



# Women utilisation, needs and satisfaction with postnatal follow-up care in Oman: A cross-sectional survey

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## ABSTRACT

**Background:** In Oman, there is a lack of data on utilisation, needs and women's satisfaction with care and information provided during postnatal follow-up period.

**Aim:** To investigate postnatal follow-up care utilisation and women's needs; level of postnatal information received and satisfaction with services.

**Methods:** A purposive sample of women ( $n = 500$ ), recruited in the immediate postnatal period at one metropolitan and one regional birthing hospital in Oman. An electronic survey link was sent to participants at 6–8 weeks postnatally. Quantitative variables were analysed as frequencies and chi-squared test.

**Results:** A total of 328 completed surveys were received; a response rate of 66 %. Most respondents were located in the metropolitan area ( $n = 250$ ) and between 20 and 39 years ( $n = 308$ ). Utilisation was low as women reported no need or no benefit in attending. Women's information needs were not sufficiently met by HCPs, requiring women to seek information from family and the internet to meet their needs. Satisfaction with services was mostly neither satisfied nor dissatisfied (30 %) or satisfied (30 %).

**Conclusion:** Postnatal follow-up care utilisation in both metropolitan and regional areas is less than optimal and not utilised as there was no advice to attend or no appointment date/time given, no benefit experienced previously, no need and information needed sourced from family or the internet. The information provided by postnatal follow-up care consumers can be used to enhance service delivery, inform future updates to the national maternity care guidelines, and provides a baseline for future evaluation and research.

## Introduction

The postpartum period is a transitional period for women, newborns and partners (World Health Organization, 2022). Care offered after hospital discharge during the early (2–7 days) and late (8–42 days) postpartum periods should support maternal and newborn wellbeing and the transition to parenthood. The number of postnatal follow-up contacts recommended by the World Health Organization (2022) is four, with many guidelines from high-income countries, including Oman, outlining between two and four contacts, either in person, or through alternative methods, such as telephone or telehealth services (American College of Obstetricians and Gynecologists, 2018; National Institute for Health and Care Excellence, 2015; Saudi Arabia Ministry of Health, 2021).

For numerous years, the literature has indicated that postnatal family-centred care (PNFC) has received insufficient attention within maternity care, often being inadequately offered (Langlois et al., 2015) and underutilised by women, many of whom express dissatisfaction with the available services (McLellan and Laidlaw, 2013; Woodward et al., 2016) or have encountered negative experiences when seeking follow-up care (Brodribb et al., 2013). This trend persists despite the World Health Organization's endorsement of quality postnatal care as a crucial component in preventing maternal and newborn morbidity and mortality (World Health Organization, 2022). Postnatal care is not just about ensuring the physical and mental health of both the parent and the newborn but also about fostering the development of parenting abilities, including such as newborn feeding, comforting, and addressing sleep and crying issues (World Health Organization, 2018).

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Concerningly, the Sultanate of Oman Ministry of Health's postnatal data indicates the mean number of postnatal follow-up contacts to six weeks in 2019 was 0.72, and the exclusive breastfeeding rate to six months was just 8.9 % (Sultanate of Oman Ministry of Health, 2019). Furthermore, an Omani study found 21 % ( $n = 126/592$ ) of women were positive for postnatal depression at 6–8 weeks (Al Rawahi et al., 2020).

In Oman, community health centres are multipurpose, offering structured antenatal and unstructured PNFC clinics (Al Maqbali, 2018), and general clinics for men, women and children. Healthcare services at health centres, including maternity care services such as maternal and newborn physical examination, immunization and birth spacing which focuses on providing the women with contraceptive consultation and support. These services are provided by general practitioners, registered midwives, and general registered nurses without maternity care training. 'Structured' clinics are based on an appointment system (date/time) and 'unstructured' clinics have no appointments. Thus, for PNFC, women present and wait, and depending on the number of antenatal care bookings, may not be seen on that day. If they are not seen, these women will be asked to re-present over the following days, again without an appointment. According to recommendations from the Sultanate of Oman Ministry of Health (2016), women and newborns are expected to have two postnatal follow-up contacts - one at two weeks and another at six weeks. The research team felt this may be a contributing factor for the low rate of PNFC utilisation. Thus, a mixed-method sequential exploratory study was undertaken to investigate PNFC in Oman.

