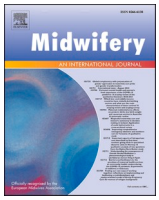
Midwifery 136 (2024) 104055

Contents lists available at ScienceDirect

Midwifery

journal homepage: www.elsevier.com/locate/midw



Novel grouping of planned coping strategies for managing the intensity of labour: A survey study of Australian nulliparous women

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ARTICLE INFO

Keywords:
Pregnancy
Labour
Childbirth
Coping
Pain
Strategies

ABSTRACT

Background: It is common for women to explore and plan strategies to cope during labour. These strategies are usually focused on pain control and described as either pharmacological or non-pharmacological. As labour is an individual experience, each woman should be enabled to choose strategies that best suit them, and that reflect what they feel influences their sense of capacity to cope.
Aim: By exploring women's intentions and choices of strategies, this study aimed to understand how coping strategies can better reflect women's individual needs and expectations.
Methods: Fifty-six primiparous women were recruited from one tertiary hospital in Melbourne, Australia between February and May 2021. Data were collected via a survey in late pregnancy using open-ended questions. Content and thematic analyses were used to analyse responses.
Results: Themes related to how women frame the intensity of labour, how they strive for a relationally safe environment and a need to be prepared and knowledgeable. Strategies chosen by women could be grouped into two categories: intrinsic and extrinsic. Intrinsic strategies could be self-generated by women (such as breathing techniques and movement), while extrinsic strategies required either equipment (such as a bath) or others to administer (such as epidural analgesia).
Conclusions: Women value having a range of intrinsic and extrinsic strategies that enable autonomy or require external support. This moves beyond the 'pharmacological and non-pharmacological' categorisation of strategies, and we propose that reframing strategies as intrinsic and extrinsic could have a number of benefits on women's sense of autonomy and utilisation of strategies. The findings provide a foundation for more targeted research into how women can be supported to individualise and implement these coping strategies in labour.

Introduction

Problem or issue: Strategies nulliparous women plan for coping in labour remain underexplored. Assumptions of what strategies are important for women are often mismatched to what they need to facilitate positive birth experiences.

What is already known: When caregivers and support people understand what matters to women, and emphasise strategies that promote birthing women's autonomy, they will be equipped to support care approaches that facilitate more positive birth experiences.

What this paper adds: This research captures the individual preferences and intentions of women and demonstrates a new way of thinking about coping strategies: Our novel grouping of coping strategies focuses on the woman's autonomy, and values what she brings to labour.

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https://doi.org/10.1016/j.midw.2024.104055
Received 1 November 2023; Received in revised form 16 May 2024; Accepted 7 June 2024
Available online 14 June 2024

The strategies nulliparous women plan to utilise to cope with the intensity of labour remain underexplored (Borrelli et al., 2018; Van der Gucht and Lewis, 2015). Expectations of first-time mothers, and their intended coping strategies, vary, and while some women plan their coping strategies, others choose not to (Borrelli et al., 2018). Childbirth preparation typically reflects what care providers assume is important for women to know, but often this differs from women's perceptions of quality care (Borrelli et al., 2018; Lally et al., 2008). For first-time mothers, this can manifest in uncertainty and discrepancy between women's expectations and actual lived experience (Borrelli et al., 2018; Lally et al., 2008).

The World Health Organization (WHO) promotes a positive childbirth experience for all women and the importance of woman-centred care (World Health Organization 2018). This acknowledges that labour pain is experienced differently by individuals, with varying meaning and with a range of preferences for coping (Whitburn et al., 2017). Other factors, including expectations (Lally et al., 2008), state of mind (Whitburn et al., 2014), care provision, and perceived support (Van der Gucht and Lewis, 2015) are associated with positive childbirth experiences. Access to respectful maternity care in midwifery-led continuity of care models, as well as effective pain management options, are recognised as essential in the care of childbearing women (World Health Organization 2018; Thomson et al., 2019). Women need information on risks and benefits of pain relief strategies to plan effectively (World Health Organization 2018).

