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ARTICLE

Reproductive and Health Challenges of Women Pilgrims during the Arbaeen Pilgrimage: A Qualitative Study

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Abstract

Background: The Arbaeen pilgrimage is the world's largest annual religious mass gathering, drawing millions of participants, including significant numbers of women. Despite this, limited research has examined the specific reproductive and general health challenges faced by female pilgrims. This study explored women's health experiences during the 2024 Arbaeen pilgrimage, with attention to the organizational and workforce factors that shaped service delivery.
Methods: A qualitative descriptive design was used. Thirty Iranian women aged 18 – 49 years were purposively selected to ensure variation in demographic and health characteristics. Data were collected through semi-structured interviews conducted in Farsi and analyzed using conventional content analysis. Trustworthiness was enhanced through member checking, peer debriefing, and maintaining an audit trail.
Results: Four interrelated themes emerged: (1) Reproductive health concerns including menstrual disturbances, inadequate menstrual hygiene, and symptoms of genital or urinary infections; (2) Environmental and infrastructural barriers such as overcrowded facilities, lack of privacy, and exposure to heat and fatigue; (3) Healthcare access and support limitations including insufficient female healthcare providers and reliance on self-care; and (4) Psychosocial and cultural challenges including stress, fatigue, and stigma surrounding reproductive issues. When interpreted through a Human Resource Development (HRD) lens, these challenges reflected broader gaps in workforce planning, volunteer training, gender-responsive staffing, and organizational coordination.
Conclusion: Women pilgrims experience a complex set of reproductive, environmental, and psychosocial challenges shaped not only by physical conditions but also by the preparedness and capabilities of the service workforce. Strengthening gender-responsive staffing, enhancing training for frontline personnel, and improving cross-organizational coordination are essential for safeguarding women's health during mass gatherings. These findings offer evidence for both public health planning and HRD-informed organizational improvement.

Keywords: Arbaeen Pilgrimage; Women's Health; Reproductive Health; Mass Gatherings; Qualitative Study; Human Resource Development

1. INTRODUCTION

Mass gatherings such as the Arbaeen pilgrimage present unique public health challenges. Arbaeen, held annually in Iraq, is the world's largest recurring religious gathering, attracting more than 20 million participants from different countries [1,2]. The journey involves long walking distances, limited infrastructure, overcrowding, and environmental stressors, which together create significant health risks. While studies have examined infectious diseases, injuries, and general health issues in mass gatherings, the specific needs of women remain underexplored [3].

Women pilgrims face distinct biological and social challenges that can affect their wellbeing during Arbaeen. Reproductive health needs such as menstrual care, management of gynecological

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symptoms, and pregnancy related concerns require privacy, adequate facilities, and appropriate healthcare services [4]. Yet, the temporary and resource limited settings of mass gatherings often provide inadequate sanitation, lack of privacy, and restricted access to female healthcare providers. These factors may increase vulnerability to infections, discomfort, and anxiety [5].

Cultural factors further complicate women's health experiences. In many contexts, discussing reproductive or gynecological concerns is associated with stigma, limiting women's willingness to seek care [6]. Combined with the physical hardships of pilgrimage heat, fatigue, and long travel durations these cultural constraints may exacerbate health risks and reduce women's ability to manage their needs effectively [7].

Human Resource Development (HRD) scholarship offers a valuable lens for understanding the organizational and workforce dynamics that shape service delivery in crisis-oriented environments such as mass religious gatherings. Research on crisis workforce planning emphasizes the need for agility, strategic staffing, and competency-based deployment to ensure that organizations can respond effectively under volatile conditions [8]. In mass gatherings, where reliance on volunteers is substantial, training and competency development become critical; studies show that inadequate training, unclear role expectations, and limited preparation among volunteers can undermine service quality and compromise safety [9]. Furthermore, leadership models within religious and non-profit organizations highlight the importance of distributed, values-driven, and community-based leadership structures capable of coordinating diverse stakeholders during large-scale events. HRD literature also reinforces that health and humanitarian systems must be gender-responsive, ensuring that staffing decisions, skill development, and support systems account for gender differences in needs, competencies, and workforce representation particularly in contexts where the availability of female providers is critical for equitable access to care. Collectively, these HRD perspectives underscore the relevance of examining women's health challenges in the Arbaeen pilgrimage not only as a public health concern but also as a reflection of broader workforce capability, leadership effectiveness, and organizational learning processes [10]. Despite women's active participation in the Arbaeen pilgrimage, little research has systematically explored their health challenges, especially from their own perspectives. Understanding these experiences is critical for designing gender sensitive services and ensuring equitable health protection in mass gatherings. This study aimed to explore the reproductive and general health challenges of women pilgrims during the Arbaeen pilgrimage using a qualitative approach.