A systematic literature review exploring PNFC utilisation, satisfaction and experiences was undertaken and published (Al Hadi et al., 2022). The review included 19 studies and found there was a need to increase awareness of the importance of PNFC, provide more individualised options for PNFC and further explore social and cultural factors that may influence PNFC utilisation (Al Hadi et al., 2022). Subsequently, semi-structured individual interviews were undertaken with postpartum women and maternity healthcare providers (HCPs) in Oman including midwives, doctors and nurses. The study findings were published for the interviews with the women (Al Hadi et al., 2023b) and the HCPs (Al Hadi et al., 2023a). The key findings from the women's interviews ( $n = 15$ ) included that unstructured PNFC resulted in long waiting times in uncomfortable environments with no private areas for breastfeeding, and there was no perceived benefit to women as they were seldom assessed and were rarely asked about mental wellbeing or offered breastfeeding support (Al Hadi et al., 2023b). These findings were additional to those of the literature review, and as the interview sample was small, there was the need to conduct a cross-sectional survey of a larger number of women to permit transformability and generalisability of findings and potentially inform interventions to improve utilisation. The cross-sectional survey aim was to investigate PNFC utilisation and women's needs, identify the level of information given to women, and measure their level of satisfaction with services. The cross-sectional survey was undertaken to answer the research questions; (1) What factors influence women's utilisation of early and late PNFC in Oman? (2) What are the health and educational needs of postnatal women in Oman? (3) How satisfied are women with PNFC services in Oman?

## Methods

### Design

No existing questionnaire was found to be fit-for-purpose for postpartum women in Oman. Therefore, the cross-sectional survey for this study was designed using adopted, adapted and developed questions. This process followed the model proposed by Tsang et al. (2017). Fifty-two postnatal specific questions were adapted (for language and context) from three validated questionnaires that had been administered to postpartum women in the United Kingdom, Jordan and Norway (Almalik, 2017a; Harrison et al., 2019; Sjetne et al., 2015). A further 27

questions were developed based on the findings of the systematic literature review (Al Hadi et al., 2022) and the individual semi-structured interviews with women (Al Hadi et al., 2023b) and HCPs (Al Hadi et al., 2023a). Questions were closed, and offered either 5-point Likert scale, multiple choice or dichotomous responses. Content validity was assessed by four independent experts and Internal reliability was assessed by calculating Cronbach's alpha using DATAtab (DATAtab Team, 2022) statistical software. Following the first assessment round, four questions were modified and an additional question added (see supplementary file 1). After the second assessment round, the Scale-level Content Validity Index (S-CVI) score was 0.97 and all questions scored an Item-level Content Validity Index (I-CVI) score of 1. Correlations between questions within sub-sections were undertaken and those questions which were negatively correlated were removed ( $n = 9$ ). Alpha was re-calculated achieving  $\geq 0.7$  (see supplementary file 2). The final survey consisted of 71 closed ended questions, seven demographic questions, and a free text box for additional comments. Of the 71 questions, 35 questions would be seen by all respondents, and the remaining questions branched based on individual responses to questions such as birthing vaginally or by a caesarean section. The 71 questions were arranged around three sections; hospital related, health centre related, and postnatal woman focused.

The questions required translation from English to Arabic, so a forward and backward translation process was undertaken to ensure accuracy, to identify differences and meaning in the target language (Hilton and Skrutkowski, 2002) and to establish semantic equivalence (Råholm et al., 2010). This process involved the primary investigator, a native Arabic speaking midwife, and two qualified bilingual translators. The university's centrally supported survey tool, 'Checkbox', was used to administer the questionnaire for pre-testing and for the full survey. The pre-test involved 30 consenting postpartum women recruited from the study setting detailed below, to identify problems before implementing the full survey. The pre-test assessed the amount of time it took to complete, and whether instructions and questions were clear and being interpreted correctly.

### Study settings, sample and sample size

The study setting was one metropolitan and one regional public birthing hospital in Oman. The metropolitan hospital is located in Muscat, the capital city of the Sultanate of Oman. It is one of the biggest governorate hospitals in the country and provides specialised care in various fields including obstetrics and gynaecology and neonatal care. The maternity unit within this hospital has 83 beds and has an annual birth rate of approximately 5574 (Sultanate of Oman Ministry of Health, 2019). Whereas the regional hospital is located in the North Ash Sharqiyah governorate and it offers antenatal, delivery and postnatal care within a 28-bed maternity unit and approximately 3259 deliveries in 2019 (Sultanate of Oman Ministry of Health, 2019). The settings were selected to ascertain if there were significant differences in utilisation and/or services provided to postpartum women based on location, as it has previously been reported that access to services in regional areas are lacking and the quality of services inferior (Rolfe et al., 2017). Participants were recruited between 22 May and 11 August 2022 by the primary investigator, following assessment of eligibility (i.e., they delivered a live newborn, were admitted directly to the postnatal ward and were fluent in Arabic). Women were not eligible if they or their newborn were admitted to an intensive care unit. Using an online sample size calculator (Raosoft, 2004), with a confidence level of 95 %, and a 5 % margin of error, the sample size calculated was 354. An attrition rate of 30 to 40 % was anticipated due to the time between consent and receiving the survey link; therefore, 500 women were recruited.