Most research investigating women's coping in labour focuses on the efficacy of strategies for pain relief (Chang et al., 2022; Escott et al., 2005), which are usually grouped as pharmacological or non-pharmacological (Thomson et al., 2019; Chang et al., 2022; Tan et al., 2022). This is a convenient way of grouping strategies and reflects traditions of medical involvement in birth, but risks de-emphasising the range of non-pharmacological strategies that can be used throughout the continuum of labour. Evidence supports non-pharmacological strategies for improving pain experience, satisfaction with pain relief, and overall childbirth experience (Jones et al., 2012). As such, women should be enabled to identify a range of preferred coping strategies, especially those that have broader influences than just pain relief.

Therefore, this study aimed to explore women's individual preferences and intentions, including the strategies they planned to adopt to cope with labour pain and their first childbirth experience.

Methods

Design

This descriptive study collected data from women having their first baby. Participants completed a questionnaire in late pregnancy. This paper focuses on two open-ended questions from this questionnaire that sought women's perceptions of their expected ways of coping with labour pain. The questions were: "What strategies do you plan to use to help you cope during labour?" and "What do you believe are important things that will help you cope with pain during labour?". Ethical approval was obtained from Mercy Health and La Trobe University Human Research Ethics Committees (2019–034) and all participants provided consent.

Setting and participants

Women were recruited via notices displayed in the antenatal clinic of a large tertiary maternity hospital in metropolitan Melbourne, Australia, or inserted in information packs given to women at their 28-week gestation hospital appointment. A quick response (QR) code in the notice provided access to an online form describing the study. To be eligible, the women must have been nulliparous with a singleton pregnancy, planning a vaginal birth and able to understand written and spoken English. Women were then contacted to confirm eligibility and provide clarity about the study and their role as participants. Willing participants received a link via email to complete an online consent form and the study questionnaires in Research Electronic Data Capture (REDCap), a secure, web-based platform (Harris et al., 2009).

Data collection

Data collection occurred between February and October 2021. A link to the questionnaire in REDCap was emailed to women in late pregnancy (>30 weeks' gestation), with a follow up reminder email sent to non-responders, two weeks later. Limited maternal characteristics were abstracted from the health records with participants' consent and summarised descriptively as number and percent.

Data analysis

The open-text responses to the question, "What strategies do you plan to use to help you cope during labour?", were explored using content analysis, in which strategies listed by participants were coded, categorised and counted. This allowed for a calculation of how often each strategy was mentioned by women. Content analysis was completed independently by JS and LW, who then consulted with LJ to confirm and agree upon codes and categorisation of strategies.

Inductive thematic analysis (Thomas, 2006) was used to generate patterns in the participants' responses to the question, "What do you believe are important things that will help you cope with pain during labour?". Time was taken to read and become familiar with the open-ended responses, then initial codes were generated independently by JS and LW, using descriptive and focused coding methods (Saldaña, 2016). Discussions and comparisons of codes were held with JS, LW and LJ, which led to a deeper interpretation of codes and generation of themes. NVivo 12 software (NVivo, 2020) was used to manage data analysis. Table 1 provides a qualitative data matrix to illustrate the process leading from the data (participant quotes), to concepts, and then to themes.

Results

All fifty-six participants provided responses to the two open-ended questions focused on coping and coping strategies. Three quarters were born in Australia, with 68 % aged between 25 and 35 years. Over half were enrolled in midwifery-led care (59 %), with the remainder accessing shared care (13 %), public (25 %), or private obstetric care (4 %). Participant characteristics are presented in Table 2.

Planned coping strategies

Women were asked to describe the strategies they planned to use during labour to help them cope. Many women pre-planned multiple strategies that could be uniquely grouped into two broad categories: intrinsic and extrinsic.

Intrinsic strategies were 'self-generated' strategies that women could call upon themselves, without assistance from devices, medication, or other people. Extrinsic strategies were those that required either equipment or assistance from others. Some of the strategies classified as extrinsic were easy to administer but still required an external resource, while others were more complex and required medical intervention and specialist care. All strategies, and the percentage of participants mentioning each one, are presented in Fig. 1. Note that all participants listed more than one strategy.

Intrinsic strategies

Content analysis identified the most common intrinsic strategy planned was breathing techniques (n = 33; 59 %). Movement and "keeping active" (ID24) was planned by 28 participants (50 %). Other common intrinsic strategies included meditation/prayer (n = 13; 23 %)

Table 1
Matrix showing relationship between participant comments, concepts, and themes.

