

Bond University
Research Repository



Delphi Expert Parent Study: Factors Needed for 21st Century Pre- and Perinatal Parenting Programs

Mckee, Christine L.; Stapleton, Peta; Pidgeon, Aileen M.

Published in:
Journal of Perinatal Education

DOI:
[10.1891/1058-1243.28.3.163](https://doi.org/10.1891/1058-1243.28.3.163)

Licence:
Other

[Link to output in Bond University research repository.](#)

Recommended citation(APA):
Mckee, C. L., Stapleton, P., & Pidgeon, A. M. (2019). Delphi Expert Parent Study: Factors Needed for 21st Century Pre- and Perinatal Parenting Programs. *Journal of Perinatal Education*, 28(3), 163-179.
<https://doi.org/10.1891/1058-1243.28.3.163>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

For more information, or if you believe that this document breaches copyright, please contact the Bond University research repository coordinator.

Using Delphi methodology, the current study utilised a panel of “expert” parents ($n=23$ after three rounds) to examine nine content-based and logistical factors perceived to be important when developing pre and perinatal (PPN) parenting programs for the modern day. The aim was to attain consensus on 235 items generated from literature and panellists. Consensus was reached on 126 items (53.62%). The most notable related to needs-based content, barriers to fathers’ attendance and groups of parents who may benefit most from programs. Consistent with the literature, clarity was not achieved for appropriate timing and length of programs. With the diversity of recommendations, next steps involve developing a range of programs that use randomized clinical trialling with control groups, effective sample sizes and are pre and post-tested.

Keywords: Pre and perinatal parenting programs, Delphi, pregnancy, prenatal psychology, parenting education

Introduction

The empirical data supports that pregnancy is often a time when anxiety, depression and stress is higher than normal for both expectant mothers (Tremblay & Soliday, 2012) and fathers (Tohotoa et al., 2012), which is linked to reduced capacity for secure parent-baby bonding. A decline in satisfaction and bonding within the couple relationship (Trillingsgaard, Baucom, Heyman, & Elklit, 2012), along with an increase in negative communication and diminished support between the expectant couple (Quirk, Owen, Inch, France, & Bergen, 2014) is commonplace.

These outcomes can negatively impact the preborn (and baby post birth), as research suggests that the womb environment controls the extent to which a growing preborn is able to attain optimal development emotionally, physically, relationally and mentally – development which provides the baby with readiness for life post birth (Chamberlain, 2013; Nathanielsz, 1999). The purpose of this article is to present a summary of findings perceived by parents to be important for inclusion in future pre and perinatal (PPN) parenting programs, to mitigate stressors experienced during a pregnancy and aide in the ability for secure bonding and attachment to occur between mother, father and baby.

Literature Review

PPN parenting education has been extensively researched and education for expectant mothers (Gruber, Cupito, & Dobson, 2013; Mortensen, Torsheim, Melkevik, & Thuen, 2012) has been available for at least 800 years. More recently, PPN education has also targeted fathers (e.g., Tohotoa et al., 2012) and couples (e.g., Edvardsson et al., 2011; Trillingsgaard et al., 2012) as attendees. There are inconsistencies in both research methodologies and findings that have led to an absence in gold standard practice in PPN parenting programs. Examples include a lack of control groups when PPN parenting programs are trialled (e.g., Hussaini, Holley, & Ritenour, 2011; Plantin, Olukoya, & Ny, 2011); use of small sample sizes (e.g.,

Goodman et al., 2014) which reduces generalizability, reliability and validity of research outcomes; and lack of longitudinal follow up of sustainability of results measured (e.g., Peckham, 2013; Zucchi et al., 2013). Further, there is inconsistency within the literature on what constitutes most effective content (e.g., Dunneram & Jeewon, 2015; Feinberg, Roettger, Jones, Paul, & Kan, 2015), as well as best-practice for program design and delivery factors such as timing throughout a pregnancy to begin and end a program (e.g., Godin et al., 2015; Trillingsgaard et al., 2012); consumer groups (e.g., Davis, Vyankandondera, Luchters, Simon, & Holmes, 2016; Hollins Martin & Robb, 2013; Robling et al., 2016); ways to include fathers (e.g., Deslauriers, Devault, Groulx and Sevigny, 2012; Humphries & Nolan, 2015); length of individual sessions and programs overall (e.g., Feinberg et al., 2015); methods of delivery (e.g., Arcus, 1995; Gazmararian et al., 2014); location for program delivery (Brixval et al., 2016); and who is best qualified to facilitate (e.g., Feinberg et al., 2015).

An expectant couple's attendance to a PPN parenting program has been shown to be a key component to support the ability for secure bonding and attachment (e.g., Michaud, 2012; Young, 2013) to occur between mother, father and baby. It can also lead to improved prenatal care, positive parenting post birth, decreased maternal stress, and enhanced levels of emotional and social support experienced by attending parents (e.g., Abu-Saad & Fraser, 2010).

It can therefore be argued that PPN parenting programs of the future be designed to meet the specific needs of the target audience of both mothers and fathers if sessions are to be meaningful and valuable to parents (Ayiasi et al., 2013). A thorough exploration of existing parents' perceptions of factors that may constitute effective PPN programs seemed warranted, as researchers question whether current program offerings are commensurate with the needs of modern day parents (Hauck, Fisher, Byrne, & Bayes, 2016). Using Delphi methodology, the current study was undertaken (as the third of four studies in the primary author's PhD

program of research), with the overall purpose being to examine factors that are perceived to be important for consideration in future PPN parenting programs. The intended outcome was to offer recommendations for the design, development and delivery of future PPN parenting programs that may positively influence the emotional, mental, relational and physical wellbeing and thriving of mothers, fathers and babies.

Method

Ethical approval was given by BUHREC—Application ID 15839 and data was collected between November 2016 and February 2017. This study utilised the Delphi method research design to generate items for consensus rating based on expert panellist member's opinions shared in response to specific research questions (James & Warren-Forward, 2015), where clarity is yet to be attained (Jenkins & Smith, 1994). The Delphi methodology has traditionally been used to focus on specific issues where validated theory does not yet exist (Jenkins & Smith, 1994). Further, both qualitative and quantitative research design is included in Delphi methodology to generate items for consensus rating, based on expert panellist members' opinions being shared, in response to specific research questions (James & Warren-Forward, 2015). The majority of Delphi studies use a homogeneous sample, with size being between 10 and 30 experts (Delbecq, Van de Ven, & Gustafson, 1975; Keeney, Hasson, & McKenna, 2011). A non-probability sampling method is used, where it is common for panellists to be "handpicked" (Hasson, Keeney, & McKenna, 2000) or for the snowball technique to be employed (Warner, 2014).

Expert panellists respond to a series of structured online questionnaires across multiple rounds; typically three, with the goal being to achieve consensus amongst panellists (Dawson, Rhodes, & Touyz, 2015; Desroches et al., 2015). Where respondent fatigue may be an issue, a hybrid variation to the Delphi method can be utilized. This involves inclusion of some information from existing literature for panellists to respond to, as well as providing

open ended questions to collect opinions and new ideas from panellists in round 1 (Hasson et al., 2000). A hybrid variation was utilized in round 1 of the current study, due to the large number of questions included; 19 in total. The intention was to minimize the possibility of participant attrition due to fatigue.

Expert Panellists and Recruitment

There is no established definition of the term “expert”, however, it is generally agreed that to be eligible to participate a panellist needs to be representative of the group of people who will use the outcomes from the study being undertaken (Delbecq et al., 1975), and be able to make contributions that reflect current knowledge of the topic of interest (Hasson et al., 2000; James & Warren-Forward, 2015). Criteria for inclusion in this study comprised being a mother or father who has one or more children and who has attended and completed a PPN course/training that was facilitated by a licensed PPN specialist or professional. Forty-four people responded to a social media advertisement and of those, two people identified as having been referred via the snowball technique. All were emailed the details of the study and advised they would receive a fifty dollar online gift voucher (Amazon, Coles-Myer) funded by an Australian Government Research Training Program scholarship, upon successful completion of all three rounds.

