	4.02 (0.99)
Item 2	3.11 (1.49)	3.28 (1.22)
Item 3	3.39 (1.39)	3.49 (1.02)
Item 4	3.44 (1.29)	3.44 (1.29)
Item 5	3.47 (1.27)	3.40 (1.20)
Item 6	3.01 (1.25)	3.19 (1.28)
Item 7	2.95 (1.41)	2.95 (1.40)
Item 8	2.93 (1.51)	2.87 (1.62)
Item 9	3.53 (1.36)	3.53 (1.36)
Item 10	3.31 (1.31)	3.31 (1.31)
Item 11	2.67 (1.41)	2.87 (1.52)
Item 12	3.22 (1.41)	3.52 (1.36)
Item 13	2.78 (1.44)	2.78 (1.44)
Item 14	2.78 (1.33)	3.22 (1.41)
Item 15	2.95 (1.52)	3.01 (1.25)
Item 16	2.41 (1.41)	2.67 (1.52)
Item 17	3.85 (1.22)	3.85 (1.22)
Item 18	3.82 (1.37)	4.33 (1.39)

neutral attitude, the midwives in our study generally exhibited favourable attitudes towards planned home birth.

Stability. The measurement of the temporal stability of the results was analysed using the intraclass correlation coefficient (ICC) through the test-retest, with most of the items at 0.99, showing excellent reproducibility.

Means and standard deviations were calculated for each of the items in the test-retest, as shown in Table 5.

Psychometric properties of the paphb scale. Reliability was assessed using Cronbach's α coefficient (a measure of the internal consistency of the scale). The 18-item scale showed excellent reliability (Cronbach's $\alpha = 0.933$), indicating that the questionnaire has good internal consistency to the original scale by Vedam et al., 2009 (Cronbach's $\alpha = 0.94$).

In addition, to assess the reliability of each item, Cronbach's α was taken into account if another item was removed; no benefits were shown if any item was removed as the values were found to range from 0.924 to 0.942 (Table 6).

Factors associated with attitudes towards planned home birth. To determine the significant associations between PAPHB scores and demographic, educational and professional factors, a Student's *t*-test

was performed after applying the K-S test which indicated that the PAPHB score obtained by the midwives follows a normal distribution. Thus, gender, place of residence, parity and academic level were not defining characteristics of the PAPHB score.

However, professional factors such as midwifery practice were defining characteristics. There were statistically significant differences between midwives who had never seen and/or attended a home birth and those who had. Midwives who had never attended a home birth had a mean scale score of 56.09 (SD.15.79) compared to 81.77 (SD.5.76) for midwives who had attended or seen a home birth.

Favourability scores increased as exposure to the practice of planned home birth increased. Similarly, midwives who reported exposure to planned home birth before or during their education had more favourable attitudes towards planned home birth.

In addition, midwives working in a tertiary hospital also showed lower PAPHB scores than those who did not, 56.07 (SD.17.23) versus 62.87 (SD.14.44).

Ethical Considerations

Approval was obtained from the Ethics Committee of the Faculty of Nursing, Physiotherapy and Medicine of the University of XXX (EFM 169/2022). Before applying the questionnaires all participants were informed about the aim of the study and signed written informed consent documents for participation and dissemination of the results.

In order to use the selected questionnaire, the principal investigators sought permission from the authors of the original questionnaire, who in turn gave their approval for its use.

Discussion

This study adapted and tested the English version of the PAPHB questionnaire for the Portuguese context. Firstly, the questionnaire was translated into Portuguese and then reviewed by a panel of experts to establish content validity. Secondly, the questionnaire was piloted tested with a sample of 118 midwives. Finally, a scale of 18 items and four factors was obtained after a factor analysis, unlike the original version by Vedam et al. (2009) which had 20 items and a two-factor structure. This may be due to cultural differences between the two populations and differences in health care systems.

The 18-item scale is a reliable and valid tool to quantify attitudes towards planned home births in Portugal as the results obtained in the study showed very good internal consistency. Specifically, the Cronbach's value obtained for the final 18-item scale was 0.933 compared to the value of 0.94 obtained for the 20-item scale by the original authors (Vedam et al., 2009).

On the other hand, the mean score of the 18-item PAPHB scale amongst Portuguese midwives was 58.05 (range, 20–90; SD. 16.71) compared to 78.77 (range, 20–100; standard deviation, 15.9) obtained in the original study (Vedam et al., 2009). Because a score of 54 indicates a neutral attitude in our study and 60 points in the original study, participants in our study show a less favourable attitude, on average, towards planned home birth than the original North American study sample (Vedam et al., 2009). In another study by Vedam et al., 2014 in Canada midwives showed very high favourability scores on the PAPHB scale (80 points). This may be due to the growth of the midwifery profession and its practice in assisting home births.

In our study the defining characteristics of the PAPHB score were working in a tertiary hospital and exposure to planned home birth. Midwives working in the tertiary hospital had a low PAPHB score, whereas midwives exposed to home birth practice had

Table 6
Cronbach's α values for PAPHB Cronbach's items.