Theme	Concept	Example quote
Framing labour intensity as productive and purposeful	Focusing on the end goal	"I am telling myself every surge brings me closer to my baby."
	Positive mindset	"Positive internal self-talk."
	Trusting body	"I just have to let my body do what it knows how to do and get my mind out of the way."
Creating a relationally safe environment	Support person present	"Relying on my partner and knowing he will be my spokesperson if I can't cope well."
	Having known care providers	"Continuity of care - having people I recognise during the labour."
	Trusting and relying on guidance from care team	"Being in a hospital with staff that are experts in their field and trusting their guidance."
	Feeling informed	"Being informed and supported - midwives talking me through what's happening, managing expectations. Transparency, open communication."
	A calm environment	"Creating a calm environment"
Sense of preparedness and knowing	Having a 'toolkit' of strategies to draw on in labour	"Hypnobirthing techniques. Breathing, a good atmosphere (sound, light and smell) little disturbance/ intervention. Pool/ water. TENS machine."
	Feeling prepared with knowledge of birth physiology	"Knowledge - having a clear understanding of what is happening to my body. I feel that knowing about the process has already helped easy a lot of fear and has made me feel more calm and prepared for what will happen."
	Understanding pain relief options	"Knowing what my analgesia options are and when is the right time for them"

and generating a positive mindset ($n = 14$; 25 %), such as "focusing on the purpose of pain and [the] outcome" (ID17) and using positive internal self-talk. Also planned were hypnobirthing language and strategies ($n = 5$; 9 %), resting and staying relaxed ($n = 4$; 7 %), using vocalisation ($n = 4$; 7 %) and visualisation techniques ($n = 3$; 5 %).

Extrinsic strategies

Extrinsic strategies that required basic equipment included a bath or shower ($n = 27$; 48 %), use of a TENS machine ($n = 21$; 38 %), listening to music ($n = 11$; 20 %), using hot or cold packs ($n = 6$; 11 %), dimming lights to create a calm physical space ($n = 6$; 11 %), displaying affirmation cards ($n = 5$; 9 %), and using aromatherapy ($n = 2$; 4 %),

Other extrinsic strategies included the importance of the social environment, such as having physical contact (touch and massage) from support people ($n = 19$; 34 %), and the presence of a known support person ($n = 17$; 30 %).

The extrinsic strategies that required specific medical assistance or assistance from clinicians included use of pharmacological pain relief, especially epidural analgesia ($n = 14$; 25 %), and use of nitrous oxide and oxygen ($n = 7$; 13 %). Of the 14 women who discussed epidural analgesia, nine were open to using it if needed but preferred to try to manage without it. The remaining five women had a definite plan to use it, with one wanting an "early epidural" (ID25) and stating she was "all for it" when it came to medical pain relief. The use of sterile water injections was also planned by two participants (4 %).

Table 2
Participant characteristics.

	Frequency $N = 56$	Percentage
Maternal region of birth		
Australia, Oceania and Antarctica	42	75 %
Asia	2	3.6 %
Europe	7	12.5 %
Americas	2	3.6 %
Africa	3	5.4 %
Maternal age		
Younger than 25 years	2	3.6 %
25 to 34 years	38	67.9 %
35 years or older	16	28.6 %
Care model		
Shared care	7	12.5 %
Midwives' clinics	7	12.5 %
Team midwifery	15	26.8 %
Midwifery group practice	11	19.6 %
Public Obstetric	14	25 %
Private Obstetric	2	3.6 %
Maternal BMI*		
Underweight (<18.5)	0	0
Normal (18.5 to <25)	33	58.9 %
Overweight (25 to <30)	11	19.6 %
Obese (≥30)	8	14.3 %
Missing data	4	7.1 %
Maternal / pregnancy conditions		
Nil risk / low risk	11	19.6 %
IVF pregnancy	5	10.4 %
Cardiac disease	2	4.2 %
Anaemia/iron deficiency	16	28.6 %
Gestational diabetes	7	12.5 %
Hypertensive disorder of pregnancy	5	8.9 %
Anxiety	11	19.6 %
Depression	4	7.1 %

* Body mass index (weight(kg)/height(m^2)).