The study design was quasi-anonymous where the identity of each panellist was known to the student researcher to enable contact for dissemination of results and questionnaire links for each round. Identity details were not shared between panel members.

Materials

Three rounds of online questionnaires were created for the completion via Qualtrics Research Suite.

Procedure

Devising the round 1 questionnaire.

The aim of the first round was to generate a list of items that panellists considered should be considered when designing, developing and delivering future PPN parenting programs. The survey included questions generated from results that emerged from two previous studies in the PhD program of research, and the existing PPN parenting program literature. Round 1 survey questions are outlined in Table 1.

Procedural overview.

Expert parent panel members were asked to complete three rounds of the online questionnaire and only those who completed a survey round were included in the following round.

Consensus criteria used across the three rounds.

A priori criteria (James & Warren-Forward, 2015) of a 75% consensus level was followed, which is consistent with Delphi method literature (Dawson, Rhodes, & Touyz, 2015; Desroches et al., 2015; Hejblum et al., 2014). That is, consensus is said to have been reached when 75% of the panellists either “agree” or “strongly agree” with items presented on a 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) and these items were included as recommendations for future PPN parenting programs. All items that did not meet the consensus criteria in a round were automatically included in the subsequent round for re-rating.

Analysis procedure used across the three rounds.

Analysis of the data occurred at the end of each of the rounds. The verbatim information collated from round 1 was analysed using Braun and Clarke’s (2006) five step thematic analysis approach. The quantitative data generated via 5-point Likert scales in all rounds were analysed using IBM SPSS Statistics 24. This involved calculation of central tendency (Mean, Median), a measure of variability (Standard Deviation) and percentage rating of each item by panellists as a collective group. The percentage values determined

whether or not consensus was considered reached on each item. Figure 1 outlines the Delphi methodology undertaken.

Round 1.

Informed consent was obtained within the online questionnaire whereby each panellist was required to type “yes” to consenting to continue after reading the explanatory statement. Panellists responded to 19 questions that comprised one 5-point Likert rating question devised from the results of an earlier study in the PhD program, 11 open ended questions and seven questions that had a combination of checkbox options drawn from the literature, as well as an “other” option to capture verbatim feedback. Table 1 details the questions asked, question format, and number of items generated per question for consensus rating by panellists in rounds 2 and 3.

Round 2 and 3.

The purpose of rounds 2 and 3 was to attain group consensus on items generated per question, as a result of thematic analysis completed after round 1. The round 3 questionnaire included a summary table of round 2 results per question. Items that did not attain consensus were presented to panellists for re-rating.

Results

Of the 44 responders, 77.27% ($n=34$) voluntarily agreed (via email) to be a part of the study and completed round 1. Five were eliminated from data analysis and from the remainder of the study. Four did not meet the inclusion criteria and one completed only 59% of the questionnaire. The remaining 29 panellists comprised of 17 females (58.6%) and 12 males (41.4%), aged between 33 and 57 years ($M=41.83$; $SD=6.85$), from across two countries (Australia=86.2%; USA=13.8%). Of the types of prenatal classes/courses attended during a pregnancy, the majority of panellists attended either hospital mandated prenatal classes (27.27%) or classes that were specifically related to preparation for delivery

(12.12%). Trimester two was the most common period during the pregnancy that panellists attended classes (56.25%) and the most common number of sessions attended was six (20.59%). The hospital where the baby was birthed was the most prevalent location where classes were held (58.06%). A midwife was identified as the facilitator of classes in 58.82% of cases. Details of demographic characteristics of participants are reported in Table 2.

There was a 93.1% completion rate in round 2 (n=27), and 23 panellists (85.19%) went on to finish the third and final round and was represented by 11 males (47.8%) and 12 females (52.2%). The results presented are based on outcomes after the three rounds combined. In total 235 items were presented to panellists for the opportunity to achieve consensus and that was attained for 126 items (53.62%). Examples of consensus items by survey question can be seen in Table 3. The remaining 109 items (46.38%) did not reach agreement and examples are presented in Table 4.

Discussion

To the knowledge of the authors, this is the first Delphi expert consensus study conducted to assess factors relating to content and program delivery logistics that are considered important and relevant for inclusion in PPN parenting programs for the 21st Century. The high completion rate by the parent panellists of all rounds suggests the importance and timeliness (Ward, Stebbings, Sherman, Cherkin, & Baxter, 2014) of gathering this information. Many of the items generated were supported by the literature and items that reached consensus generated recommendations for inclusion in future PPN parenting programs. Of note, the results presented here were compared and collated to findings from a second Delphi study conducted that used a panel of birth professionals who met “expert” criteria, and a synthesised list of recommendations was generated (results have not been reported here).

There was a strong coherence between parent panellist opinions and existing literature on factors perceived to influence a preborn during gestation that parents may benefit from being educated on. The most important were (i) sounds (e.g., talking directly to baby, Chamberlain, 2013), (ii) social support available to the mother, which been found to mitigate stress, anxiety and depression throughout a pregnancy (e.g., Feinberg et al., 2015; Renzaho & Oldroyd, 2014), (iii) a mother's levels of self-empowerment and self-confidence, and (iv) preconception stress (Shonkoff & Fisher, 2013).

In total, 40 content topics were deemed to be important by panellists. Key items that have also achieved support in the literature are self-care (Kluny & Dillard, 2014), stress management (Shonkoff & Fisher, 2013), needs of fathers (Deslauriers et al., 2012; Tohotoa et al., 2012), support services (Brownell, Chartier, Au, & Schiltz, 2011), how parents' thoughts and emotions impact a fetus (Chamberlain, 2013), how to process emotions (George, Luz, De Tyche, Thilly, & Spitz, 2013), and signs of post-natal depression (Coley & Nichols, 2016). Both "how to influence gene expression of the baby in-utero" and "being aware of generational parenting patterns" were non-consensual. Whilst not in alignment with current research in the fields of epigenetics and transgenerational imprinting (e.g., Anacker, O'Donnell, & Meaney, 2014; Appleton et al., 2013) it is expected, as the research is still emerging and it stands to reason that lay parent audiences may not be up-to-date with current trends in factors that may impact a preborn during the PPN periods.

Parents did not want content that disempowers, judges or condescends (Bryson, 2013; Taylor et al., 2012), takes away choice (Malone, 2014), promotes invasion of the ability to birth (Barrett et al., 2015), or that is outdated (Bryson, 2013).

To maintain engagement and involvement in a PPN parenting program, parents highlighted that programs needs to involve (i) content that is individualized and personalized (Gibson, 2016), simple (Bryson, 2013), practical (Malone, 2014), relevant to daily life

(Bryson, 2013) and targeted to both mothers and fathers (Gibson, 2016); (ii) sessions that are fun (Landy, Jack, Wahoush, Sheehan, & MacMillan, 2012; NWCPHP, 2012), experiential (Hauck et al., 2016; Sinclair, 2013), interactive (Bryson, 2013; Gibson, 2016; NWCPHP, 2012), supportive (Deslauriers et al., 2012; Edvardsson et al., 2011) and reflective (Brixval et al., 2016); (iii) facilitators who are engaging and confident (NWCPHP, 2012), emotionally connected and non-condescending (Bryson, 2013), and interested in the material (NWCPHP, 2012); and (iv) learning environments that feel like a community and that are social (Taylor et al., 2012; Walsh et al., 2014).

Prominent blocks to fathers attending less sessions and programs than expectant mothers do include work schedules (Humphries & Nolan, 2015), general lack of understanding of the importance of the role of the father (National Nursing Research Unit, 2013; Salzman-Erikson & Eriksson, 2013), and perception that pregnancy and birthing is the mother's role (Davis et al., 2016). However, panellists did not agree with the literature that suggests fathers attend less frequently to mothers because they feel left out and as though they do not belong in classes (e.g., Edvardsson et al., 2011) as content is not relevant to their needs (e.g., Davis et al., 2016), or that program facilitators perceive fathers have a general lack of interest (e.g., Humphries & Nolan, 2015).