2. METHODS

2.1. Study Design

This qualitative study used a descriptive-exploratory design to explore the reproductive and general health challenges of women pilgrims during the 2024 Arbaeen pilgrimage. A qualitative approach was chosen to capture in-depth perspectives and contextual experiences often overlooked in quantitative surveys.

2.2. Participants and Sampling

Participants were Iranian women pilgrims aged 18–49 years who attended the 2024 Arbaeen pilgrimage. The age range was limited to 18–49 years to ensure inclusion of women in their reproductive years, as the primary focus of this study was reproductive health. Women younger than 18 were excluded due to ethical considerations, while women older than 49 were excluded as most are postmenopausal and face different health concerns.

Purposive sampling was employed to ensure variation in age, marital status, parity, education, occupation, and health status. Data collection and analysis were conducted concurrently. Saturation was reached after the 25th interview, when no new codes or themes emerged; five additional interviews were conducted to confirm saturation, resulting in a final sample of 30 participants.

2.3. Data Collection

Semi-structured, in-depth interviews were conducted between September and October 2024. An interview guide was developed based on literature and refined after pilot testing. Topics included

perceived health challenges, reproductive health needs, access to care, and recommendations for improvement.

All interviews were conducted by a female researcher with a background in nursing and public health, formally trained in qualitative methods. Her gender, professional expertise, and cultural familiarity facilitated trust and comfort, particularly for sensitive reproductive health discussions.

Interviews were conducted in Farsi in private settings such as mokebs or accommodations. Each session lasted 30–60 minutes, was audio-recorded with consent, and supplemented by field notes. During the interviews, the researcher occasionally restated participants' responses to ensure accurate understanding, and more formal member checking was conducted after transcription.

2.4. Data Analysis

Interviews were transcribed verbatim and analyzed using conventional content analysis. Coding followed an inductive approach, with constant comparison across transcripts. The use of MAXQDA software was considered to facilitate coding, but given the manageable dataset, manual analysis was conducted. This ensured close engagement with the data.

Dependability was strengthened by independent coding of a subset of transcripts by a second researcher, with discrepancies resolved by discussion. Themes were refined through iterative analysis and peer debriefing. For confidentiality, audio files and transcripts were stored on password-protected, encrypted devices. Identifying details were removed, and anonymized participant codes (P1, P2, etc.) were used in reporting.

In order to align the study with Human Resource Development (HRD) perspectives, a secondary interpretive layer was incorporated during the analytic process. After the initial inductive content analysis was completed, the research team re-examined the emergent themes through the lens of HRD concepts—specifically crisis human resource management, workforce planning, volunteer competency development, leadership dynamics in non-profit and religious organizations, and gender-responsive HRD systems. This theory-informed reanalysis did not alter the original codes or participants' representations; instead, it enabled the identification of how workforce capability gaps, training needs, organizational coordination, and gender-sensitive staffing patterns were embedded within women's lived experiences during the pilgrimage. This approach is consistent with qualitative methodologies that integrate theoretical sensitizing concepts to deepen interpretation while preserving the integrity of inductively derived themes. The HRD framing therefore guided the restructuring of the Discussion and Implications sections to highlight the workforce, leadership, and organizational learning dimensions reflected in participants' accounts.