Elements that women believed would contribute to coping with pain during labour

Women were asked what they thought were important elements that would help them cope with pain during labour. Three overall themes captured what women valued. The first was *framing labour intensity as productive and purposeful*; the second was *creating a relationally safe environment*; and the third was *a sense of preparedness and knowing* (see Table 1).

Framing labour intensity as productive and purposeful

Framing labour intensity as productive and purposeful involved developing a mindset of self-trust, generating a positive and accepting attitude towards the experience, and focusing on the purpose of labour pain.

Self-trust related to trusting in the capacity of the woman's body to withstand the challenge of labour and childbirth and included recognising these are natural processes. There was also recognition of the fears and emotions that might lead to self-doubt and that overthinking or attempting to control the process were futile.

> *Mindset, staying calm. Understanding that it's a completely natural and normal process. I just have to let my body do what it knows how to do and get my mind out of the way.* (ID56)

Approaching childbirth with a "positive mindset" (ID10) was important to helping women cope. This involved reframing beliefs about

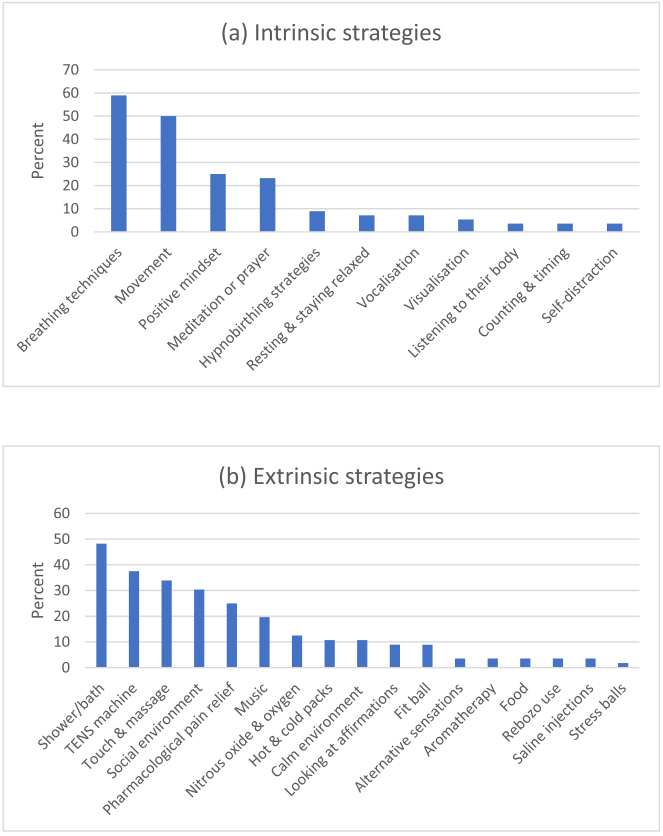

Fig. 1. Coping strategies mentioned by participants, categorised as either (a) intrinsic or (b) extrinsic and presented based on the percent of participants who mentioned each.

pain from something associated with harm and suffering, to associating pain with positive outcomes of birth including progression of labour and the birth of the baby. This was simply described by some as recognising the experience of pain as "a good pain and not a bad pain" (ID36). Importantly, women acknowledged that, even though they expected to be challenged by the experience, they were able to articulate that the pain would be purposeful, finite and they would be supported. The anticipation of sharing the experience amongst other women was also valued by some, while for others the outcome of birthing the baby was the focus, with little value placed on what they were going to experience.

> *Thinking positively, reminder that we are not alone in the experience, excitement of meeting my baby.* (ID11)

Creating a relationally safe environment

Issues of safety were evident in many of the participants' responses. Women identified that feeling psychologically and emotionally safe during labour would help them cope with the challenges of childbirth. Sense of safety was associated with the interactions with those present during the labouring process, implicating a strong relational aspect. Feeling emotionally supported, well informed, and listened to by those around them were highly valued. This relationally safe environment was sometimes created intentionally by the woman's selection of specific support people and models of care, and at other times assumed as part of their expected care.