When logistical factors for design and delivery of PPN programs were considered by parent panellists, results were diverse. Panellists perceived that all types of expectant parents (e.g., "first time parents", "those wanting a homebirth", "same-sex", and "disadvantaged/minority groups") may benefit from attending a PPN parenting program with the exception of "existing parents who are pregnant again". Additionally, it was collectively thought that some sessions should be dedicated to fathers only, but this did not extend to some sessions for mothers only. This is inconsistent with the literature that advocates needs-based sessions exclusively for mothers (e.g. health promotion and support within a

relationship; Renzaho & Oldroyd, 2014) and others for fathers (e.g., how to support the expectant mother, Deslauriers et al., 2012; and role identity (Tohotoa et al., 2012; Walsh et al., 2014). One explanation may be as it is commonly recognised that programs are already targeted towards expectant mothers (e.g., Plantin et al., 2011), having separate sessions dedicated to them may seem unnecessary to the panellists.

Defining clear parameters for the best timing for a parent to begin and end a PPN parenting program proved futile, and is not an unexpected as the literature is inconclusive also. Whilst trimester one seems to be critical for healthy development of the preborn thus making it an effective time for parents to begin a program (AIHW, 2014; Godin et al., 2015); the motivation to learn about topics such as labor, birth and breastfeeding may not be perceived as a priority so early into the pregnancy (Godin et al., 2015). Perhaps offering flexible timing for program delivery is needed until an evidence base of clinical studies that compare program effectiveness depending on start and end times are conducted.

Panellists and literature alike favoured programs that combine: (i) an experiential focus (Dunneram & Jeewon, 2015; Ferguson & Vanderpool, 2013; Lotrecchiano, McDonald, Lyons, Long, & Zajicek-Farber, 2013); (b) individualised sessions with some core content modules where information is presented via an array of formats (e.g., video, activities, printed up-to-date resources, self-reading and practice of skills (Arcus, 1995; Quirk et al., 2014); and (c) sessions incorporating question and answer time with feedback provided by the facilitator (Ayiasi et al., 2013).

When location of program delivery was considered, little clarity was gained. Panellists remained polarised on all items with the exception of “group sessions in a hospital setting”, a location heavily supported in the literature (Coley & Nichols, 2016; Tohotoa et al., 2012). This may be explained by the fact that the vast majority of births in USA (98.5% in 2015, Martin, Brady, Osterman, Driscoll, & Mathews, 2017) and Australia (98% in 2014,

AIHW, 2014) occur in hospitals, hence parents may be more familiar with PPN parenting program offerings provided by the hospital they have chosen to birth at, than other options that may be available. Whilst the literature supports locations such as home visits (Castillo, Welch, & Sarver, 2011; Jongen, McCalman, Bainbridge, & Tsey, 2014), training room environments (Deslauriers et al., 2012), online (Gazmararian et al., 2014; Quirk et al., 2014), and self-guided home based where parents complete the program on their own in their home (Petch, Halford, Creedy, & Gamble, 2012), experts in this study did not concur.

Both panellists and current literature endorsed the most effective facilitators to be midwives (Dunneram & Jeewon, 2015; Jongen et al., 2014), childbirth educators (Coley & Nichols, 2016), nurses (Ayiasi et al., 2013), a collaborative team of qualified individuals (Feinberg et al., 2015), and/or qualified people who are caring, non-judgemental, confident, engaging, approachable and skilled (Landy et al., 2012). Panellists agreed that academic researchers should not facilitate programs, however no research was found that specifically discussed this. There were discrepancies between panellist responses and the literature for “male midwives and nurses delivering sessions for fathers” (Deslauriers et al., 2012; Tohotoa et al., 2012) and for “elders from the community” (Jongen et al., 2014) facilitating programs. In both instances, the research supports these facilitator cohorts where the parent panel did not.

No agreement was reached for recommended individual session length and time between each session. This lack of standardization is consistent with the research. (e.g., Collins & Fetsch, 2012; Tohotoa et al., 2012) and indicates that these factors may not be of primary importance for parents when considering a program to attend. Similarly, results concerning overall length of a program were polarised both from the panel and within the literature, where none of the items brought forward from the panel (e.g., “conception through until post birth”, “trimester one until 12 months post birth”) were met with unanimity.

Limitations

Three key limitations need to be considered. Firstly, responses to demographic questions (Table 2) identified that participating parents attended a wide array of PPN initiatives, with differing numbers of sessions and length of overall programs. Therefore, experiences were not equal, and the range of years that panellists attended PPN parenting sessions was broad—between 1986 and 2016. It is very likely that content type would have changed across the years, and that memory for the details of what was included in the program attended may have diluted with time. It is possible that panellists were not able to identify the timeliest and most relevant suggestions for PPN parenting programs for the 21st Century, which is reflected in the fact that 109 items from the 235 items did not attain consensus. In the future, narrower and clearer parameters ought to be set with regards to type of PPN parenting program attended and how recent a program was engaged in by panellists (e.g., “within five years”). This may enable greater confidence in the homogeneity of expertise of panellist members and in the reliability of findings.

Secondly, whilst consensus was found for 126 items across the three rounds, this does not mean that the most accurate responses were found (Dawson, et al., 2015; Hasson et al., 2000). The findings are limited to what the expert panellists involved in the current study perceived as [un]important in relation to future PPN parenting programs.

Thirdly, representativeness of the sample is not assured as the panellists were not randomly selected, although this is common practice in Delphi studies (e.g., Dawson et al., 2015; Ward et al., 2014). Further, the total sample was from the USA and Australia, so it is unknown whether the results found are applicable for parents from other first world countries or from developing countries.

Recommendations

The key recommendations are the same as those listed as consensus items from rounds 1 to 3 in Table 3.

Implications for Practice and Research

By undertaking a three round online Delphi process to gain consensus among expert parents in USA and Australia, a list of needs-based recommendations for consideration in the design, development and delivery of future PPN parenting programs was generated. This study was one of two Delphi consensus studies undertaken in the PhD program of research, and represents the beginning of understanding more about what may be effective for modern PPN parenting programs. The second Delphi methodology study completed included an expert panel of birth professionals in an effort to broaden generalizability of findings. Next steps include developing a range of PPN parenting programs that encompass both core and optional content modules designed to be time-relevant and needs-based as parents move through each trimester of a pregnancy. Measuring each program's effectiveness through pre and post-test randomised clinical trials that incorporate large sample sizes as well as control groups would be an important action.

Conclusion

The findings from the expert parent Delphi methodology study provided a deeper understanding of some factors perceived to be effective for inclusion in 21st century PPN parenting programs. Specifically, consensus was attained on needs-based content, reasons why fathers' attendance is lower than mothers' and groups of parents who may benefit most from programs. Gaining consensus on appropriate timing and length of programs remained elusive.

References

- Abu-Saad, K., & Fraser, D. (2010). Maternal nutrition and birth outcomes. *Epidemiologic Reviews*, 32, 5-26. doi: 10.1093/epirev/mxq001
- Anacker, C., O'Donnell, K. J., & Meaney, M. J. (2014). Early life adversity and the epigenetic programming of hypothalamic-pituitary-adrenal function. *Dialogues in Clinical Neuroscience*, 16(3), 321-333. doi: 10.1016/j.biopsych.2014.11.022
- Appleton, A. A., Armstrong, D. A., Lesueur, C., Lee, J., Padbury, J. F., Lester, B. M., & Marsit, C. J. (2013). Patterning in placental 11-B hydroxysteroid dehydrogenase methylation according to prenatal socioeconomic adversity. *PLoS One*, 8(9), e74691-e74698. doi: 10.1371/journal.pone.0074691
- Arcus, M. E. (1995). Advances in family life education: Past, present, and future. *Family Relations*, 44(4), 336-344. doi:10.2307/584988
- Australian Institute of Health and Welfare (AIHW). (2014). *Australia's mothers and babies 2014*. Canberra, Australia: Author. Retrieved from <http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129557657>
- Ayiasi, M. R., Van Royen, K., Verstraeten, R., Atuyambe, L., Criel, B., Garimoi, C. O., & Kolsteren, P. (2013). Exploring the focus of prenatal information offered to pregnant mothers regarding newborn care in rural Uganda. *BMC Pregnancy and Childbirth*, 13, 176-187. doi: 10.1186/1471-2393-13-176
- Barrett, G., Shawe, J., Howden, B., Patel, D., Ojukwu, O., Pandya, P., & Stephenson, J. (2015). Why do women invest in pre-pregnancy health and care? A qualitative investigation with women attending maternity services. *BMC Pregnancy and Childbirth*, 15, 236-251. doi: 10.1186/s12884-015-0672-3
- Braun, V., & Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi: [10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)

Brixval, C. S., Thygesen, L. C., Axelsen, S. F., Gluud, C., Winkel, P., Lindschou, J., ...