At the hospitals, the primary researcher implemented a procedure involving coordination with the shift staff in charge, identifying potential participants, and seeking permission to engage with the women.

Eligible women were approached at least two hours after childbirth or near the time of discharge from the postnatal ward. The primary researcher provided an overview of the study, addressed inquiries, and provided a participant information sheet along with a consent form for the women to review and discuss with their families if they wished. Subsequently, the primary researcher returned at a mutually convenient time, at least one hour later, to address any additional queries before obtaining written consent.

All women were provided with verbal and written information prior to voluntary written consent being obtained. The research was approved by the Research and Ethical Review and Approve Committee (RERAC), the Omani Ministry of Health [MoH/CSR/20/23647] and the University of Queensland [2020002085/MoH/CSR/20/23647].

#### Data collection

At six weeks postpartum, participants were contacted via their nominated choice of email or SMS, reminded of the study, and sent the survey link. The survey was active from 4 July until 9 October 2022. Reminder emails/SMS were sent to participants who had not completed the survey at one and two weeks from sending the survey link. Data were collected electronically within Checkbox and exported to the Statistical Package for Social Science (SPSS, version 26.0) for analysis.

#### Data analysis

Surveys with less than seven questions answered were regarded as incomplete and excluded from analysis to prevent skewed results. Following data cleaning and coding by the primary investigator, demographic characteristics and quantitative variables were analysed using descriptive statistics and chi-square testing, and differences between respondent groups by location and attendance were analysed. To meet requirements for performing the chi-square test, some categories were collapsed, for example, *number of children* was collapsed to two categories: 1–3 and 4 or more.

Five-point Likert scale questions in which a category was felt to be interpreted to mean the same as another, thereby providing redundant information, were collapsed. For example, extent categories 2 (to some extent) and 3 (to a small extent) were collapsed into one category and 4 (to a large extent) and 5 (to a very large extent) into another, resulting in a trichotomous scale for analysis. The free text responses have been analysed and presented elsewhere.

## Results

In this online survey of 500 women, 368 responded; however, 40 surveys (8 %) were incomplete, resulting in 328 surveys for data analysis, a response rate of 66 %. The remaining 132 (26 %) did not respond. Most respondents were located in the metropolitan area ( $n = 250$ ) and there were no significant differences between age groups for location (Table 1). However significant differences were noted for education level ( $p < 0.001$ ), number of children ( $p = 0.001$ ) and living arrangements ( $p = 0.001$ ) and there was some evidence that fewer regional respondents were working ( $p = 0.075$ ).

The following results are reported in alignment with the sections and subsections of the survey. Each of these sections contained questions eliciting responses about utilisation, health and educational needs and satisfaction with services received at the birthing hospital and local healthcare centre (supplementary file 3). Location, utilisation, health and educational needs and satisfaction with services were investigated between attendees and non-attendees. No significant differences were found for these variables between the two groups.

### Section 1: hospital related information

This section ascertained the extent of information received from hospital HCPs pertinent to the post-discharge postnatal period and contained two sub-sections, *information for going home and postnatal*

**Table 1**

Demographic and attendance characteristics by metropolitan and regional location.

Characteristics	Overall $N = 328$ $n$ (%)	Metropolitan $n = 250$ $n$ (%)	Regional $n = 78$ $n$ (%)	$p$ value*
Age group (years)				
20–29	156 (48)	114 (46)	42 (54)	0.108
30–39	152 (46)	121 (48)	31 (40)	
40–49	20 (6)	15 (6)	5 (6)	
Education level				
<sup>a</sup> Low	23 (7)	9 (4)	14 (18)	<0.001
<sup>b</sup> High	305 (93)	241 (96)	64 (82)	
Number of children				
1–3	233 (71)	187 (75)	46 (59)	0.001
4 or more	95 (29)	63 (25)	32 (41)	
Living arrangements				
<sup>c</sup> Living with immediate family	225 (69)	181 (72)	44 (56)	0.001
<sup>d</sup> Living with extended family	103 (31)	69 (28)	34 (44)	
Working status				
Not working	221 (67)	162 (65)	59 (76)	0.075
Working full time/ part time	107 (33)	88 (35)	19 (24)	
Attending PNFC				
Attendees	86 (26)	71 (28)	15 (19)	0.108
Non-attendees	242 (74)	179 (72)	63 (81)	

Note:

\* Chi Square.

<sup>a</sup> < secondary.

<sup>b</sup> > secondary.

<sup>c</sup> children and husband.

<sup>d</sup> parents, grandparents, sisters, brothers, uncles, aunts.

