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# Women's experiences of changes to childbirth and parenting education in Australia during the COVID-19 pandemic: The birth in the time of COVID-19 (BITTOC) study

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ABSTRACT

*Objective:* As changes to Childbirth and Parenting Education (CBPE) classes during the COVID-19 pandemic remain unexplored in Australia, our objective was to understand how changes to CBPE in Australia during the COVID-19 pandemic impacted on women's birth and postnatal experiences.
*Methods:* Survey responses were received from 3172 women (1343 pregnant and 1829 postnatal) for the 'Birth In The Time Of Covid-19 (BITTOC)' survey (August 2020 to February 2021) in Australia. One of the survey questions asked women if they had experienced changes to CBPE class schedules or format during the pandemic, with a follow up open ended text box inviting women to comment on the impact of these changes. The majority of women experienced changes to CBPE, with only 9 % stating they experienced no changes to classes. A content analysis was undertaken on the 929 open text responses discussing the impact these changes had on women's experience of pregnancy, birth and postpartum.
*Results:* 929 women (29 %) made 1131 comments regarding changes to CBPE classes during the pandemic. The main finding *'I felt so unprepared'*, highlights how women perceived the cessation or alteration of classes impacted their birth preparation, with many reporting an increased sense of isolation. Some women reported feeling 'It was good enough' with adequate provision of online classes, and others feeling 'I was let down by the system' due to communication and technological barriers.
*Conclusions:* Results highlight the importance of ensuring continued provision of hybrid/online childbirth education models to enable versatility during times of crisis. Gaps in service provision, communication and resources for childbirth and parenting education need addressing.

## Introduction

Childbirth and early parenting education (CBPE) is considered a cornerstone of modern maternity care and is widely adopted in many nations [1]. Health education as part of antenatal care was first introduced in Europe in the early 20th century with the aim of improving maternal and neonatal outcomes for underserved women [2]. CBPE became popularised by Lamaze in the 1950s and 1960s in the USA and UK in response to women's need for support and advocacy in hospital-based births [3–5]. Independent CBPE programs were developed to educate and support women in normal physiological birth using relaxation techniques and mental preparation, known as psychoprophylaxis [6]. This education was in response to rising rates of adverse events associated with pharmacological and medical management of women in hospitals [5]. CBPE is now part of routine care in many high income countries [1,7–8], and according to international guidelines, is considered to be an essential component of maternity care [9–10]. CBPE has adapted and changed in response to social, geographical and economic needs worldwide [4–5].

In Australia, CBPE is well embedded into most health services as a comprehensive public health intervention. Australian guidelines suggest that the purpose of CBPE includes: 1. Providing essential health promotion information, such as smoking and alcohol cessation; 2. Providing social support, by connecting young families in the community; and 3.

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Preparing women and partners for childbirth, including preparation for physiological birth [9,11]. Evidence suggests that the majority of women access information about labour management and pain relief options, as well as common procedures and interventions which enables informed decision making, via CBPE classes [12–13]. However, as has occurred internationally, sources of information are becoming increasingly diverse with independent and online courses becoming widespread [14], and programs remain diverse in content, implementation and outcomes [1,15–16].

During the COVID-19 pandemic, most face-to-face CBPE classes, either in the hospital, community or private setting, were cancelled [17–18]. The widespread closure of services and programs was unprecedented and the impact it had on women and partners preparing for childbirth and early parenting is unknown. CBPE educators and hospital management responded to the need for ongoing CBPE via written, electronic and online forums in a variety of ways, and this depended largely on hospital level resources, as well as skills and capacity to establish alternative ways to deliver CBPE. Transition of programs to an online platform within a very short timeframe, and the accompanying administrative and technology management, required vast amounts of time and skill development. This may have had particular implications for women with low resources, a disability, or where English was not their first language. Women unable to seek out or access external independent CBPE providers during the pandemic may have been further impacted.