Koushede, V. (2016). Effect of antenatal education in small classes versus standard auditorium-based lectures on use of pain relief during labor and of obstetric interventions: Results from the randomised NEWBORN trial. *BMJ Open*, *6*(6), 1-10. doi: 10.1136/bmjopen-2015-010761

Brownell, M. D., Chartier, M., Au, W., & Schiltz, J. (2011). Program for expectant and new mothers: A population-based study of participation. *BMC Public Health*, *6*(11), 691-701. doi: 10.1186/1471-2458-11-691

Bryson, J. D. (2013). *Engaging adult learners: Philosophy, principles and practices*. Ontario, Canada: James David Bryson.

Castillo, J., Welch, G., & Sarver, C. (2011). Fathering: The relationship between fathers' residence, fathers' sociodemographic characteristics, and father involvement. *Maternal and Child Health Journal*, *15*(8), 1342-1349. doi:10.1007/s10995-010-0684-6

Chamberlain, D. B. (2013). *Windows to the womb: Revealing the conscious baby from conception to birth*. Berkeley, CA: North Atlantic Books.

Coley, S. L., & Nichols, T. R. (2016). Understanding factors that influence adolescent mothers' doula use: A qualitative study. *The Journal of Perinatal Education*, *25*(1), 46-55. doi: 10.1891/1058-1243.25.1.46

Collins, C. L., & Fetsch, R. J. (2012). A review and critique of 16 major parent education programs. *Journal of Extension*, *50*(4), 4-21. Retrieved from <https://www.joe.org/joe/2012august/a8.php> Consonni et al., 2010

Davis, J., Vyankandondera, J., Luchters, S., Simon, D., & Holmes, W. (2016). Male involvement in reproductive, maternal and child health: A qualitative study of

- policymaker and practitioner perspectives in the Pacific. *Reproductive Health*, 13(1), 81-92. doi: 10.1186/s12978-016-0184-2
- Dawson, L., Rhodes, P., & Touyz, S. W. (2015). Defining recovering from anorexia nervosa: A Delphi study to determine expert practitioners' views. *Advances in Eating Disorders: Theory, Research and Practice*, 3(2), 165-176. doi:10.1080/21662630.2015.1009145
- Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1975). *Group techniques for program planning: A guide to nominal and Delphi processes*. Glenview, IL, USA: Scott, Foresman and Co.
- Deslauriers, J. M., Devault, A., Groulx, A. P., & Sevigny, R. (2012). Rethinking services for young fathers. *Fathering*, 10(1), 66-90. doi: 10.3149/fth.1001.66
- Desroches, S., Lapointe, A., Deschenes, S. M., Bissonnette-Maheux, M., Gravel, K., Thirsk, J., & Legare, F. (2015). Dieticians' perspectives on interventions to enhance adherence to dietary advice for chronic diseases in adults. *Canadian Journal of Dietetic Practice and Research*, 76(3), 103-108. doi: 10.3148/cjdpr-2015-009
- Dunneram, Y., & Jeewon, R. (2015). Healthy diet and nutrition education program among women of reproductive age: A necessity of multilevel strategies or community responsibility. *Health Promotion Perspectives*, 5(2), 116-127. doi: 10.15171/hpp.2015.014
- Edvardsson, K., Ivarsson, A., Eurenus, E., Garvare, R., Nystrom, M. E., Small, R., & Mogren, I. (2011). Giving offspring a healthy start: Parents' experiences of health promotion and lifestyle change during pregnancy and early parenthood. *BMC Public Health*, 11, 936-949. doi: 10.1186/1471-2458-11-936

- Feinberg, M. E., Roettger, M. E., Jones, D. E., Paul, I. M., & Kan, M. L. (2015). Effects of a psychosocial couple-based prevention program on adverse birth outcomes. *Maternal and Child Health Journal, 19*(1), 102-111. doi: 10.1007/s10995-014-1500-5
- Ferguson, J. M., & Vanderpool, R. C. (2013). Impact of a Kentucky maternal, infant, and early childhood home-visitation program on parental risk factors. *Journal of Child and Family Studies, 22*(4), 551-558. doi: 10.1007/s10826-012-9610-4
- Gazmararian, J. A., Dalmida, S. G., Merino, Y., Blake, S., Thompson, W., & Gaydos, L. (2014). What new mothers need to know: Perspectives from women providers in Georgia. *Maternal and Child Health Journal, 18*, 839-851. doi: 10.1007/s10995-013-1308-8
- George, A., Luz, R. F., De Tyche, C., Thilly, N., & Spitz, E. (2013). Anxiety symptoms and coping strategies in the perinatal period. *BMC Pregnancy and Childbirth, 13*, 233-239. doi: 10.1186/1471-2393-13-233
- Gibson, A. (2016). Transforming the subject matter expert into an educator: Gaining competitive advantage by applying adult learning principles. *Journal of Protective Coatings & Linings, 33*(7), 44-49. Retrieved from <https://search.proquest.com/openview/6d0580d8b59af6268a3f866cdb38442e/1?pq-origsite=gscholar&cbl=36623>
- Godin, K. M., Alton, G. D., Gangodawilage, H. P., Procter, T. D., Bourdages, N. B., Blue, S. E. ... Horan, M. J. (2015). Knowledge change associated with participation in prenatal education programs in Ontario: A cohort study. *Canadian Journal of Public Health, 106*(6), e401-e407. doi: 10.17269/CJPH.106.5057
- Goodman, J. H., Guarino, A., Chenausky, K., Klein, L., Prager, J., Peterson, R., ... Freeman, M. (2014). CALM pregnancy: Results of a pilot study of mindfulness-based cognitive

- therapy for perinatal anxiety. *Archives of Women's Mental Health*, 17, 373-387. doi: 10.1007/s00737-013-0402-7
- Gruber, K. J., Cupito, S. H., & Dobson, C. F. (2013). Impact of doulas on healthy birth outcomes. *The Journal of Perinatal Education*, 22(1), 49-56. doi: 10.1891/1058-1243.22.1.49
- Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, 32(4), 1008-1015. doi: 10.1046/j.1365-2648.2000.t01-1-01567.x
- Hauck, Y., Fisher, C., Byrne, J., & Bayes, S. (2016). Mindfulness-based childbirth education: Incorporating adult and experiential learning with mindfulness-based stress reduction in childbirth education. *The Journal of Perinatal Education*, 25(3), 162-173. doi: 10.1891/1058-1243.25.3.162
- Hejblum, G., Lambotte, O., Galicier, L., Coppo, P., Marzac, C., Aumont, C., & Fardet, L. (2014). A web-based Delphi study for eliciting helpful criteria in the positive diagnosis of hemophagocytic syndrome in adult patients. *PLoS One*, 9(4), 1-6. doi: 10.1371/journal.pone.0094024
- Hollins Martin, C. J., & Robb, Y. (2013). Women's views about the importance of education in preparation for childbirth. *Nurse Education in Practice*, 13, 512-518. doi: 10.1016/j.nepr.2013.02.013
- Humphries, H., & Nolan, M. (2015). Evaluation of a brief intervention to assist health visitors and community practitioners to engage with fathers as part of the healthy child initiative. *Primary Health Care Research and Development*, 16(4), 367-376. doi: 10.1017/s1463423615000031