Item	Cronbach's α if item would be deleted in our study	α Values in our study
Factor I		0.933
Item 2. If it were possible, I would consider offering home birth as part of my practice.	0.925	
Item 4. First-time mothers should have the option of having a planned home birth.	0.927	
Item 6. Midwives who practice home birth have sufficient skills to handle emergencies safely.	0.930	
Item 7. I would feel comfortable if a close family member chose to have a home birth.	0.926	
Item 8. I am willing to collaborate with a midwife who offers home birth.	0.925	
Item 10. I would be willing to lobby for improved access to home birth in my state.	0.926	
Item 12. There is good scientific evidence demonstrating the safety of home births with midwifery.	0.925	
Item 13. Because of the risk of haemorrhage, homes are not an ideal birth setting.	0.930	
Item 15. It concerns me when people I care about decide to have home births.	0.929	
Item 16. I am a home birth advocate.	0.924	
Item 18. Home birth is never as safe as hospital birth.	0.927	
Factor II		
Item 3. A mother's cultural background is easier to respect at home births than hospital births.	0.927	
Item 5. A move towards more home births in this country would save our medical system a significant amount of money.	0.927	
Item 14. Women who give birth in the hospital are more likely to experience morbidity associated with medical interventions than women who give birth at home.	0.930	
Item 17. Mothers who have home births are more likely to breastfeed than mothers who have hospital births.	0.931	
Item 19. Home birth is more empowering for the mother than hospital birth.	0.931	
Factor III		
Item 20. Home birth clinical experiences within the nurse-midwifery educational programs are only important for those few students who plan to work in home settings.	0.942	
Factor IV		
Item 1. The home setting is an ideal birth environment for mother-baby bonding.	0.937	

higher PAPHB scores. These defining characteristics are also consistent with factors highlighted in the original study (Vedam et al., 2009) and in research conducted a few years later in Canada (Vedam et al., 2014). The study by Muhammed et al. (2019) also found that midwives' previous experience with the practice of planned home birth favours positive attitudes of midwives towards this practice. However, Vedam et al. (2009) state that younger midwives and those who reported having teaching and/or research experience had significantly higher PAPHB scores, whereas no significant differences were obtained in our study. Also, no statistically significant differences were found when comparing attitude and knowledge scores in the study by Leone et al. (2016).

In our study, midwives agreed that the home is an ideal birth environment for mother- baby bonding, that planned home birth empowers the mother more than hospital birth, and that midwifery students should be trained during their obstetric and gynaecological nursing education in home birth care. However, midwives' beliefs about the insecurity of home birth and the management of obstetric complications at home, such as haemorrhage, affected favourability scores.

In a Canadian study by Vedam et al. (2014) concerns about perinatal loss, discomfort with interprofessional consultations and preference for hospital familiarity correlated with less favourable attitudes towards planned home birth. In contrast, favourability scores were linked to beliefs about evidence for the safety of

home birth and midwives' confidence in their own ability to manage obstetric emergencies in home birth (Vedam et al., 2014). In addition, McNutt et al. (2014) stated that midwives were more enthusiastic about home birth than any other professional and were more supportive of the UK government's plan to increase home birth rates. All other health professionals such as obstetricians/gynecologists tended to have neutral views on home birth and paediatricians/neonatologists were generally negative about home birth. Likewise, Aune et al. (2017) showed that Norwegian midwives had a fundamental belief that childbirth is a normal event that women are able to manage and staying at home in a safe environment and establishing a close relationship with the midwife also contributes positively to a normal birth.

Limitations

Although the results indicated that the tool is reliable and valid, there are some limitations. The piloting of this measurement tool was conducted with a small sample. The choice of sample size was based on a convenience sample, as only those midwives who were willing to volunteer participated in the study. Any future research should be conducted with a larger, randomised sample size. Furthermore, the participants included in the sample were exclusively midwives. Future research should test the tool with other mater-

nity health care professionals such as obstetrics and gynaecology physicians and neonatologists.

The psychometric properties of the instrument should be analysed in future research so that it can be used to identify the perceptions and attitudes of maternal health professionals towards planned home birth in other countries. Planned home birth at low-risk gestations assisted by a skilled professional is already a reality in many developed countries such as the UK, the Netherlands and Germany. For this reason, health professionals should advise families with information based on scientific evidence.

Conclusion

Understanding midwives' attitudes towards planned home birth is essential to the provision of evidence-based practical and theoretical training in home birth care. The attitudes and opinions of health professionals have a significant influence on patients' decisions, so we must base all opinions and attitudes on scientific evidence.

This study indicates that the PAPHB scale is a useful tool to quantify midwives' attitudes towards planned home birth in the Portuguese context. It can also be used to quantify other health professionals involved in maternity care, as all items of the scale could quantify the attitude of any health professional related to planned home birth, especially those with a similar level of training, scope of practice and roles to those of midwives. In addition, this scale shows excellent psychometric properties.

Although Portuguese midwives have generally favourable attitudes towards planned home birth, their beliefs about the risks and benefits of home birth are strongly influenced by their clinical practice and exposure to home birth during academic training.

Author contributions

T.M.G.-B. and G.A.-M. designed the study. T.M.G.-B. analysed the data, wrote the manuscript and participated in the interpretation of the results. H.J.F. and T.I.G.C. collected the data, analysed the data and participated in the interpretation of the results. All authors have read and agreed to the published version of the manuscript.

Ethical approval

Approval was obtained from the Ethics Committee of the Faculty of Nursing, Physiotherapy and Medicine of the University of Almería, Spain (EFM 169/2022). Before applying the questionnaires all participants were informed about the aim of the study and signed written informed consent documents for participation and dissemination of the results.

In order to use the selected questionnaire, the principal investigators sought permission from the authors of the original questionnaire, who in turn gave their approval for its use.

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Data availability statement

No data are available.

Declaration of Competing Interest

None declared.

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