2.5. Trustworthiness

Rigor was established following Lincoln and Guba's criteria:

- **Credibility**: member checking and peer debriefing.
- **Dependability**: audit trail and double coding.
- **Confirmability**: reflexive notes and independent review.
- **Transferability**: thick description of context and participants.

2.6. Ethical considerations

All participants received written and verbal information about the study objectives, confidentiality, and voluntary participation. Written informed consent was obtained before each interview. To protect privacy, participants were assured that they could decline to answer any question or withdraw from the study at any time without consequences. All interviews were conducted in private or quiet spaces to ensure comfort and confidentiality. For data security, audio recordings and transcripts were stored on password-protected and encrypted devices. During transcription, all identifying information was removed, and anonymized codes were used instead of names. Only the research team had access to the data, and files will be securely deleted five years after publication, in accordance with institutional policy.

3. RESULTS

A total of 30 Iranian women pilgrims aged 18–49 years participated in this study. The majority were married (66.7%), with nearly two fifths having three or more children. Around one quarter reported a history of chronic illness. Participants represented a range of educational backgrounds, occupations, and economic statuses, ensuring diversity in perspectives (Table 1).

Table 1. Socio Demographic and Health Related Characteristics of Participants (N = 30)

Characteristic	Category	N (%)
Age (years)	18–24	7 (23.3)
	25–34	9 (30.0)
	35–44	8 (26.7)
	45–49	6 (20.0)
Marital status	Single	6 (20.0)
	Married	20 (66.7)
	Widowed/Divorced	4 (13.3)
Number of children	None	7 (23.3)
	1–2	11 (36.7)
	≥3	12 (40.0)
Education level	Primary or less	6 (20.0)
	Secondary/High school	10 (33.3)
	Diploma/Associate degree	7 (23.3)
	University degree or higher	7 (23.3)
Occupation	Homemaker	14 (46.7)
	Employed (government/private)	9 (30.0)
	Student	5 (16.7)
	Unemployed (seeking job)	2 (6.7)
Economic status (self-rated)	Low income	12 (40.0)
	Middle income	13 (43.3)
	High income	5 (16.7)
History of chronic disease	Yes	8 (26.7)
	No	22 (73.3)
History of reproductive tract problems	Yes	6 (20.0)
	No	24 (80.0)
Body Mass Index (BMI)	<18.5 (Underweight)	2 (6.7)
	18.5–24.9 (Normal)	13 (43.3)
	25–29.9 (Overweight)	9 (30.0)
	≥30 (Obese)	6 (20.0)
Travel duration (days)	≤7 days	10 (33.3)
	8–10 days	12 (40.0)
	>10 days	8 (26.7)

3.1. Themes Emerging From the Analysis

Analysis generated four overarching themes with corresponding subthemes (Table 2).

Table 2. Themes, Subthemes, Definitions, and Frequency of Mentions in Interviews (N = 30)

Theme	Definition	Subthemes	Frequency of mentions*
1. Reproductive health concerns	Challenges related to menstrual health, hygiene, and reproductive tract infections during the pilgrimage.	• Menstrual disturbances and cycle disruption (irregular periods, heavy bleeding, use of hormonal pills) • Poor menstrual hygiene management (shortage of pads, lack of safe disposal, water scarcity) • Increased genital/urinary infections (burning, itching, discharge, urinary discomfort)	Very High (reported by ~80% of participants)

Table 2. Themes, Subthemes, Definitions, and Frequency of Mentions in Interviews (N = 30) (continued)

Theme	Definition	Subthemes	Frequency of mentions*
2.Environmental and infrastructural barriers	Difficulties arising from inadequate facilities, sanitation, and physical environment.	• Overcrowded/unclean toilets and bathrooms • Lack of privacy and safety in shared facilities, especially at night • Environmental stressors such as heat, dust, and long walking distances	Very High (reported by ~90% of participants)
3. Healthcare access and support	Barriers to obtaining appropriate healthcare and reliance on informal solutions.	• Limited female healthcare providers (embarrassment with male doctors) • Reliance on self care or peer support (using traditional remedies, sharing medicine) • Insufficient reproductive health services in clinics and mokebs	Moderate to High (reported by ~65% of participants)
4. Psychosocial and cultural challenges	Emotional and cultural dimensions shaping women's health experiences.	• Stress and anxiety (fear of illness, fatigue, inability to complete pilgrimage) • Cultural stigma and silence around reproductive health issues (shame in disclosing problems)	High (reported by ~70% of participants)

*Very High = Reported by >75% of participants
High = Reported by 50–75% of participants
Moderate = Reported by 25–50% of participants
Low = Reported by <25% of participants

Illustrative participant quotations for each subtheme are presented in Table 3.