*follow-up*. The following two subsections highlight respondents' health and educational needs in the early postnatal period and the utilisation of early and late PNFC.

#### Information for going home

Eleven questions elicited to what extent women felt they received sufficient information from hospital HCPs about postnatal care health aspects once home (Table 2). Around half the women reported not receiving sufficient information about who they should contact if they had any concerns after discharge (47 %) or on useful physical exercises during the postnatal period (51 %). Less than one fifth of women reported receiving information to 'a large extent' on possible mood changes (14 %), danger signs for themselves (e.g., excessive bleeding, infections, sleep deprivation and breast problems) (19 %) and their baby (e.g. jaundice, fever, Rapid breathing, poor or weak feeding, bleeding from the umbilical cord, excessive crying and irritability) (18 %). Regarding information received around caring for their baby, 32 % ( $n = 105$ ) reported not receiving sufficient information.

#### Postnatal follow-up

Women were asked if they received verbal and written information (approximate date) for when to attend for PNFC for themselves. Twenty-eight percent ( $n = 91$ ) reported not being verbally informed, 26 % ( $n = 86$ ) were told to attend at two weeks and 31 % ( $n = 100$ ) were told to attend after 40 days, at the end of the 'seclusion' period, which is 40 days following birth. Seclusion is a cultural Middle Eastern practice where women are expected to stay indoors and eat a special diet. The remaining 16 % ( $n = 51$ ) were verbally informed to attend after seclusion not for PNFC, but for other reasons, such as birth spacing. Forty percent ( $n = 130$ ) did not receive a written date, 25 % ( $n = 83$ ) attended the two-week follow-up, 29 % ( $n = 95$ ) attended the six-week follow-up and 6 % ( $n = 20$ ) attended after the 'seclusion' period for other reasons,

**Table 2**

The extent women's health educational needs were met by sufficient information and the extent of conflicting advice from hospital HCPs.

Did you receive sufficient information about:	n = 328 n (%)		
	Not at all n (%)	To a small extent n (%)	To a large extent n (%)
1. Your physical health during the postnatal period?	72 (22)	176 (54)	80 (24)
2. Useful physical exercises during the postnatal period?	166 (51)	125 (38)	37 (11)
3. Any possible mood changes during the postnatal period?	141 (43)	140 (43)	47 (14)
4. The danger signs that may occur to your health in the postnatal period?	117 (36)	150 (46)	61 (19)
5. When to follow-up with health care providers (doctor/midwife/nurse) after discharge for yourself?	97 (30)	135 (41)	96 (29)
6. Breastfeeding or other ways of feeding your baby?	46 (14)	136 (42)	146 (45)
7. Caring for your baby (e.g., umbilical care, bathing, sleeping)?	105 (32)	99 (30)	124 (38)
8. The danger signs that may occur in your baby in the postnatal period?	136 (42)	134 (41)	58 (18)
9. When to follow-up with health care provider (doctor/midwife/nurse) after discharge for your baby?	60 (18)	138 (42)	130 (40)
10. Where could you inquire if you had any questions or concerns after discharge?	153 (47)	120 (37)	55 (17)
11. Did you receive conflicting information from the health care providers at the hospital about when you should seek postnatal follow-up care?	172 (52)	103 (31)	53 (16)

such as birth spacing.

In contrast, women were more likely to be informed verbally and to have an approximate date written in the newborn's health booklet regarding when to attend a PNFC clinic for their newborn. Forty-seven percent ( $n = 155$ ) were informed verbally to attend at two weeks after birth, and 50 % ( $n = 163$ ) reported being given a written date. Only 13 % ( $n = 43$ ) reported not being informed verbally about newborn PNFC, although 24 % ( $n = 78$ ) reported not being given a written approximate date for when to attend. Verbal information to attend for newborn vaccinations was reported by 31 % ( $n = 102$ ) of respondents; however, only three women reported being given a written date for when this should occur.

## Section 2: health centre related information

The results presented in the following subsections pertain to women's utilisation of PNFC and whether alternatives to face-to-face contact were offered during the COVID-19 pandemic; and the extent to which their health educational needs were met. Surprisingly, 88 % ( $n = 290$ ) reported not being offered an alternative contact mode and 12 % ( $n = 38$ ) reported being offered contact by SMS, Zoom, WhatsApp or telephone.

### Contact with a health centre

A total of 242 (74 %) respondents reported not utilising a health centre during the postnatal period because they: had not been informed to do so (32 %,  $n = 78$ ), previously had not experienced any benefit (24 %,  $n = 57$ ), did not consider attending important (16 %,  $n = 38$ ), had no transportation (16 %,  $n = 38$ ), had no health issues requiring attendance (15 %,  $n = 35$ ) and did not know the benefits of attending (14 %,  $n = 34$ ).