There is a gap in knowledge regarding changes that occurred to CBPE provision, and the impact this had on women and their families in pregnancy, childbirth and the postpartum period. This includes the impact of online delivery itself and the time taken to transition to the online forum during Covid-19, or where no online transition occurred. Therefore, this survey study, as part of the wider BITTOC Study [19], aimed to explore survey responses about changes to CBPE during the COVID-19 pandemic in Australia, with the objective of understanding how these changes to CBPE in Australia during the COVID-19 pandemic impacted on women's birth and postnatal experiences.

## Methods

### *Study design*

The BITTOC study is a prospective longitudinal cohort study with a national survey launched in August 2020 exploring the impact of the COVID-19 pandemic on the experiences, birth outcomes and mental health of Australian women who were pregnant or had given birth after March 20th, 2020, until February 2021 (first and second wave of the pandemic). This was when international borders were closed in Australia and restrictions were implemented. The survey was developed by an international team of researchers (Australian and Canadian), with expertise in disaster research. Following extensive consultation with women regarding the development of questions, the survey was created in Qualtrics® and then piloted. Changes were made in an iterative process where clarity was needed. The survey was distributed widely around Australia on multiple parenting websites, through social media, and through several Facebook advertisements.

Women were eligible to participate if they had been pregnant or given birth during the Covid-19 pandemic, were able to read English and were over 18 years of age. Women who were first time mothers or had given birth before were included in the study.

## Ethics approval

The study was approved by the Western Sydney University Ethics Committee (H13825). A participation information sheet was provided on the survey landing page and participants gave implied consent by answering yes to consenting to complete the survey. Helpline information was given at the beginning and end of the survey.

## Descriptive statistics

This study used a qualitative content analysis, with descriptive statistics of demographic and relevant data. Both qualitative and quantitative (count) data are presented in accordance with content analysis [20–21]. The demographic details of the participants who completed the BITTOC national survey in 2020 included age, parity, education level, family income, household composition, and race/ethnicity (see Table 1). Descriptive statistics were used to analyse the responses to the question: "*Have you experienced a change in pregnancy and parenting education classes as a result of the COVID-19 pandemic*?" The question included five options, where participants could choose multiple answers, or select none of the options: [my classes were cancelled completely; my classes changed to online/virtual classes; my class was replaced by reading material only; I went online to get prenatal education and information; I experienced no changes to classes]. The count of the responses is displayed in a histogram for each option, however because an individual respondent could have selected more than one response to this question, or could have made no responses, the total number of responses is not 100 % of 3172 participants (total number of responses is 2685). (See Fig. 1). SPSS version 29 and Excel spreadsheets were used for descriptive analysis.

**Table 1**
Sociodemographic factors.

| Sociodemographic factors | N = 3172 | % |
|---|---|---|
| Parity | | |
| Primiparous | 1339 | 42.2 |
| Multiparous | 1827 | 57.6 |
| Invalid | 6 | 0.2 |
| State/Territory in Australia | | |
| NSW | 1193 | 37.6 |
| Victoria | 982 | 31.0 |
| Queensland | 496 | 15.6 |
| Western Australia | 182 | 5.7 |
| South Australia | 159 | 5.0 |
| Australian Capital Territory | 65 | 2.1 |
| Tasmania | 66 | 2.1 |
| Northern Territory | 28 | 0.9 |
| No answer | 1 | 0.03 |
| Maternal age | | |
| <35 years old | 2365 | 74.6 |
| >=35 years old | 807 | 25.4 |
| Income | | |
| <$100,000 | 949 | 29.9 |
| >$100,000 | 2041 | 64.3 |
| Prefer not to answer | 182 | 5.7 |
| Education level | | |
| University education | 2105 | 66.4 |
| No university education | 1067 | 33.6 |
| Relationship status | | |
| Partnered | 3082 | 97.2 |
| Non-partnered | 90 | 2.8 |
| Maternal country of birth | | |
| Australia | 2681 | 84.5 |
| Other | 491 | 15.5 |
| Aboriginal or Torres Strait Islander | | |
| No | 3106 | 97.9 |
| Yes | 48 | 1.5 |
| No answer | 4 | 0.1 |
| Prefer not to say | 14 | 0.4 |