Table 3. Illustrative Participant Quotes for Themes and Subthemes (N = 30)

Main Theme	Subtheme	Sample Quotes from Participants
1. Reproductive health concerns	Menstrual disturbances and cycle disruption	1. "I took pills to stop my period, but in the middle of the trip I had heavy bleeding with no place to manage it." (P7, 29 yrs) 2. "Fatigue and lack of sleep made my period come earlier and irregular." (P12, 31 yrs) 3. "Many women used hormonal drugs; some complained of headaches and nausea as side effects." (P24, 26 yrs)
	Inadequate menstrual hygiene management	1. "There was no private space to change sanitary pads; I had to wait for hours." (P11, 34 yrs) 2. "Because there was not enough water, I reduced drinking fluids to avoid going to the toilet." (P19, 27 yrs) 3. "Sometimes I had to reuse my supplies because pads ran out." (P2, 22 yrs)
	Genital and urinary infections	1. "Dirty toilets caused me burning and pain while urinating." (P20, 38 yrs) 2. "I experienced itching and discharge but I didn't dare tell anyone." (P25, 30 yrs) 3. "Some women used homemade disinfectants to cope." (P8, 33 yrs)
2. Environmental and infrastructural barriers	Overcrowded and unclean facilities	1. "The toilets were too crowded and dirty, I had to hold myself." (P18, 41 yrs) 2. "Sometimes I waited half an hour in line just for the bathroom." (P9, 22 yrs) 3. "At times I avoided going because the facilities were unusable." (P4, 36 yrs)
	Lack of privacy and safety	1. "At night I didn't dare go alone to the toilets." (P22, 36 yrs) 2. "There was no way I could comfortably change clothes." (P27, 33 yrs) 3. "Women were always looking for a private corner, but it was impossible to find." (P10, 29 yrs)
	Environmental stressors (heat, dust, fatigue)	1. "Walking long distances in the heat made me very weak." (P14, 24 yrs) 2. "Dust everywhere gave me skin and breathing problems." (P30, 45 yrs) 3. "Exhaustion made me neglect my personal hygiene." (P5, 40 yrs)

Table 3. Illustrative Participant Quotes for Themes and Subthemes (N = 30) (continued)

Main Theme	Subtheme	Sample Quotes from Participants
3. Healthcare access and support	Lack of female healthcare providers	1. "When I had pain, only a male doctor was there, so I stayed silent." (P15, 27 yrs) 2. "I really needed to speak with a midwife, but none were available." (P21, 39 yrs) 3. "I felt embarrassed discussing women's issues in front of men." (P23, 35 yrs)
	Reliance on self-care or peers	1. "I used the medicine my friend had instead of going to the clinic." (P9, 33 yrs) 2. "I brought traditional herbs with me and used them." (P6, 25 yrs) 3. "Women often advised each other what to take for pain." (P17, 28 yrs)
	Inadequate reproductive health services	1. "Clinics mainly treated wounds and colds, not women's problems." (P16, 35 yrs) 2. "I saw no specific services for women." (P26, 28 yrs) 3. "When I asked about my issue, they said they had no facilities for that." (P1, 31 yrs)
4. Psychosocial and cultural challenges	Stress and anxiety	1. "Lack of sleep caused me severe anxiety." (P3, 25 yrs) 2. "I feared I could not finish the pilgrimage because of exhaustion." (P13, 40 yrs) 3. "I was always worried about getting sick during the trip." (P29, 37 yrs)
	Cultural stigma and silence	1. "Even though I had an infection, I didn't tell anyone because I was ashamed." (P28, 32 yrs) 2. "In our culture it's hard to talk about these issues, especially in front of men." (P5, 37 yrs) 3. "I felt embarrassed even to mention it to my close friends." (P12, 31 yrs)

3.2. Reproductive Health Concerns

Women reported menstrual disturbances, difficulties managing menstrual hygiene, and increased genital or urinary infections. These challenges were often linked to stress, fatigue, and poor sanitation facilities.