Of the 86 respondents who attended utilised PNFC, 30 % ( $n = 26$ ) had attended once, 47 % ( $n = 40$ ) twice, and 23 % ( $n = 20$ ) three or more times. Two-thirds of the women (66 %  $n = 65$ ) indicated the number of

visits was appropriate. The remaining 24 % ( $n = 21$ ) indicated the number of visits was too few. Between two and six weeks was when most women attended (79 %), with 16 % ( $n = 14$ ) attending within the first two weeks, and four women attending between seven and ten weeks. Fifty-nine percent ( $n = 51$ ) indicated the timing of their first attendance did not need to occur earlier, and 41 % ( $n = 35$ ) indicated it needed to be earlier. The main reasons women attended the PNFC were for both themselves and their newborn (33 %), only for their newborn (15 %) or only for themselves (7 %). In addition, for a newborn (9 %) or maternal (1 %) complication, birth spacing (8 %), breastfeeding support (6 %), or vaccinations (1 %) were other reasons for attendance.

Maternal PNFC services at health centres varied, with 48 % of respondents indicating they typically received one service, 15 % received two, 10 % received three and 9 % up to four services during a single visit. The most common services received were birth spacing (42 %), and/or baby care support (38 %) and/or immunization services (30 %). Seventeen percent ( $n = 15$ ) of respondents indicated not receiving information or support pertaining to *baby care, birth spacing, breastfeeding, emotional and mental health, education on complications, immunization or a physical examination*. The level of perceived benefit was reported as 'some' by 52 % ( $n = 45$ ) of women, 'large' by 41 % ( $n = 35$ ), and no benefit by 7 % ( $n = 6$ ).

Newborn PNFC services were slightly higher in number than maternal services, with 76 respondents indicating receiving either one (42 %), two (24 %), three (8 %) or 4 or more services (14 %) during a single visit. Ten respondents indicated no services were received. The most commonly provided services to the newborn were physical examination (54 %), jaundice check (37 %) and/or weight check (36 %). Just 24 % ( $n = 21$ ) of women reported being asked about how the baby was feeding. The level of perceived benefit was reported as 'large' by 54 % ( $n = 46$ ) of women, 'some' by 44 % ( $n = 38$ ), and no benefit by 2 % ( $n = 2$ ).

### Health centre experience

Receiving sufficient information from health centre HCPs was predominantly reported as happening 'only to a small extent' on topics such as their physical health (47 %), breastfeeding or other ways of feeding (43 %), and caring for their baby (40 %) (Table 3). Information on topics such as mood changes and physical exercise during the postpartum period were not discussed at all with 55 % and 64 % of women respectively. Receiving conflicting information to a small extent was reported by 43 % of women and not at all by 42 %. However, 60 % ( $n = 52$ ) of women reported the care they received was only well organised to a small extent, or not organised at all (12 %), although 28 % reported it was well organised to a large extent.

## Section 3: women related postpartum information

This section contained six sub-sections: *your health and wellbeing, caesarean birth, caring for your baby, feeding your baby, my postnatal care, and women satisfaction*. These sub-section questions aimed to elicit the women's educational needs and their satisfaction with PNFC.

### Your health and wellbeing

Respondents ( $n = 328$ ) were asked how important it was to receive education on aspects of physical, emotional and mental health and dietary information. Between 4 and 23 (1–7 %) respondents indicated it was not important, or it was only slightly important, to receive education on physical changes, reducing the effects of normal physical changes, body returning to pre-pregnancy status, emotional and mental health changes and how to manage these, and useful foods and drinks (Table 4). These aspects were moderately important for between 30 and 55 (9–17 %) of women, with the remaining respondents reporting the education to be important or very important for all topics.



**Table 3**

The extent women's health educational needs were met by sufficient information and the extent of conflicting advice and well organised care at health centres.

Questions	n = 86 n (%)		
	Not at all n (%)	To a small extent n (%)	To a large extent n (%)
1. Have you received sufficient information about your physical health during the postnatal period?	27 (31)	40 (47)	19 (22)
2. Have you received sufficient information about physical exercises during postnatal period?	55 (64)	23 (27)	8 (9)
3. Have you received sufficient information about any possible mood changes during postnatal period?	47 (55)	24 (30)	15 (17)
4. Have you received sufficient information about breastfeeding or other ways of feeding your baby?	13 (15)	37 (43)	36 (42)
5. Have you received sufficient information about caring for your baby (e.g., umbilical care, bathing, sleeping)?	28 (33)	34 (40)	24 (28)
6. Did you receive conflicting information from the healthcare providers at the health centre about when you should seek postnatal follow-up care?	36 (42)	37 (43)	13 (15)
7. Did you find the care you received at the health centre is well organised?	10 (12)	52 (60)	24 (28)

Forty-seven percent ( $n = 153$ ) of women required stitches following a vaginal birth and receiving education on how to protect the stitches from infection was very important for 69 % of women and important for 25 %. Similarly, education on the symptoms of infected stitches and reducing suture pain was very important for 65 % and 67 % respectively, and both were important for 23 % of women.