- Hussaini, S. K., Holley, P., & Ritenour, D. (2011). Reducing low birth weight infancy: Assessing the effectiveness of the Health Start Program in Arizona. *Maternal and Child Health Journal, 15*(2), 225-233. doi: 10.1007/s10995-009-0556-0
- James, D., & Warren-Forward, H. (2015). Research methods for formal consensus development. *Nurse Researcher, 22*(3), 35-43. doi: 10.7748/nr.22.3.35.e1297
- Jenkins, D. A., & Smith, T. E. (1994). Applying Delphi methodology in family therapy research. *Contemporary Family Therapy, 16*(5), 411- 430. doi: 10.1007/BF02197902
- Jongen, C., McCalman, J., Bainbridge, R., & Tsey, K. (2014). Aboriginal and Torres Straight Islander maternal and child health and well-being: A systematic search of programs and services in Australian primary health care settings. *BMC Pregnancy and Childbirth, 14*, 251-271. doi:10.1186/1471-2393-14-251
- Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi technique in nursing and health research*. Oxford, England: Wiley-Blackwell.
- Kluny, R., & Dillard, D. M. (2014). Babies remember: Preserving wholeness with prenatal bonding and self-care. *International Journal of Childbirth Education, 29*(4), 32-38. Retrieved from <http://childbirth287.rssing.com/chan-15619910/latest.php>
- Landy, C. K., Jack, S. M., Wahoush, O., Sheehan, D., & MacMillan, H. L. (2012). Mothers' experiences in the Nurse-Family Partnership program: A qualitative case study. *BMC Nursing, 11*, 15-27. doi: 10.1186/1472-6955-11-15
- Lotrecchiano, G. R., McDonald, P. L., Lyons, L., Long, T., & Zajicek-Farber, M. (2013). Blended learning: Strengths, challenges, and lessons learned in an interprofessional training program. *Maternal and Child Health Journal, 17*(9), 1725-1734. doi: 10.1007/s10995-012-1175-8

Malone, S. (2014). Characteristics of adult learners. *Training and Development*, 41(6), 10-13.

Retrieved from

<http://search.informit.com.au/documentSummary;dn=827295107033026;res=IELBUS>

Martin, J. A., Brady, H. E., Osterman, M. J. K., Driscoll, A. K., & Mathews, M. S. (2017).

Births: Final data for 2015. *National Vital Statistics*, 66(1), 1-70. Retrieved

https://www.cdc.gov/nchs/data/nvsr/nvsr66/nvsr66_01.pdf

Michaud, E. (2012). The potential effects of contemplative practices on the cultivation of

empathic attunement in mothers. *Journal of Prenatal and Perinatal Psychology and*

Health, 27(1), 66-74. Retrieved from [https://birthpsychology.com/journals/volume-](https://birthpsychology.com/journals/volume-27-issue-1/potential-effects-contemplative-practices-cultivation-empathic-attunement)

[27-issue-1/potential-effects-contemplative-practices-cultivation-empathic-attunement](https://birthpsychology.com/journals/volume-27-issue-1/potential-effects-contemplative-practices-cultivation-empathic-attunement)

Mortensen, Ø., Torsheim, T., Melkevik, O., & Thuen, F. (2012). Adding a baby to the

equation: Married and cohabiting women's relationship satisfaction in the transition to

parenthood. *Family Process*, 51(1), 122-139. doi:10.1111/j.1545-5300.2012.01384.x

Nathanielsz, P. W. (1999). *Life in the womb: The origin of health and disease*. Ithaca, NY:

Promethean Press.

National Nursing Research Unit. (2013). *Why health visiting? A review of the literature about*

key health visitor interventions, processes and outcomes for children and families.

King's College, London: London.

Northwest Center for Public Health Practice (NWCPHP). (2014). *Effective adult learning: A*

toolkit for teaching adults. Seattle, WA: Author.

Peckham, H. (2013). Epigenetics: The dogma-defying discovery that genes learn from

experience. *International Journal of Neuropsychotherapy*, 1, 9-20. doi:

10.12744/ijnpt.2013.0009.0020

- Petch, J., Halford, W. K., Creedy, D. K., & Gamble, J. (2012). Couple relationship education at the transition to parenthood: A window of opportunity to reach high-risk couples. *Family Process, 51*(4), 498- 511. doi: 10.1111/j.1545-5300.2012.01420.x
- Plantin, L., Olukoya, A. A., & Ny, P. (2011). Positive health outcomes of fathers' involvement in pregnancy and childbirth paternal support: A scope study literature review. *Fathering, 9*(1), 87-102. doi:10.3149/fth.0901.87
- Quirk, K., Owen, J., Inch, L. J., France, T., & Bergen, C. (2014). The alliance in relationship education programs. *Journal of Marital and Family Therapy, 40*(2), 178-192. doi:10.1111/jmft.12019
- Renzaho, A. M. N., & Oldroyd, J. C. (2014). Closing the gap in maternal and child health: A qualitative study examining health needs of migrant mothers in Dandenong, Victoria, Australia. *Maternal and Child Health Journal, 18*(6), 1391-1402. doi: 10.1007/s10995-013-1378-7
- Robling, M., Bekkers, M. J., Bell, K., Butler, C. C., Cannings-John, R., Channon, S., ... Torgerson, D. (2016). Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (Building Blocks): A pragmatic randomised controlled trial. *The Lancet, 387*(10014), 146-155. doi: 10.1016/S0140-6736(15)00392-X
- Salzmann-Erikson, M., & Eriksson, H. (2013). Fathers sharing about early prenatal support in health care virtual discussions on an internet forum. *Health and Social Care in the Community, 21*(4), 381-390. doi: 10.1111/hsc.12028
- Shonkoff, J. P., & Fisher, P. A. (2013). Rethinking evidence-based practice and two-generation programs to create the future of early childhood policy. *Development and Psychopathology, 25*(402), 1635-1653. doi: 10.1017/S0954579413000813

- Sinclair, M. (2013). Looking through the research lens at challenges facing midwives delivering evidence-informed antenatal education. *Evidence Based Midwifery*, 11(4), 111. Retrieved from <https://www.rcm.org.uk/learning-and-career/learning-and-research/ebm-articles/editorial-looking-through-the-research-lens>
- Taylor, C., Mills, A., Schmied, V., Dahlen, H., Shuiringa, W., & Hudson, M. E. (2012). What works to engage young parents into services? Findings from an appreciative inquiry workshop. *Contemporary Nurse*, 42(2), 258-271. doi: 10.5172/conu.2012.42.2.258
- Tohotoa, J., Maycock, B., Hauck, Y. L., Dhaliwal, S., Howat, P., Burns, S., & Binns, C. W. (2012). Can father inclusive practice reduce paternal postnatal anxiety? A repeated measures cohort study using the hospital anxiety and depression scale. *BMC Pregnancy and Childbirth*, 12(1), 75. doi:10.1186/1471-2393-12-75
- Tremblay, K. A., & Soliday, E. (2012). Effect of planning, wantedness, and attachment on prenatal anxiety. *Journal of Prenatal and Perinatal Psychology and Health*, 27(2), 97-119. Retrieved from <https://birthpsychology.com/journals/effect-planning-wantedness-and-attachment-prenatal-anxiety>
- Trillingsgaard, T., Baucom, K. J. W., Heyman, R. E., & Elklit, A. (2012). Relationship interventions during the transition to parenthood: Issues of timing and efficacy. *Family Relations*, 61(5), 770-783. doi: 10.1111/j.1741-3729.2012.00730.x
- Walsh, T. B., Tolman, R. M., Davis, R. N., Palladino, C. L., Romero, V. C., & Singh, V. (2014). Moving up the “magic moment”: Fathers’ experience of prenatal ultrasound. *Fathering*, 12(1), 18-37. doi: 10.3149/fth.1201.18
- Ward, L., Stebbings, S., Sherman, K. J., Cherkin, D., & Baxter, G. D. (2014). Establishing key components of yoga interventions for musculoskeletal conditions: A Delphi survey. *BMC Complementary and Alternative Medicine*, 14, 196-208. doi: 10.1186/1472-6882-14-196

Warner, L. A. (2014). *Using the Delphi technique to achieve consensus: A tool for guiding extension programs*. Florida, USA: Institute of Food and Agricultural Services.