> *Relying on my partner and knowing he will be my spokesperson if I can't cope well. Trusting that I'm in a safe space, surrounded by experts who can help if things go wrong.* (ID23)

The importance of a relationally safe environment to support women to cope with the experience of labour, emphasises the complex needs of women in this context, extending beyond physical health and safety.

Sense of preparedness and knowing

Birth is an unknown journey for first time mothers. In this study, all except one woman, who planned "nothing in particular" and was planning to "just see how it go goes" (ID7), had researched and actively sought knowledge to prepare for labour. The motivation for this was to ensure that expectations were realistic, to reduce anxiety, and feel better able to cope. This included understanding what pharmacological options were available. Multiple sources of information were sought including books, webinars and podcasts, and consultations with health professionals. Knowledge on all aspects of the birth, including the physiological process and possible complications, as well as being prepared with a 'tool kit' of intrinsic and extrinsic strategies, were important to women in this study, and contributed to reducing concerns about the unknown and increasing confidence to cope with the challenges of labour.

> *Knowledge - having a clear understanding of what is happening to my body. I feel that knowing about the process has already helped ease a lot of fear and has made me feel more calm and prepared for what will happen.* (ID49)

Drawing together the two open-ended questions asked of women in this research, we reach a deeper understanding of women's individual needs in relation to coping in labour. Framing labour intensity as productive and purposeful links with the intrinsic categorisation of coping strategies. Women planned to use mental strategies that focused on the purpose of the experience and develop a positive mindset towards the challenges of labour involving self-trust. Creating a relationally safe environment links with the extrinsic categorisation of coping strategies that included support people, where having known and trusted carers and support people, and creating a calm environment in which to birth, was important to many women. It was important for women to have a sense of preparedness and knowing, to help them cope with the unknown. The coping strategies women identified to manage these uncertainties, involved a variety of strategies, both intrinsic and extrinsic. These findings are presented visually in Fig. 2.

Discussion

Main findings

This study aimed to identify what nulliparous women felt were important elements that would help them cope during labour, and what strategies they planned to use. Despite birth being a common and unifying experience, sense of coping is individual and multifaceted. Our findings describe three critical components that women identified as important to help them cope during labour. First, framing labour intensity as productive and purposeful, which included developing a mindset of self-trust, generating a positive attitude towards the experience, and focusing on the purpose of pain in labour. Second, creating a relationally safe environment, which meant ensuring those present made them feel supported, informed, and heard. And third, having a sense of preparedness and knowing, which included developing a 'toolkit' of strategies to help them cope.

We used a novel grouping for strategies that women planned to use in labour: intrinsic and extrinsic. Intrinsic strategies were those that women could utilise autonomously, without the need for aids or assistance from others. Many intrinsic strategies were mechanisms to help women develop and maintain a positive mindset and mindset of self-trust, to frame labour intensity as productive and purposeful. Extrinsic strategies were those that women could not initiate independently. This included support from other people, contributing to a relationally safe environment and several non-pharmacological and pharmacological pain relief strategies, such as TENS machines and epidural analgesia. All