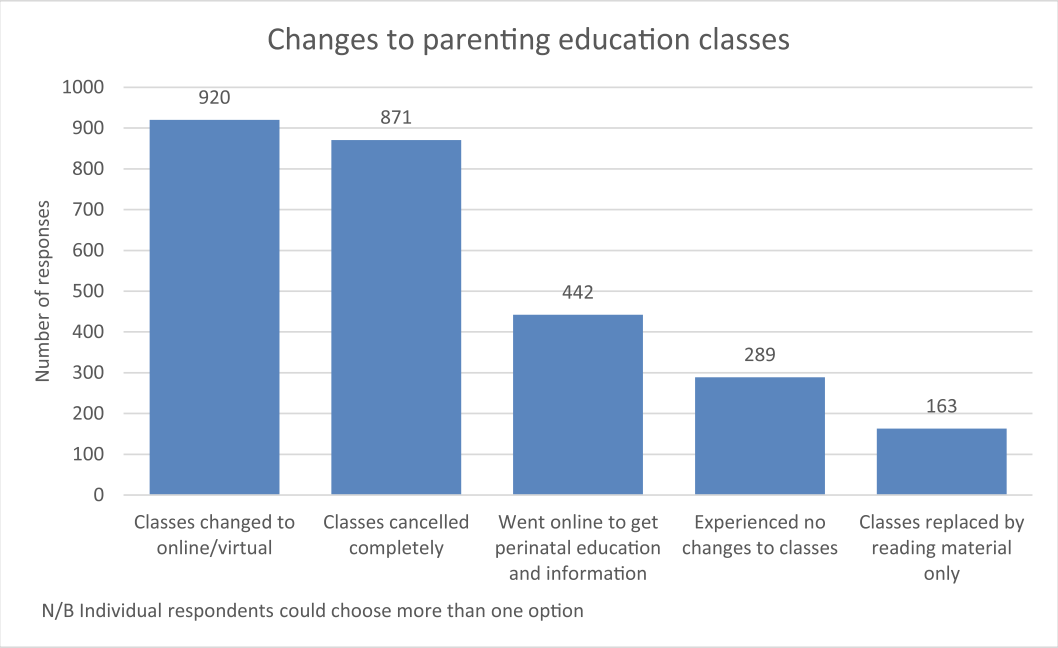


**Fig. 1. Histogram of responses to changes in pregnancy and parenting education classes as a result of the COVID-19 pandemic.** * An individual respondent could have selected more than one response to this question, or could have selected none of these five categories, therefore total number of responses is not 100 % of 3172 participants (total number of responses is 2,685).

## Content analysis

A qualitative content analysis was then undertaken to analyse data from the open-text question: *"Do you have any comments about the change in pregnancy and parenting education classes?"* The qualitative data were analysed using an inductive qualitative content analysis as described by Elo and colleagues [20–21]. The data from each woman's open text response was downloaded from Qualtrics and the data was read several times by the first author (KL) as a first phase, to make sense of the content and identify the prominent codes and patterns. In the second phase, data were uploaded to NVIVO and further coded and re-ordered. A code book was created in Excel. During the analysis, the researchers (KL and KS) moved back and forth between the text and the codes in an iterative process in order to explore the relationships using an inductive approach [20,22]. This was further discussed and refined in consultation with a third author/researcher (HD). Finally, the codes were clustered to create categories. To ensure validity of the analysis, the categories and interpretations of the coded data were presented and discussed with the research team, including a fourth author (HK), and categories and concepts were refined and then consolidated [23]. Quotations from the women's transcribed text are used to illustrate the categories and concepts. All data was de-identified. A total of 26 comments indicated 'no comment' or 'N/A' in the open text responses. These responses are not included in the analysis, or in the total data counted. The frequency distribution of the responses across the data is reported as a number count.