Young, R. (2013). The importance of bonding. *International Journal of Childbirth Education*, 28(3), 11-16. Retrieved from <http://icea.org/about/icea-journal/>

Zucchi, F. C., Yao, Y., Ward, I. D., Ilnytsky, Y., Olson, D. M., Benzie, K., ... Metz, G. A. S. (2013). Maternal stress induces epigenetic signatures of psychiatric and neurological diseases in the offspring. *PLoS One*, 8(2), e56967-e56976. doi: 10.1371/journal.pone.0056967

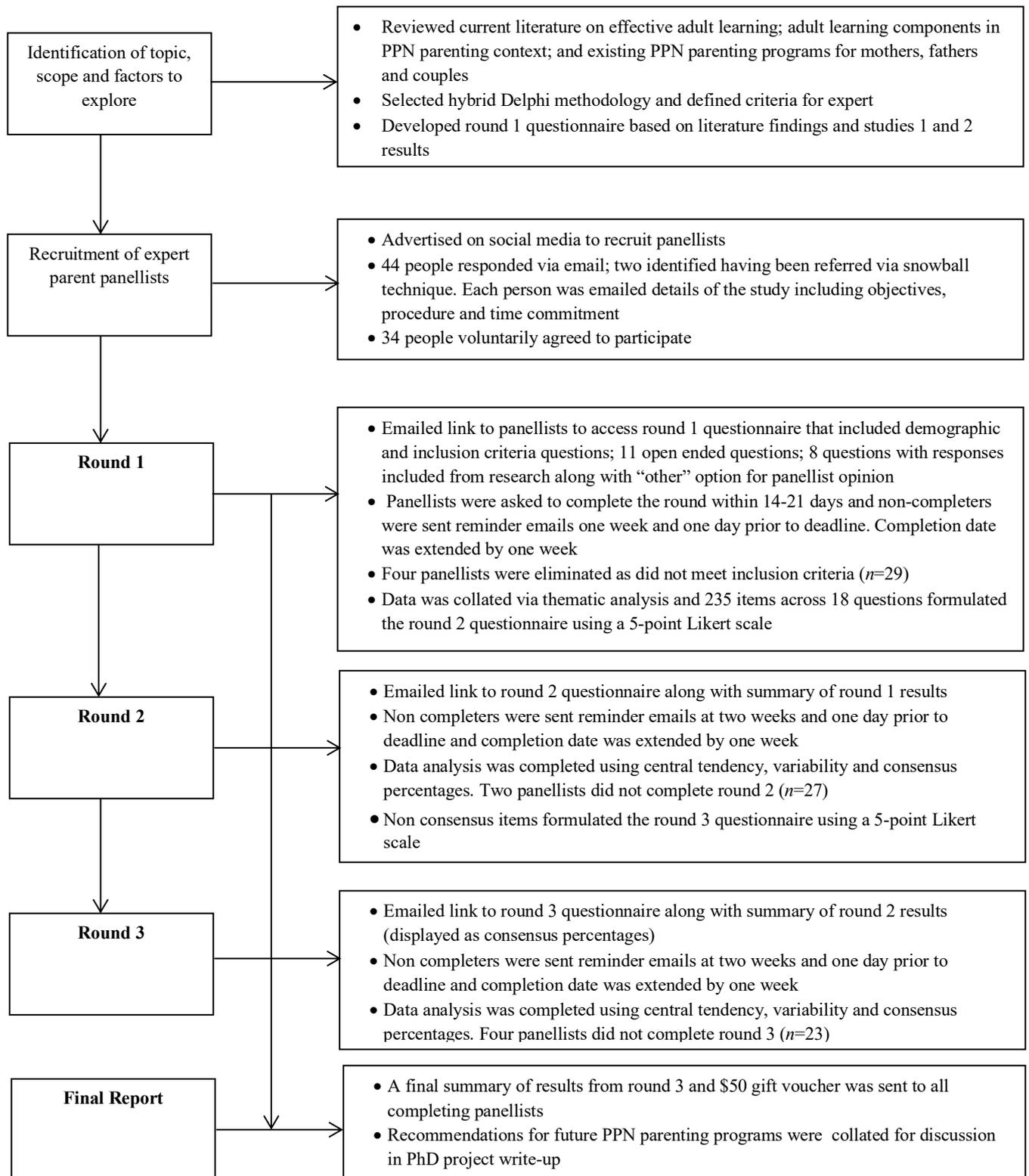


Figure 1. Visual representation of Delphi methodology

Table 1

Questions Asked, Question Type and Items Generated for Expert Parent Panellist Rating in Rounds 2 and 3

Question	Question Type			Items Generated in Round 1 for Consensus Rating Rounds 2/3	
	Likert in round 1 (Y/N)	Open-Ended in round 1 (Y/N)	Check-Box + "Other" in round 1(Y/N)	Literature	Panellist
What factors do you believe may impact on the development of a fetus during gestation, and that may go on to influence who the baby may become post birth?	Y	Y	N	16	11
What content do you think is most useful /appropriate/effective/supportive of your needs as a parent during pregnancy when considering a PPN parenting program?	N	Y	Y	25	25
What content do you think is not useful/appropriate/effective/supportive of your needs as a parent during pregnancy when considering a PPN parenting program?	N	Y	N	0	13
What stage of the pregnancy do you believe is the best/most effective time for a parent to start in a PPN parenting program?	N	Y	N	0	7
What do you believe is the best/most effective time for a PPN parenting program to end?	N	N	Y	4	1
What do you believe is the best/most effective platform for delivery of a PPN parenting program?	N	N	Y	11	4

How do you believe information in a PPN parenting program can most effectively be presented/delivered?	N	N	Y	9	4
Who do you believe should attend a PPN parenting program?	N	N	Y	5	3
Research shows that fathers/partners attend less pregnancy and parenting related sessions/programs than expectant mothers. In your opinion, what factors would contribute to that being true?	N	Y	N	0	17
Which groups of parents do you believe may benefit from having access to a PPN parenting program?	N	N	Y	6	3
What do you believe is the best/most effective length of each session in a PPN parenting program?	N	Y	N	0	7
In your opinion, what is the best/most effective amount of time between each session?	N	Y	N	0	7
What do you believe is the best/most effective overall length of a PPN parenting program in time (e.g., number of weeks or months)?	N	Y	N	0	15
In your opinion who ought to deliver a PPN parenting program?	N	N	Y	9	5
What are the best ways a PPN parenting program and/or facilitator of a program could maintain your level of engagement and involvement as a parent once you have started a program?	N	Y	N	0	28
What other considerations (if any) do you believe are important for a PPN parenting program to be effective?	N	Y	N	0	0

Table 2

Demographic Characteristics of Expert Parent Panellists

Variable	n	%	M (years)	SD (years)	Range (years)
Age	29		41.83	6.85	33-57
Gender	29				
Female	17	58.6			
Male	12	41.4			
Country live in	29				
USA	4	13.8			
Australia	25	86.2			
Marital status	29				
Living with partner	4	13.8			
Married	21	72.4			
Divorced	3	10.3			
Separated	1	3.4			
Education level	29				
High school	1	3.4			
Tech/vocational college	6	20.7			
Diploma	3	10.3			
Bachelor's degree	12	41.4			
Master's degree	7	24.1			
Number of children	29				
1	12	41.4			
2	13	44.8			
3	2	6.9			
4+	2	6.9			
**Type of prenatal class attended	33				
Homebirth prep	2	6.06			
Preparation for delivery	4	12.12			
Hospital mandated prenatal	9	27.27			
Hypnobirthing	1	3.03			
Yoga baby	1	3.03			
Breastfeeding	2	6.06			
Breathing	2	6.06			
Natural birth	1	3.03			
Prenatal (non-mandated)	10	30.30			
Unsure	1	3.03			
**Year attended classes	35				1986-2016
1986-1989	1	2.85			
1990-1994	1	2.85			