The caesarean section rate in this study sample was 17 % ( $n = 54$ ). Receiving education was very important for most women on the following aspects: protecting the suture line from infection (76 %), the symptoms of infection (74 %), how to reduce wound pain (74 %), what to do if the wound is inflamed (72 %) and how caesarean birth complications can be reduced (72 %). When a bath/shower can be taken post caesarean birth was regarded as very important by 61 % and as important by 32 % of women, although 65 % indicated they had a bath/shower within three days and 17 % within 4–7 days. This cohort of caesarean section women indicated other educational needs of high importance were managing pain (69 %), gas (63 %) and wound infection (63 %).

#### Caring for your baby

Receiving education on newborn care (e.g., bathing, umbilical care)

**Table 4**

The level of importance in receiving education on physical, emotional and mental health aspects during the early and late postnatal period.

How important is it to receive information on the following?	n = 328 n (%)				
	Not important	Slightly important	Moderately important	Important	Very important
1. The normal physical changes that occur during the postnatal period	9 (3)	19 (6)	55 (17)	127 (39)	118 (36)
2. How the effects of normal physical changes during postnatal period can be reduced (e.g., pain, sweating, high temperature in the first 24 h)	4 (1)	23 (7)	54 (16)	134 (41)	113 (34)
3. When my body will return to its pre-pregnancy status	7 (2)	16 (5)	30 (9)	121 (37)	154 (47)
4. The emotional and mental health changes that occur during the postnatal period	7 (2)	8 (2)	42 (13)	124 (38)	147 (45)
5. How emotional and mental health effects can be reduced	6 (2)	14 (4)	52 (16)	104 (32)	152 (46)
6. The useful foods and drinks for yourself during the postnatal period	4 (1)	11 (3)	32 (10)	120 (37)	161 (49)

and feeding (e.g., breastfeeding, artificial formula feeding) was rated as very important by 53 % ( $n = 174$ ) and 63 % ( $n = 206$ ) of respondents respectively. A further 31 % ( $n = 103$ ) and 25 % ( $n = 83$ ) of respondents rated it important to receive education on these topics.

#### Feeding your baby

Nine women indicated they did not initiate breastfeeding as they did not know how to breastfeed or were not able to exclusively breastfeed because they did not have enough milk. The remaining 97 % (319/328) of respondents reported initiating breastfeeding in the immediate postnatal period, and 68 % ( $n = 216$ ) had exclusively breastfed in hospital, with 60 % exclusively breastfeeding until around the end of the seclusion period (40 days). At the time of completing the survey between six and eight weeks postpartum, just 41 % ( $n = 131$ ) were exclusively breastfeeding, 52 % ( $n = 165$ ) were breast and formula feeding and 7 % ( $n = 23$ ) were fully formula feeding. For those not exclusively breastfeeding ( $n = 188$ ), the main reasons were not having enough breastmilk (78 %) and/or working/studying (32 %) and/or family influence (17 %). Seventy-one percent ( $n = 226$ ) of women who initiated breastfeeding reported correctly that newborns should be exclusively breastfed to six months. Furthermore, when all respondents ( $n = 328$ ) were asked at what age they first introduced food or fluids other than breastmilk or formula, 72 % did not introduce food or other fluids. However, 8 % indicated food or other fluids were introduced within a month of birth, 10 % introduced them within two months and 10 % indicated 'other' but did not state a time period.

#### My postnatal care

When asked the extent to which they agreed with the statement 'There was not enough time to talk with the HCPs', 63 % ( $n = 206$ ) agreed or strongly agreed. Only 41 % ( $n = 135$ ) agreed that HCPs were open to their questions and a further 27 % ( $n = 88$ ) provided a neutral response (i.e., they neither agreed nor disagreed). Only 13 % and 24 % of women indicated their source of postnatal information and advice was from hospital and health centre HCPs respectively. The main sources of information and advice were family (69 %) and/or the internet (61 %).

#### Satisfaction and additional information

Overall, around a third of women were satisfied or neither dissatisfied nor satisfied with the level of information provided about taking care of themselves and their newborn and the level of maternal care received (Table 5). More women were very dissatisfied (8–9 %) than very satisfied (5–6 %). In contrast, 51 % of women were satisfied with the care their newborn received, although 6 % of women were either very dissatisfied or very satisfied. Seventy-two percent of respondents indicated that 'social media' was their preferred mode to receive information and education. Other approaches included: 'telephone calls' (37 %), 'home visit' (34 %) and 'illustrative films' (26 %).