## Results

The BITTOC survey was responded to by 3172 women (Table 1). Respondents could select more than one response, or no response, to the individual question regarding changes to CBPE classes, and data included 2685 responses indicating changes that had occurred (Fig. 1). Responses that indicated participants did not plan to access classes were not included in the analysis.

Further, a total of 929 (29 %) women provided additional open text responses which described women's experiences of these changes. These were broken down into 1131 items of coding, about changes to CBPE during the first and second wave of the pandemic in Australia. The majority of responses (78 %) were from the pregnancy survey and 22 % were from the post-natal survey responses.

The survey response rates from each State and Territory roughly reflected the population breakdown for Australia, with responses mainly from the most populous state of New South Wales (NSW), then Victoria, Queensland, Western Australia and South Australia etc., reflected in the survey. The majority of respondents were younger than 35 years of age reflecting Australian maternity demographics, however, conversely respondents tended to be in the higher income bracket and were university educated. Most were partnered or in a relationship and the majority of mothers were born in Australia. While 3 % of the current Australian population identifies as Aboriginal or Torres Strait Islander, and 4.9 % of birthing women [24], only 1.5 % of respondents for this survey identified as such.

## Findings of the qualitative analysis

Three main categories found; 'I felt so unprepared', 'It was good enough' and 'I was let down by the system'. Each of the categories were

**Table 2**
Main categories.

| Total | (n = 1131 / 100 %) | |
|---|---|---|
| Category 1: I felt so unprepared (569 (50 %) comments) | | |
| It was so disappointing (252, 22 %) | I felt so alone (234, 21 %) | Impact on others (83, 7 %) |
| Category 2: It was good enough (344 (31 %) comments) | | |
| Impact was minimal (183, 16 %) | Care providers were doing their best (97, 9 %) | Online worked well for me (64, 6 %) |
| Category 3: I was let down by the system (218 (19 %) comments) | | |
| Everything was in turmoil (102, 9 %) | It took too long (89, 7 %) | Connection & Communication (27, 2 %) |

made up of three subcategories, which are listed in Table 2. The categories and subcategories are described below with illustrative quotes from the data.

Each person's response was coded numerically in order of response in the raw data. These are shown in brackets following a direct quote.

*Category 1: I felt so unprepared*

The category '*I felt so unprepared*', was comprised of 569 (50 %) items of coding. These referred to the overwhelming feeling that without face-to-face CBPE, women didn't feel that they had sufficient knowledge, resources and information for birth and early parenting. Women, who had expected that hospital-based classes would provide them with information about labour, birth and all usual procedures in the hospital, expressed how disappointed they felt due to their lack of knowledge and preparedness as a result of not attending face to face classes.

> This was when I knew that the pandemic was serious, I felt like I missed out on a rite of passage and felt unprepared [582].

Analysis of the responses which conveyed the sense of feeling unprepared, manifested in women's experiences in three ways: Being unprepared resulted in women feeling disappointed with the experience; having a sense of isolation due to the experience; or having an awareness of the impact that a lack of preparation had on others, such as partners, or first-time mothers. This led to the three sub-categories: '*It was so disappointing*' (n = 252, 22 %), '*I felt so alone*' (n = 234, 21 %), and '*Impact on others*' (n = 83, 7 %).

*Sub-category: It was so disappointing*

Women largely felt disappointed by their experience of birth classes being cancelled, and by the response of the health system. Women reported expecting to attend the classes as part of the usual care in Australian hospitals, and as the usual forum to gather information about pregnancy, birth and early parenting. This was particularly identified from respondents who were first time mothers.