1995-1999	2	5.71
2000-2004	6	17.14
2005-2009	10	28.57
2010-2014	10	28.57
2015-2016	5	14.29
**Time period class was run	36	
One session (2hrs)	4	11.11
One session (half day)	2	5.56
One session (full day)	1	2.78
Two sessions (consecutive days)	2	5.56
Two weeks	1	2.78
Three weeks	1	2.78
Four weeks	6	16.67
Five weeks	2	2.78
Six weeks	8	22.22
Eight weeks	2	5.56
12 weeks	5	13.89
Informal timeline	2	2.78
**Stage of pregnancy started classes	32	
Trimester one	2	6.25
Trimester two	18	56.25
Trimester three	11	34.38
Unsure	1	3.13
**Number of sessions	34	
1	3	8.82
2	1	2.94
3	2	5.88
4	5	14.71
5	5	14.71
6	7	20.59
8	2	5.88
12	2	5.88
Full day	1	2.94
Two full days	1	2.94
Informal (as needed support)	2	5.88
Unsure	3	8.82
**Both parents attended classes	31	
Yes to all classes	27	87.10
Yes to two classes	2	6.45
No	2	6.45
**Location of course	31	
Home	4	12.90
Hospital where birthed	18	58.06
Community hall	3	9.68

Yoga baby studio	1	3.23
Facilitator's premises	4	12.90
Unsure	1	3.23
**Facilitator	34	
Midwife	20	58.82
Doula	2	5.88
Nurse	4	8.82
Paediatrician	1	2.94
Trained hypnobirth facilitator	1	2.94
Childbirth educator & yoga	3	8.82
Lactation consultant	2	5.88
Infant first aid instructor	1	2.94
Unsure	1	2.94

** panellists were given the option to identify datum for >1 pregnancy if applicable.

Table 3

Examples of Items by Question that Attained Consensus across Rounds 1 to 3 and were Converted to Recommendations for Inclusion in Future PPN Parenting Programs

Question and Items	M	Mdn	SD	Consensus (%)
<i>Factors that may impact the development of a fetus during gestation that may go on to influence who the baby may become post birth</i>				
Maternal diet **	1.28	1.00	0.46	100
Substances (e.g., alcohol, nicotine, pesticides) **	1.38	1.00	1.05	93.1
Mother-fetus relationship in the womb (e.g., degree of being wanted, interaction between mom and fetus throughout the pregnancy) **	1.24	1.00	0.58	93.1
Father-fetus relationship in the womb (e.g., degree of being wanted, interaction between dad and fetus throughout the pregnancy) **	1.66	1.00	0.86	82.8
Life stress experienced by mom and dad at time of conception and during the pregnancy **	1.28	1.00	0.45	100
Maternal stress, anxiety and/or depression **	1.21	1.00	0.41	100
Paternal stress, anxiety and/or depression **	1.69	2.00	0.71	86.2
Mother's and father's perceptions (thoughts, attitudes, feelings, beliefs; both positive or negative) of each other, events and environment experienced during pregnancy **	1.52	1.00	0.57	96.6

Quality of relationship between the mother and father at time of conception and during the pregnancy **	1.59	1.00	0.83	86.2
Sounds (e.g., voices, laughter, singing, talking directly to the fetus, raised voices)	1.68	2.00	0.82	96.3
Social support available to the mother (e.g., partner, family, friends etc.)	1.75	1.50	0.97	81.5
Mother being empowered through the pregnancy and birth (e.g., by partner, self, birth professionals)	1.86	2.00	0.93	81.5
Mother's level of self-confidence to parent	1.82	2.00	0.82	81.5
Parental leave options and conditions (impacting thoughts on level of "hands on" time a parent will be practically available for baby post birth)	1.82	2.00	0.86	77.8
<i>Content perceived to be most useful/appropriate/effective/supportive of needs as a parent when considering a PPN parenting program</i>				
Healthy and adaptive coping skills for the changes parenthood brings **	1.46	1.00	0.84	96.3
How to ask for the birth you want in a hospital setting **	1.86	2.00	0.89	81.5
General bonding and attachment skills **	1.68	2.00	0.86	92.6
Ways the father can bond with baby during pregnancy and post birth **	1.68	2.00	0.86	92.6
Skills for couple connection, communication, and working together **	1.64	1.00	0.95	85.2

Social support training and how to ask for support **	1.86	2.00	1.04	77.8
Ways a baby's growth and persona is influenced during pregnancy **	1.82	2.00	0.91	81.5
Pregnancy health **	1.61	1.00	0.88	96.3
Preparation for labor and childbirth **	1.61	1.00	0.88	92.6
Breastfeeding **	1.61	1.00	0.92	88.9
Skills for building secure attachment between the couple **	1.86	2.00	0.93	81.5
Mindfulness skills for pregnancy, labor, birth and post birth **	1.68	2.00	0.72	92.6
Intentional communication with baby during pregnancy **	1.79	1.50	0.99	77.8
Strengthening the couple relationship for the transition to parenthood **	1.61	1.00	0.92	88.9
Ways to include dad/partner from conception onwards **	1.64	1.00	0.83	85.2
Self-care **	1.68	1.50	0.91	88.9
Stress management skills	1.61	1.00	0.88	92.6
How parent's thoughts and emotions impact the fetus	1.64	1.50	0.87	92.6
Local support services	1.82	2.00	0.86	88.9
Medical facts and positive assurance that a positive birth experience is possible	1.86	2.00	0.93	77.8
Lifestyle impacts of parents on the fetus	1.61	1.00	0.99	88.9
Content that focuses on the daily reality of pregnancy and				

parenting post birth	1.68	2.00	0.86	92.6
Breathing techniques for birth	1.64	1.00	0.91	88.9
Tips on how to be a good enough parent for the first six months post birth	1.68	1.50	0.92	88.9
Signs of postnatal depression	1.46	1.00	0.84	96.3
Reality of an emergency caesarean section (e.g., emotions, recovery, bonding with baby at birth, unmet birth plan expectations)	1.75	2.00	0.93	92.6
How to process emotion and trauma of any previous pregnancy losses	1.82	2.00	0.98	88.9
<i>Content not perceived to be most useful/appropriate/effective/supportive of needs as a parent when considering a PPN parenting program</i>				
Any content that disempowers mother and baby's ability to birth	1.91	1.00	1.24	78.3
Any content delivered with judgement and personal bias by the facilitator	1.91	1.00	1.24	78.3
Any content that is delivered in a way that is condescending	1.87	1.00	1.22	78.3
<i>The best ways a PPN parenting program and/or facilitator of a program could maintain level of engagement and involvement for parents once they have started a program</i>				
Individualised and personalised to focus on needs of each couple	1.79	2.00	0.63	88.9

Content that focuses on health and wellbeing of baby	1.50	1.50	0.51	100
Interactive with other couples (e.g., role plays, conceptual development through discussion)	2.17	2.00	0.65	78.3
Make sessions fun, interesting and entertaining	1.29	1.00	0.46	100
Ensure skills taught can be easily used in daily life	1.21	1.00	0.42	100
Facilitator to provide feedback from skill practice so I can learn and grow	1.79	2.00	0.83	81.5
Sessions to be experiential and interactive with discussions	1.61	1.00	0.79	88.9
Opportunities to learn by doing with activities, props, live demos and tasks (e.g., nappies/diapers, dolls)	1.36	1.00	0.62	92.6
Content delivered without judgement	1.25	1.00	0.44	100
Discuss fears and hopes of parents	1.39	1.00	0.50	100
Share “real life” stories (e.g., video, guest parent speakers)	1.61	2.00	0.57	96.3
Give practice and reflective activities to do at home between sessions	1.93	2.00	0.77	81.5
Keep content relevant, simple, accurate and practical	1.21	1.00	0.42	100
Facilitator to be engaging, enthusiastic, confident, interested in content	1.21	1.00	0.42	100
Facilitator to be emotionally connected	1.43	1.00	0.57	96.3