**Table 5**  
Level of satisfaction with PNFC provided by Health Centre HCPs.

Overall, how satisfied are you with the following?	n (%) n = 328				
	Very dissatisfied	Dissatisfied	Neither dissatisfied nor satisfied	Satisfied	Very satisfied
1. The information provided to you during postnatal period in terms of its relevance and comprehensiveness to your needs	29 (9)	86 (26)	98 (30)	100 (30)	15 (5)
2. The care provided to you during postnatal period in terms of its relevance and comprehensiveness to your needs	25 (8)	54 (17)	112 (34)	118 (36)	19 (6)
3. The information provided to you about your baby's needs during the postnatal period in terms of its relevance and comprehensiveness	28 (9)	57 (17)	98 (30)	129 (39)	16 (5)
4. The care provided to your baby during postnatal period in terms of its relevance and comprehensiveness to his or her needs	21 (6)	46 (14)	75 (23)	167 (51)	19 (6)

## Discussion

The response rate of 66 % to this online survey was higher than for similar surveys offered online and/or paper based, which achieved response rates of 57 % (Sjetne et al., 2015; Tickle et al., 2021). The response rate may be a reflection of the neutral satisfaction that many women reported, because they had unmet needs, previous experiences had not been beneficial, and because women in Oman want quality care and may have thought that providing feedback could assist in improvements to PNFC services. A study involving maternity care consumers in Australia found that quality care, unmet information needs, access to choices and dissatisfaction with the care environment are important to women and women want to be involved in reforming maternity care (McKinnon et al., 2014). Despite the response rate, the target sample size was not achieved, due to the number of incomplete surveys and those which lacked demographic information and were thus excluded from the analysis. However, the results provide emerging evidence for the low utilisation rate and potential areas for interventions to enhance PNFC services that meet women's health and information needs that will ultimately improve utilisation.

In this sample of women, the utilisation rate was considerably higher than that included in the Omani Ministry of Health data (Sultanate of Oman Ministry of Health, 2016), which was surprising, as this study was conducted during the Covid-19 pandemic period of lockdowns and restrictions. Interestingly, utilisation in Oman was not influenced by whether women lived in the metropolitan area or the regional area, as health centre access is readily available, and few women reported a lack of transport as a reason for non-attendance. In addition, cultural issues such as seclusion were not identified by women as a main reason for not attending early PNFC, but nearly 50 % of the women were verbally advised by a hospital HCP to attend after the 40 days seclusion. This is in contrast to the findings from the semi-structured interviews with 29 HCPs, who indicated that seclusion did not inhibit women from utilising PNFC (Al Hadi et al., 2023a). Thus, further research is warranted with HCPs in Oman around timing recommendations for attending PNFC.

The PNFC utilisation rate in Oman is very low compared with other high-income countries, such as Sweden (98 %) (Johansson et al., 2019) and Canada (89 %) (Laliberté et al., 2016), and even compared with one of the lowest income countries in the world, Ethiopia (67 %) (Tesfahun et al., 2014). One reason for this could be related to a lack of emphasis placed on PNFC within the current *Pregnancy and Childbirth Management National Guideline* (Sultanate of Oman Ministry of Health, 2016), even the title of which implies care in the antenatal and intrapartum periods. The guideline provides comprehensive antenatal and intrapartum care guidance, but relatively little on postnatal care and therefore the postnatal period is not envisaged as important or as a part of the continuum of maternity care by HCPs, policymakers and health advisors. In the earlier study of interviews with HCPs (Al Hadi et al., 2023a), it was noted that few were familiar with or had knowledge of the postnatal care section within the guideline but were familiar with the other components. If PNFC is not viewed as an important part of the continuum of