> *I was most disappointed about this. As a first time mum it was very daunting I also felt that the hospital was very slack in having an alternative. I asked most visits if they had online or some other options and it took weeks and weeks before they had an option [502]*

Some women reported feeling disappointed that the online classes were inadequate to prepare them for birth or the early postnatal period; "*Online classes were rubbish. I learnt more from google. Online classes did not prepare me for breastfeeding or labour at all" [870].*

Women with any additional complexity, such as English as a second language, low educational attainment, disabilities or having multiple births, described being at a greater disadvantage due to cancellations or online format.

> *I really needed the multiple birth classes as the care for twins can be so different. The classes being cancelled left me feeling completely unprepared [684].*
> *I can't attend them now because I am deaf and they are online. So I am going without [491].*

Women who had to access classes outside of the hospital system, reported the financial impact of having to find alternative support.

> *I was only planning on accessing free classes through the hospital. Had to search online got replacement classes and this cost hundreds of dollars [256].*

*Sub-category: I felt so alone*

The sub-category 'I felt so alone' (n = 234 items of coding, 21 % of all data) referred to women's experience of feeling alone in terms of information, preparation for birth, support from care providers and social connections with other parents and support people outside their homes. This feeling of loneliness extended across pregnancy, birth, breastfeeding, and parenting.

> *The antenatal education provided during the pregnancy was woeful. We did not feel adequately equipped for life with a newborn and did not get the opportunity to meet other new parents in our position too. As a result I feel quite isolated and alone while my partner is at work. [778]*

Many women attributed the feeling that they were not supported well enough in their pregnancy, birth, and parenting needs, to a lack of CBPE classes*: "It made it very difficult to find education and support in all aspects including post natal care" [748]*.

This was also relevant for breastfeeding classes, where women reported that these classes both in the prenatal setting and the postnatal setting were suddenly unavailable. Compounding women's sense of isolation, they felt a lack of support from the health system, but also from family and friends who may have been able to assist, *"I went into breastfeeding having no idea what to do" [85]*.

> *I particularly missed the breastfeeding classes and subsequently had no support either so couldn't resolve our breastfeeding issues and have had to bottle feed even though I didn't want or need to [554].*

**Sub-category: Impact on others**

This sub-category describes 83 items of coding (7 % of all data), referring to women's reports of the impact that changes to classes had on others' sense of preparation. This included sympathy and worry for their partners, or for other first-time mums going through this, or perhaps for women in other areas who didn't get any access education in the same way.

> *I feel bad for the new mothers and fathers to be that would have scrambled at the last minute to organise something else. I really enjoyed the face-to-face classes I did during my first pregnancy and found they were super helpful. I can imagine the extra stress that new mothers would have faced would not have been fun for them [332]*

Women also expressed concern for the impact this had on their partner's preparation, which ultimately impacted on their own experience.

> *The classes we didn't get to do were breastfeeding and massage classes to help with labour. Also birthing classes for support people. I would have loved to of had those skills in myself and partner [505].*

*Category 2: It was good enough*

The second category describes comments from women about online classes, comprising 344 items of coding (31 % of all data), who expressed an overarching theme of '*it was good enough*'. In this category, there was a sense that online delivery was felt to be sufficient for women's needs in the moment. This transpired in three ways - first where women described experiences where the impact was felt to be minimal, or they could at least understand the necessary changes as part of the Covid-19 response. Secondly, some women described healthcare providers were doing their best and that there were some positive aspects of online classes, such as convenience, and felt that it met their needs and was good, or good enough for them. The third response was that their experience of online classes or alternative delivery was better than expected, and that despite Covid-19 lockdowns, online delivery worked well for them. This was captured in three sub-categories; 'Impact was minimal' (n = 183, 16 %), 'care providers were doing their best' (n = 97, 9 %), and 'online worked well for me' (n = 64, 6 %).

**Sub-categories: Impact was minimal and care providers doing their best**

In the subcategory, *impact was minimal*, women described being able to attend childbirth and parenting education classes just before the lock down. They reported feeling liked they scraped in just in time; *We were able to attend 2 birthing classes (last lot of classes our hospital held) but all others were cancelled [506]*.