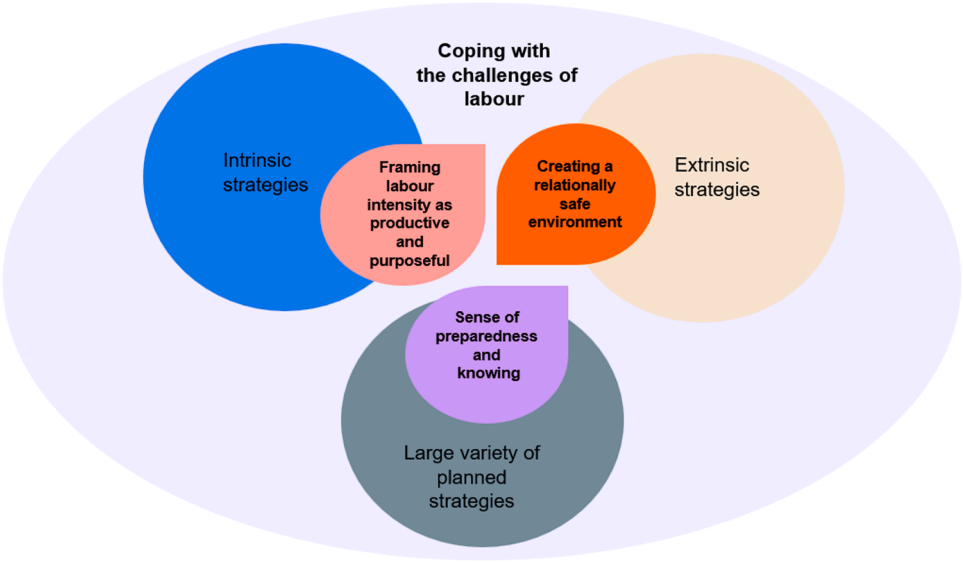

Fig. 2. A visual representation of how the three main themes interact with the reframing of coping strategies as intrinsic and extrinsic. (©2023 This work authored by Shifman, Jones, Davey, East and Whitburn is licensed via CC BY-NC—ND 4.0).

women planned to use a combination of intrinsic and extrinsic strategies, acknowledging that coping in labour would, at various points, involve both self-trust and autonomy, as well as external support.

Interpretation

Our approach of categorising strategies as intrinsic and extrinsic moves beyond the pharmacological and non-pharmacological categorisation. It removes assumptions regarding what individual women may need to help them cope, which may include pain management for some, but for others may include alternative strategies, such as movement, a positive mindset, or support (Thomson et al., 2019). A growing body of literature is now recognising that promoting the natural release and cycle of birthing hormones (Olza et al., 2020; Buckley, 2015) can support women to manage the intensity of labour, which in turn supports the use of intrinsic and extrinsic strategies that minimise disruption and promote a sense of safety (Newnham et al., 2022). When medical interventions are needed or requested, it is important that a woman's sense of control and autonomy are not diminished (World Health Organization 2018; Thomson et al., 2019; McCrea et al., 2000).

A recent systematic review on coping strategies for labour pain (Fumagalli et al., 2022) used a different grouping: cognitive or behavioural. Whilst this is a step in the right direction, grouping strategies this way risks confusion due to the overlap of some techniques as having both behavioural and cognitive effects. For example, breathing techniques may be described as behavioural, but also have cognitive effects on focus and relaxation. The intrinsic and extrinsic approach to categorising resolves this issue, and centres on the more practical feature of whether the strategy can be initiated or performed autonomously, or whether it requires external support to utilise.

Using this novel grouping potentially has implications for how women prepare for labour and how caregivers provide support. It acknowledges that labour is dynamic and women need to draw on different strategies at different times (Whitburn et al., 2014). In practice, strategies can be adopted to help a woman move away from a 'distracted and distraught' state, and access or re-access a 'mindful acceptance' state, a state associated with ability to cope (Whitburn et al., 2014). This emphasises the role of the caregiver in actively supporting women's selection of strategies beyond the 'pain relief menu' approach (Leap and Hunter, 2022), which assumes that labour is linear and suggests that intrinsic strategies are only helpful at the start of labour, rather than valuable throughout labour to help women refocus and return to a state of 'mindful acceptance'. Extrinsic strategies can also be useful at various points, even early in labour to help reengage the more autonomous intrinsic strategies. This supports the importance of women maintaining their sense of control over their labour (McCrea et al., 2000) even if more support from external sources is required at times.

Women in our study identified the value in developing a mindset of self-trust to help cope in labour, aligning with the autonomous strategies that we classified as intrinsic. Framing labour intensity as productive and purposeful contributes to this. A positive attitude to childbirth has been found to positively affect a woman's experience of childbirth pain (Karlsdottir et al., 2018). Women in our study also identified the importance of creating a relationally safe environment, which included known and trusted caregivers and support people, and creating a calm environment in which to birth. These views are also strongly supported in the literature (Borrelli et al., 2018; Whitburn et al., 2019; Klomp et al., 2014). This aligns with midwife-led continuity models of care, which are associated with more positive birth experiences (Sandall et al., 2016; Forster et al., 2016) and reduced medical interventions, including caesarean section rates (McLachlan et al., 2012). The dynamics of these relationships can also influence the implementation of strategies learnt in childbirth education in positive and negative ways (Sutcliffe et al., 2023). Caregivers and support people can foster safety and be in alignment with the woman, helping implement preferred strategies (Sutcliffe et al., 2023; Escott et al., 2009) and create a supportive alliance (Sutcliffe et al., 2023). Alternatively, disruptive encounters with caregivers can make a woman feel her care is being managed by others and reduce her autonomy to effectively apply planned coping strategies (Sutcliffe et al., 2023).