3.3. Environmental and Infrastructural Barriers

Participants highlighted overcrowded and unclean toilets, lack of privacy and safety, and environmental stressors such as heat, dust, and exhaustion. These factors compounded their reproductive health concerns and limited their ability to maintain hygiene.

3.4. Healthcare Access and Support

Limited availability of female healthcare providers was noted as a barrier. Many women relied on self -care, peer advice, or remedies brought from home. Participants also observed that most health services during the pilgrimage were not tailored to women's specific needs.

3.5. Psychosocial and Cultural Challenges

Stress, fatigue, and anxiety were widely reported, along with cultural stigma surrounding the disclosure of reproductive health problems. Many women described feeling reluctant to seek professional care due to embarrassment.

While most women described significant health challenges, a minority reported few or no difficulties, highlighting variation in experiences.

3.6. Reproductive Health Concerns

Although many participants experienced menstrual disturbances and infections, some women reported no major reproductive issues. "I brought enough sanitary supplies and did not face any difficulties managing my cycle" (P6, 25 yrs). Another participant emphasized preparation: "Because I was healthy and planned ahead, I didn't have any reproductive problems during the trip" (P19, 27 yrs).

3.7. Environmental and Infrastructural Barriers

Most participants highlighted overcrowding, poor sanitation, and lack of privacy. However, a few women considered the conditions acceptable: *"Compared to what I expected, the toilets were usable"* (P8, 33 yrs). Another remarked, *"The volunteers worked hard, and the bathrooms were cleaner than I imagined"* (P21, 39 yrs).

3.8. Healthcare access and support

While many described limited reproductive health services and the absence of female providers, some expressed satisfaction with general healthcare. *"I received timely treatment for dehydration, and the staff were kind"* (P13, 40 yrs). Another noted: *"Even though the doctor was male, he was respectful, so I felt comfortable"* (P4, 36 yrs).

3.9. Psychosocial and cultural challenges

Stress and stigma were common, yet several women emphasized resilience. *"The spiritual atmosphere gave me peace of mind and reduced my anxiety"* (P10, 29 yrs). One participant explained: *"I did not feel embarrassed to ask for help because everyone was supportive"* (P27, 33 yrs).

4. DISCUSSION

This study identified four main areas of reproductive and health challenges for women pilgrims during Arbaeen: menstrual disturbances and infections, inadequate infrastructure, limited healthcare access, and psychosocial/cultural constraints. These findings highlight the interplay of biological, environmental, and sociocultural factors in shaping women's health experiences in mass gatherings.

The findings are consistent with previous research on women's vulnerabilities during mass gatherings, particularly regarding sanitation and menstrual hygiene management [2]. However, this study extends the literature by showing how cultural stigma and lack of female providers compound these challenges [11]. Importantly, several participants reported few or no health problems, demonstrating resilience, preparedness, or satisfaction with available services. Including these negative cases enhances credibility by showing variation in experiences.

Addressing the identified challenges requires coordinated action by multiple stakeholders. At the policy level, the Iranian and Iraqi Ministries of Health should lead in deploying female healthcare providers, integrating women's health services into pilgrimage health plans, and ensuring adequate supply of reproductive health products [4]. At the community level, NGOs and women's health organizations can distribute hygiene kits, provide culturally sensitive education, and advocate for gender equity in services [12]. At the local level, mokeb organizers and volunteers can play a critical role in maintaining sanitation, designating female-only facilities, and offering private spaces for rest and hygiene. Together, these levels create a multi-layered, feasible framework for intervention [13].