Women appreciated that *'care providers were doing their best'*, despite the circumstances, and often found the materials sufficient. While in many instances women would have preferred face to face classes, they understood that educators were trying hard and doing their best*: "The midwives did the best they could with online classes but it would have been better face to face" [74]*.

They understood that there were limitations to what could be accomplished in the classes but found online delivery to be an acceptable substitute; *It was difficult to maintain attention during the Skype sessions but they did a great job of putting together material [333]*.

**Care providers did their role best as much [sic] as they can to keep the mothers informed and updated [304].**

*Sub-category: Online worked well for me*

The sub-category, *online worked well for me,* described women's experiences of the services provided as meeting their needs in the context of Covid-19. This appeared to be quite dependent on individual people and hospitals, rather than a systemic approach from health services. Many women found that online suited them better or gave them a wider range of access to information, *I also found telehealth and online education worked well for me whilst I was also working from home and meant I didn't have to leave my "office" for appointments [841]*.

**The online birth class was only us with a midwife, and she even took us on a virtual tour of the birth centre [23].**

Additionally, online services offered a chance for new parents to work around their baby's routine. This had its pros and cons.

> *Some aspects to the first time parents group were good being online, that we didn't have to meet up if our baby was cranky that morning, and I didn't feel like I needed to dress up for the meetings. The downside is that we haven't met in person, and I feel a little left out [688].*

Some women felt well prepared with the information and were pleased to be able to source multiple providers. Where they might have previously experienced geographical or other limitations, these were bridged by online provision of services, *we were able to access classes and providers from all over Australia which gave us more options [632]*.

**Category 3: I was let down by the system**

The comments related to this third category *'Let down by the system'*, which was reflected in 218 items of coding (19 %) and demonstrated that women felt very let down by how services were managed, including classes. This overarching category conveyed a sense that the healthcare system did not prioritise resourcing for CBPE in maternity care and lacked a coordinated response to establishing quality online classes. Women's experiences of feeling let down by the system was experienced in three ways; Women felt the health system was not equipped to deal with the extra resources required and that it was a chaotic response from individual hospitals or districts, not centralised or planned. Secondly, the response took too long to be organised, and showed the lack of prioritisation given to CBPE. Third, that the technology infrastructure and skills of staff to manage the technology was insufficient. This also highlighted gaps in care for women with special needs or socioeconomic factors excluding some women from participation.

> *All classes cancelled, the hospital was not equipped to deal with additional support required for all first time parents who didn't have the opportunity to do classes. Lots of new grad midwives who were inexperienced at giving advice, care and had poor time management [213].*

This was informed by three sub-categories: '*Everything was in turmoil*' (n = 102, 9 %), '*It took too long*' (n = 89, 8 %), and *'Connection and communication*' (n = 27, 2 %) which mainly described the impact that lack of training, poor technology and communication had on the CBPE classes.

**Sub-category: Everything was in turmoil**

This sub-category 'everything was in turmoil' referred to the sense that women perceived the health system to be in turmoil. They reported the disarray seen in the way the materials and classes were provided. Women were disappointed by the communication and the timeliness of the response from the hospital system*, Very disorganised. Pre natal classes last minute. Post natal cancelled entirely and no information provided on classes going forward [753]*.