When caregivers and support people understand what matters to women, and emphasise strategies that promote birthing women's autonomy, they are equipped to support care approaches that facilitate more positive birth experiences. The WHO guidelines (World Health Organization, 2018) recognise a key aspect of a positive childbirth experience is one where a woman is in a "psychologically safe environment with continuity of practical and emotional support from a birth companion(s) and kind, technically competent clinical staff" (page 12). Care that considers women's individual wants and needs, further contributes to positive psychological birth outcomes (Byrne et al., 2017).

Our research has captured the individual preferences and intentions of women but also has demonstrated a new way of thinking about coping strategies: One that moves away from a choice between a pharmacological approach, or not, and where the decision-making centres on the

need for medical assistance and an assumption that pain relief is the priority. Instead, we propose, the grouping of coping strategies into intrinsic or extrinsic, which better promotes the woman's autonomy and what she brings to labour.

Clinical implications

Our major clinical implication is that framing coping strategies as intrinsic and extrinsic, instead of pharmacological and non-pharmacological, disrupts the assumptions that coping is directly related to pain relief and that pharmacology is the priority for helping women cope. The intention is not to reject or stigmatise the use of pharmacological options but to present them as one component of a suite of extrinsic options available. Our conceptualisation recognises the range of extrinsic strategies that may help to recenter a woman's focus and enable her to re-engage with the intrinsic coping strategies as her labour progresses. Further, this relabelling challenges the idea of the pain relief menu (i.e., coping strategies move from least interventionalist to most sophisticated in terms of interventions) and presents women with an empowering way of thinking about employing coping strategies by using categorisation that is framed by autonomy and personal choice, rather than medical intervention.

Strengths and limitations

This study extends the literature on coping in labour from the woman's perspective, which is not adequately reported in existing literature. Understanding women's views on factors that help them cope in labour, and their individual preferences and intentions in terms of coping strategies, will provide a foundation for targeted research into how best to address women's individual needs.

Our findings are not intended to be representative of all women giving birth. Although the sample was diverse in terms of country of birth, model of maternity care and levels of pregnancy risk, level of education of participants could influence how active they were in seeking information on labour and birth. Further work should aim to include women across education levels, birthing in other types of maternity services and from regional and rural communities, where support and access to information during pregnancy may be less available. Additional research with larger numbers of participants could also allow for sub-analyses to explore potential differences in preferred coping strategies between women of different ages, backgrounds and obstetric risk levels.

Conclusion

Our research has aimed to improve our understanding of what nulliparous women identify as important to help them cope with labour, and what specific strategies they plan to utilise. We have proposed a new approach to categorising coping strategies, grouping as either intrinsic or extrinsic. This enhancement acknowledges the dynamic nature of labour, and centres on women's autonomy and sense of control, beyond what is possible with the common grouping based on the pharmacological nature of a strategy. We propose that by considering coping strategies as either intrinsic or extrinsic, caregivers will better assist women to choose timely and effective interventions to support labour. Future research needs to explore the ways strategies from each grouping can be coordinated for the best outcome for women and their babies.

CRediT authorship contribution statement

Janine Shifman: Formal analysis, Writing – original draft, Writing – review & editing. **Lester E. Jones:** Conceptualization, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Mary-Ann Davey:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Christine E. East:** Conceptualization, Funding acquisition, Methodology, Project administration, Writing – original draft, Writing – review & editing. **Laura Y. Whitburn:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The authors would like to thank participating women for dedicating time to share their thoughts and experiences for this project.

Ethics approval

Ethics approval was obtained from the Human Research Ethics Committee of the health service where recruitment took place, and through La Trobe University (2019–034).

Funding

This research received funding from the Mercy Health Academic Research and Development Committee, as well as La Trobe University.

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