maternity care by HCPs, the importance of attending PNFC will not be evident to women. In contrast, the Public Health Agency of Canada (PHAC) *Family-Centred Maternity and Newborn Care: National Guidelines* (2020) is a comprehensive document consisting of eight chapters including a chapter dedicated to postpartum care, and another to breastfeeding, including how to support women. Furthermore, the postnatal contact recommendations in this guideline stress the importance of providing scheduled appointments for women and newborns based on individualised needs and including home visits and telephone contacts. Thus, one intervention that potentially could improve utilisation, satisfaction, and addressing women's health and information needs is to provide more comprehensive recommendations in the Omani national guideline, to include physical assessment of mother and newborn, maternal postnatal depression assessment and breastfeeding support. Furthermore, a review of early PNFC for women in Oman and the provision of additional options for follow-up have the potential to improve outcomes for mothers and newborns. Providing options other than face-to-face visits has been shown to improve women's perceptions about the quality of PNFC as well as improving maternal and infant outcomes (Ameme et al., 2022), increasing the rate of exclusive breastfeeding, and decreasing artificial formula use (Maslowsky et al., 2016). A study in the United Kingdom found that lack of breastfeeding advice and support is associated with early cessation of breastfeeding (ten days) (Oakley et al., 2014) and a Cochrane review found breastfeeding support is associated with increased duration and exclusivity of breastfeeding (McFadden et al., 2017). Given the low PNFC attendance and sharp decline of exclusive breastfeeding post-discharge in Oman, PNFC interventions, including equipping health centre HCPs to provide breastfeeding support, have the potential to improve exclusive breastfeeding rates.

The amount of information provided to women and families around the time of discharge varies, but can be significant, and earlier discharge practices mean a shorter length of time for HCPs to effectively communicate all the necessary information and skills to women (Smith et al., 2022). Women in this study indicated that the information received was not sufficient, which is in keeping with other studies in which women did not feel equipped with the required knowledge (Almalik, 2017b; Martin et al., 2014) or well prepared and supported to manage challenges once home (Smith et al., 2022). Providing written information (and links to additional information) to women and their partners to take home provides additional support, and allows for the information to be re-visited as needed. Information leaflets with titles such as *Going Home from Hospital After Your Baby is Born* or *Discharge Information Following Caesarean Section* could be provided as a way of addressing the information needs of women (World Health Organization, 2022) in Oman.

Regarding the information and care provided to women and their newborns, the women in this study said they were 'satisfied' or 'neither dissatisfied nor satisfied'. Satisfaction with healthcare services has been shown to be associated with experiences of received care and how well expectations are met (Banda et al., 2023). Thus, in this study, a reason

why women did not attend PNFC was that a previous experience with PNFC was not beneficial, which may explain why a third of women were neutral in their rating of satisfaction. Additionally, it has been reported that healthcare users are reluctant to rate satisfaction negatively if they are likely to be utilising services from the same institution in the future (Samant et al., 2022). Women in this study would have ongoing contact with the health centre in the future due to the health care model in Oman; thus, a neutral response allows for a response that would not be perceived as negative and impede future relationships with HCPs.

### Strengths and limitations

There are several strengths to this study. The survey used in this study was developed, validated, and rigorously translated using a forward and a backward approach to suit the Omani context. In addition, the postpartum women were recruited from two different areas (metropolitan and regional), which allowed us to identify differences and obtain a broader insight into PNFC practices. The potential limitation of this study was that the Checkbox survey tool words, such as 'Next', could not be translated from English. Further, the software had some limitations for use in Oman; the automated feature of sending short messages and/or reminders did not work, which meant these had to be sent manually, which consumed extra time and effort.

### Conclusion

The PNFC utilisation rate is suboptimal in Oman, with women seeking information from the internet and family members as opposed to HCPs. The main reasons for non-attendance for PNFC were that the women were given no advice to attend, had not previously benefited from the experience, and/or did not consider PNFC appointments important. The women indicated a need for a more structured approach for PNFC, breastfeeding support, and physical and mental health assessment for themselves. Overall, around a third of women were satisfied or neither dissatisfied nor satisfied with the level of information provided about taking care of themselves and their newborn and the level of maternal care received. According to the results of this study, it is recommended that HCPs offer women consistent guidance on the significance of PNFC. This guidance should not be limited to high-risk situations or birth spacing, but should apply to all women after giving birth. Providing consistent advice can reduce confusion and motivate women to make use of PNFC services. Additionally, women should be provided with various educational materials (e.g., pamphlets) and alternative contact approaches to fulfill their needs and enhance their satisfaction with PNFC.

### Ethical statement

The research was approved by the Research and Ethical Review and Approve Committee (RERAC), the Omani Ministry of Health [MoH/CSR/20/23647] and the University of Queensland [2020002085/MoH/CSR/20/23647].

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### CRediT authorship contribution statement

**Amal Al Hadi:** Writing – original draft, Visualization, Validation, Methodology, Formal analysis, Conceptualization. **Jennifer Dawson:** Writing – review & editing, Visualization, Validation, Methodology, Formal analysis, Conceptualization. **Michelle Paliwoda:** Writing –

review & editing, Visualization, Supervision, Methodology, Conceptualization. **Karen Walker:** Writing – review & editing, Visualization, Supervision, Methodology, Conceptualization. **Karen New:** Writing – review & editing, Visualization, Supervision, Methodology, Conceptualization.

### 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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### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2024.104037.

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