Educators and care providers were required to create and deliver classes on digital platforms with very little notice and potentially very little support. Educators often didn't know what could be done in what time frame, and women often reported being disappointed with the services and lack of communication;

> *Due to the quick change there was minimal communication and less opportunities. I actively sought out the classes instead of them being offered. I have since met people who missed out and weren't told about them [697].*

The provision of classes and services also took time to create, establish and deliver in a secure manner. Many women referred to finding private online providers during this time, indicating that these providers were able to pivot more quickly to the online space, or were already providing that service, "*No publicly available classes, we had to seek privately" [899];*

> *I was told that online alternatives would be developed for me but this never happened. I sought my own education and support which was invaluable, but was really disappointed with the hospital follow up in this regard [432].*

The impact of this was felt more broadly than just antenatal education classes, with the ripple effect of service disruption felt by women not being able to access other services they needed in the antenatal and postnatal periods;

> *I found it extremely difficult managing to get to important follow up appointments as one or both of my children were usually not permitted to attend the appointments due to covid. I also had no childcare as visitors were not permitted in homes [327].*

**Sub-category: It took too long**

There was a delay in the ability of health services and care providers to get the CBPE information formatted and organised in a timely manner, and this had an impact on women and partners, "*Long delay in providing information. Only a few days' notice that online course was on" [159]*.

There was a great deal of uncertainty that CBPE would be provided, leading to increased stress. Women also felt deeply frustrated by the delays and then once they were finally able to access the classes, they felt disappointed by the content or how it translated for them and their partners: *There was a big delay in these being available online and they didn't necessarily translate well to an online format when they were offered [91]*.

### Sub-category: Connection and communication

The provision of classes not only relied on having the digital platforms being approved and provided securely by the health service, but it also relied on having sufficient infrastructure (wiring and connectivity) and hardware (computers and cameras) in the local health district, which was not guaranteed or necessarily prioritised. Many women and partners, and possibly care providers, felt incredibly frustrated and let down, *"Technical issues were terrible and hard to do hands on stuff" [147]*.

Where these issues were significant, as might have been the case in rural and regional areas, it effectively caused some people to miss out completely; *There were constant IT issues with the online class. This resulted with me being unable to join the virtual class, and being unable to meet other parents in the class. This caused additional stress [769]*.

However, even if the digital platforms worked well, skills-based learning didn't necessarily translate into the online space;

> *Yes. Unfortunately the classes weren't as helpful, as the interactive elements didn't translate to telehealth well, and it was difficult to have discussions/ask questions. This is a shame as the midwives all seemed like great facilitators otherwise* [3].

## Discussion

The Covid-19 pandemic has impacted maternity care in Australia and around the world, in complex and multiple ways [25–28]. While rapid responses to changing recommendations during the crisis were necessary [29], the findings of this study have highlighted the impact that changes to CBPE had on women, and their partners and families. Responses from more than half the women suggested that changes to CBPE classes, due to the pandemic, left them feeling unprepared for birth and parenting, and this impacted on their experience of pregnancy, birth, and newborn care.

As antenatal services were scaled back during COVID-19, and many classes were cancelled or reduced, this left women with little opportunity to receive education about birth and early parenting. Research from the UK suggests that while provision of routine antenatal care during Covid-19 continued in a limited way, women on the whole felt they received satisfactory care [30]. However, the researchers identified that it was the cancellation, delay, or delivery via telehealth of appointments and childbirth classes that had the greatest impact on women. Women in the present study also identified that antenatal checkups were impacted, reducing in frequency or length, or done via telehealth. CBPE classes also being cancelled, reduced, or delivered online had a compounding effect on women. Reduced content and lack of ability to perform practical exercises, was highlighted as major issues, as women felt they missed vital pieces of information, even if it seemed simple, such as being able to tour the birth suites of the hospital, or learning breathing techniques, massage, or acupressure.

CBPE was essentially relegated as non-essential care during the pandemic [31]. Around a fifth of the responses indicated a sense of dissatisfaction with the health system due to inadequate communication and technical issues, as well as a general sense of disorganisation, lack of prioritisation and a lack of integration of services. The responses were individualised and did not reflect a coordinated response from the health system as a whole, highlighting significant inequities in the system. The importance of CBPE classes as an integrated part of the health system in preparing women and partners for birth and parenting, including establishing positive breastfeeding, is highlighted by these responses, and it should not be considered an 'extra' for women.