Reinterpreting the findings through an HRD lens highlights how the women's health challenges observed in this study reflect broader workforce, leadership, and organizational development issues within the Arbaeen service system. The limited availability of female healthcare providers, signals a fundamental workforce planning and deployment failure, underscoring the absence of gender-responsive staffing strategies in crisis environments [14]. Women's reliance on self-care, traditional remedies, and peer guidance further illustrates training and competency gaps among both formal health staff and volunteers, suggesting that frontline personnel have not been adequately prepared to address gender-specific needs. Environmental and infrastructural barriers such as poorly maintained sanitation facilities and a lack of privacy reveal shortcomings in operational leadership and cross-organizational coordination, particularly among NGOs, mokeb organizers, and health authorities responsible for service delivery. Finally, the persistence of cultural stigma surrounding reproductive issues reflects a deficit in organizational learning, where lessons from prior pilgrimages have not been systematically captured or translated into practices that normalize women's health discussions or improve provider responsiveness [15]. Together, these HRD-oriented interpretations demonstrate that women's health experiences during Arbaeen are shaped not only by environmental or biomedical factors but also by the capabilities, preparedness, and learning systems of the organizations tasked with supporting them.

5. IMPLICATIONS FOR PRACTICE AND POLICY

- **National level (Health Ministries):** Deploy female healthcare workers, fund reproductive health services, and integrate women's health into preparedness plans.
- **Community level (NGOs, women's groups):** Provide menstrual hygiene kits, deliver awareness campaigns, and reduce stigma through culturally sensitive health education.
- **Local level (Mokeb organizers, volunteers):** Improve sanitation, ensure safe and private facilities for women, and collaborate with health teams for on-the-ground support.

This distribution of responsibility makes interventions both feasible and sustainable, combining top-down policy with bottom-up community action.

Integrating an HRD perspective highlights the need for strategic workforce development, gender-responsive leadership, and strengthened organizational support systems within the Arbaeen service delivery network. Effective workforce planning requires not only increasing the number of female healthcare providers but also ensuring that all frontline personnel including volunteers receive competency-based training in women's health, communication skills, and culturally sensitive care. Leadership structures across ministries, NGOs, and mokeb organizers should adopt more distributed and collaborative models to coordinate resources, standardize service protocols, and respond adaptively to emerging health needs during the pilgrimage. Furthermore, organizations must institutionalize learning mechanisms such as post-event debriefings, cross-sector knowledge exchange, and documentation of gender-specific challenges to transform individual lessons into system-wide improvements. By embedding these HRD strategies into preparedness and operational plans, stakeholders can build a more capable, inclusive, and resilient support system that better protects women's health in mass gathering settings.

6. CONCLUSION

This study provides novel insights into the reproductive and general health challenges of women during the Arbaeen pilgrimage. Women face a complex interplay of biological needs, infrastructural limitations, and sociocultural barriers that shape their health experiences. Effective responses require multi-level collaboration between health ministries, NGOs, and local organizers, with a focus on gender-sensitive services, sanitation improvements, and stigma reduction. Beyond Arbaeen, these findings contribute to the field of mass gatherings medicine by highlighting the importance of integrating women's health into preparedness frameworks. Safeguarding women's health in large religious gatherings is not only a matter of personal dignity but also a global public health priority.

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Contribution: A.H. conducted data collection and analysis. A.D.M. supervised the study, verified analysis, and contributed to writing and revisions.

Informed Consent Statement: All participants were provided with both written and verbal information regarding the purpose of the study, the interview procedures, potential risks and benefits, and their rights as research participants. They were informed that participation was entirely voluntary and that they could decline to answer any question or withdraw from the study at any time without any consequences. Written informed consent was obtained from each participant prior to the interview. Only adults aged 18 years and above were included in the study. Participants were assured that all information would remain confidential through the use of anonymized interview codes, and all consent forms and audio files were stored securely on password-protected, encrypted devices accessible only to the research team.

Ethical Approval: Approved by the Ethics Committee of Ilam University of Medical Sciences.

Data Availability Statement: Data are available from the corresponding author on reasonable request.

Conflict of Interest Statement: The authors declare no conflicts of interest.

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