Focus sessions on both parents and on how to work as a team/partnership	1.29	1.00	0.46	100
To be treated as adults by the facilitator	1.32	1.00	0.48	100
<i>Factors that may contribute to father/partner attending less pregnancy and parenting related sessions/programs than expectant mothers</i>				
Work schedule	1.89	2.00	1.03	85.2
General lack of understanding of the importance of the role of the father in child care	1.89	2.00	1.03	77.8
Perception that pregnancy and birthing is mom's role	2.26	2.00	0.92	78.3
<i>Groups of parents who may benefit from having access to a PPN parenting program</i>				
First time parents **	1.04	1.00	0.19	100
Pregnant teens **	1.07	1.00	0.26	100
Single parents **	1.36	1.00	0.62	92.6
Same-sex couples **	1.61	1.00	0.74	85.2
Any expectant parent who wants to attend	1.21	1.00	0.42	100
Parents wanting to have a home birth	1.32	1.00	0.67	96.3
<i>Who should attend a PPN parenting program</i>				
Both mom and dad/partner **	1.14	1.00	0.36	100
Both mom and dad/partner with some sessions for dad/partner only **	2.09	2.00	0.85	78.3

Stage of the pregnancy that may be the best/most effective time for a parent to start in a PPN parenting program

When the parent/s are ready	2.04	2.00	0.98	78.3
-----------------------------	------	------	------	------

How information in a PPN parenting program can most effectively be presented/delivered

A combination of standardized core modules along with the ability to select other modules that apply to your unique circumstances **	1.50	1.50	0.51	100
--	------	------	------	-----

Multimedia environment (e.g., mix of lecture, video, group discussion, activities, self-reading, printed resources, take home tasks) **	1.61	1.00	0.79	88.9
---	------	------	------	------

Incorporate mingle time with refreshments where couples can get to know each other as part of the program	1.82	2.00	0.86	88.9
---	------	------	------	------

Up-to-date resources available online	1.43	1.00	0.57	96.3
---------------------------------------	------	------	------	------

Facilitator to ask for feedback and incorporate changes based on it	1.50	1.00	0.64	92.6
---	------	------	------	------

The best/most effective platform for delivery of a PPN parenting program

In person group sessions in a hospital setting **	2.17	2.00	1.15	78.3
---	------	------	------	------

Who ought to deliver a PPN parenting program

Midwife **	1.64	2.00	0.62	92.6
------------	------	------	------	------

Childbirth Educator **	1.71	2.00	0.81	96.3
------------------------	------	------	------	------

Nurse **	1.86	2.00	0.80	81.5
Collaboration between a range of qualified pregnancy and birth specialists	1.36	1.00	0.49	100
Anyone who understands the father's role in pregnancy and who can deliver material in a non-condescending way	1.79	2.00	0.80	77.8
Anyone who is qualified and is caring, competent, non-judgmental and confident	1.54	1.00	0.58	96.3
Anyone who is qualified and engaging, approachable and knowledgeable	1.57	1.00	0.74	92.6
Academic researchers **	4.17	4.00	0.65	86.9
				(Disagree)

** Item originated from the literature

Table 4

Examples of Items by Question that Did Not Attain Consensus across Rounds 1 to 3

Question/Items	M	Mdn	SD	Consensus (%)
<i>Factors that may impact the development of a fetus during gestation that may go on to influence who the baby may become post birth</i>				
Age of mother **	2.22	2.00	0.99	73.9
Reincarnation/past lives (baby brings who s/he is into this lifetime)	3.26	3.00	1.25	43.5 (Disagree)
<i>Content perceived to be most useful/appropriate/effective/supportive of needs as a parent when considering a PPN parenting program</i>				
How to influence gene expression of the baby in-utero **	2.83	3.00	1.11	47.8
Being aware of generational parenting patterns **	2.48	2.00	0.99	60.9
Role identity through the transition to parenthood **	2.17	2.00	0.83	73.9
Content pitched to match cultural and religious backgrounds of parents	2.43	2.00	1.08	60.9
<i>Content perceived to not be useful/appropriate/effective/supportive of needs as a parent when considering a PPN parenting program</i>				
Focus on birth being a medical procedure	2.39	2.00	1.41	65.2

Birth videos of painful labors	2.04	2.00	1.22	73.9
Content that is not contextualised for the father too	2.52	2.00	1.24	56.5
<i>The best ways a PPN pregnancy education program and/or facilitator of a program could maintain level of engagement and involvement for parents once they have started a program</i>				
Facilitator to follow up between sessions	2.39	2.00	0.78	60.9
<i>Factors that may contribute to fathers/partners attending less pregnancy and parenting related sessions/programs than expectant mothers</i>				
Focus of the programs on delivery of baby	2.87	2.00	1.06	56.5
Fear (e.g., of the unknown, having to discuss feelings, of becoming overwhelmed, of being judged by other men, of being uncomfortable)	2.61	2.00	1.03	60.9
Societal and cultural biases/stereotypes that pregnancy and parenting is the woman's role	2.39	2.00	0.94	73.9
Perceived general lack of interest	3.43	4.00	1.08	56.5 (Disagree)
Fathers do not directly feel the pregnancy, leading to less connection with role				

of being a father	3.00	3.00	1.13	47.8
Poor paternal leave policies placing less importance on fathers	2.35	2.00	1.15	65.2
<i>Groups of parents who may benefit from having access to a PPN parenting program</i>				
Existing parents who are pregnant again	2.30	2.00	0.88	60.9
<i>Who should attend a PPN parenting program</i>				
Both mom and dad/partner with some sessions for mom only **	2.43	2.00	0.84	60.9
<i>Stage of the pregnancy that may be the best/most effective time for a parent to start in a PPN parenting program</i>				
Preconception	3.13	3.00	1.06	39.1 (Disagree)
Trimester one	2.39	2.00	0.78	60.9
<i>The best/most effective time for a PPN parenting program to end</i>				
Within three months post birth **	2.91	3.00	1.08	39.1
Ongoing on an as needs basis	2.22	2.00	1.09	56.5
<i>How information in a PPN parenting program can most effectively be presented/delivered</i>				
Lecture style **	3.35	4.00	1.15	52.2 (Disagree)

Manual/workbook **	3.35	3.00	1.03	47.8 (Disagree)
<i>The best/most effective platform for delivery of a PPN parenting program</i>				
In person group sessions in a training room environment **	2.43	2.00	1.08	69.6
Self-guided learning from home **	2.83	2.00	1.03	56.5
Live webinar sessions that are interactive **	2.48	2.00	1.24	69.6
Sessions delivered via home visits **	2.52	2.00	1.08	60.9
Sessions delivered in the workplace **	3.83	4.00	0.98	69.6 (Disagree)
Sessions delivered via phone, Skype, Zoom (or other similar platforms) **	2.74	2.00	1.14	56.5
<i>Who ought to deliver a PPN parenting program</i>				
OB/GYN **	2.61	2.00	1.31	65.2
Doula **	2.43	2.00	1.08	69.6
Psychologist, social worker, therapist, counsellor, coach **	2.87	3.00	1.14	39.1
Parents **	2.87	3.00	1.06	43.5
Elders from the community **	3.09	3.00	0.99	39.1 (Disagree)
Male midwives/nurses to deliver father only sessions	2.87	3.00	0.82	39.1
<i>The best/most effective length of each session in a PPN parenting program</i>				

One hour	3.00	3.00	1.13	43.5
Two hours	2.26	2.00	1.18	60.9
Full day	3.22	3.00	1.17	39.1 (Disagree)
<i>The best/most effective amount of time between each session</i>				
One week	2.35	2.00	1.11	69.6
Two weeks	2.13	2.00	1.06	73.9
One month	3.22	4.00	1.35	52.2 (Disagree)
<i>The best/most effective overall length of a PPN parenting program in time (e.g., number of weeks or months)</i>				
One weekend	3.70	4.00	1.02	65.2 (Disagree)
From two months preconception until 10 weeks post birth	3.04	3.00	1.19	34.8
From conception until post birth	3.00	3.00	1.17	43.5 (Disagree)
From trimester one until birth	3.00	3.00	1.13	39.1 (Disagree)
From trimester one until 12 months post birth	3.00	3.00	1.04	34.8 (Disagree)
No set time—needs based of the parents	2.70	3.00	1.15	43.5

** Item originated from the literature