The impact of social support was also highlighted as important in this study. One of the stated aims of CBPE, and subsequently 'mothers' groups', is to provide connections for young families in the same local areas [9]. Women's reports of isolation in this study included the inability to meet other parents through CBPE classes. Lack of perceived social support has also been linked to perinatal anxiety, depression and other mental health conditions [32–33], which have seen a rapid rise during the Covid-19 pandemic [34]. In our modern society, there is a ubiquitous expression about it taking a village to raise a child, so the impact of not being able to have family present or make friends within parent groups has compounded this reported sense of isolation.

One of the upsides, noted in this present study, to changes to CBPE however, was that some participants found that online options worked better for them, and gave them increased opportunities. Many women highlighted the incredible efforts that some care providers went to in delivering courses online. Some women cited the convenience of not having to leave home, or commute, or find care for their other children, as well as accessing classes from around the globe a positive.

The necessary shift to online CBE classes during the Covid-19 pandemic would have understandably been challenging for hospital administrators, creating significant time delays. Issues such as accessibility, provider skill mix, staff training, security, and privacy issues, as well as consideration of what were priority services. This may have also been why some independent providers of CBPE were able to pivot faster to an online medium. This raises the question as to the benefits of hybrid models of CBPE that could meet the needs of women and their partners in circumstances such as the pandemic or those living in remote or rural areas, or those who have a personal preference for this kind of delivery. It is also apparent that providers who already had an online platform were able to meet parents' needs faster than others. There has been little investigation into hybrid models of CBPE, with some reports from the USA citing satisfaction with care from women and care providers [35], however there is very little known about the effectiveness and acceptability of this model of CBPE delivery.

CBPE needs to be delivered in a coordinated, systemic, and integrated manner that allows women to experience social connections, receive high quality information and gain practical skills for birth and parenting. The content needs to also be engaging and versatile, meeting the needs of a diverse range of women in a variety of locations, and provide opportunities for social connection. One thing is certain, as with many things in the post COVID-19 era, CBPE will also be different and hopefully better equipped to meet the needs of more women in future times of crisis.

### *Strengths and limitations*

This is one of the largest surveys undertaken into women's birth experiences during the COVID-19 pandemic in Australia. It is also one of the few surveys to explore the issue of CBPE during a time of significant upheaval for childbearing women. However, there are limits to this survey, including a relatively higher response rate from well-educated and high-income participants, and a lack of responses from women who were not able to read English or who may have limited digital access. While the survey was distributed widely, including using paid social media advertising, this may not be accessible by some groups of women. The survey responses were mainly from women who were pregnant, reflecting the views of this cohort and may be less reflective of the post-partum experience. However, more than 20 % of women were post-partum and provided rich data regarding this experience. Additionally, this survey question relates to alterations to scheduled classes and the impact of these changes during pregnancy, birth and post-partum experiences during the pandemic, this survey was not intended to convey comparison with pre-pandemic classes and should not be taken as such.

## Conclusion

This study has contributed vital understanding about the importance of CBPE in Australian maternity care, and the impact that changes to delivery of classes had on women's experiences of birth and early parenting during the time of COVID-19. Changes to classes left women feeling largely unprepared for birth and parenting and had a significant

impact on their sense of isolation and care. Some women highlighted online options that were excellent, and much can be learned from the way these classes were made quickly available and yet engaged effectively with their audience. Planning and evaluating integrated and coordinated services using hybrid models of CBPE and antenatal care needs to be considered. Using lessons learned from the COVID-19 service requirements and future planning will ensure that the needs of Australian women are met.

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## Ethics approval

The study was approved by the Western Sydney University Ethics Committee (H13825).

## 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.

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### *Inclusivity statement*

The authors recognise that inclusive care is provided specifically to promote empowered childbearing with access to all available and appropriate resources, within a framework of unconditional positive regard. The words woman/women have been used in this document however, we acknowledge that not all people who birth a child identify as a woman.

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