

Optimizing Maternal Health in Refugee Settings: Perspectives on the WHO's Enhanced Antenatal Care Schedule: A Mixed-Methods Study in Zarqa, Jordan

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ABSTRACT

Introduction: Antenatal care (ANC) is essential for improving maternal and newborn health by enabling early detection and treatment of potential complications. In 2016, the World Health Organization (WHO) increased the recommended number of ANC visits from four to eight, aiming to enhance maternal health outcomes. This study explores the experiences of pregnant women in Jordanian refugee camps and examines the perceived impact of the revised WHO ANC schedule.

Methods: A mixed-methods study was conducted at Zarqa health centers in Jordan from May 28, 2023, to July 26, 2023. Data were collected through structured interviews with 46 female patients (pregnant, postpartum, or trying to conceive), focus group discussions (FGDs) with six participants, and semi-structured interviews with six healthcare providers. Quantitative data were gathered using structured questionnaires, while qualitative data were obtained through FGDs and provider interviews.

Results: Participants unanimously agreed that eight ANC visits are essential for optimal maternal and fetal health. Approximately 90% expressed a need for clearer communication from healthcare providers during appointments. Despite demonstrating strong self-awareness about when to seek medical attention, participants highlighted key barriers to ANC access, including transportation challenges, childcare responsibilities, and long waiting times. Healthcare providers acknowledged these barriers and emphasized the need for improved patient communication and resource allocation. Overall, participants reported general satisfaction with the services provided at refugee health clinics.

Conclusion: Optimizing ANC access in refugee settings requires a multifaceted approach that addresses communication gaps, logistical challenges, and systemic healthcare barriers to ensure equitable maternal health outcomes.

Key words: Maternal health; Global health; Refugee health; Jordan; Epidemiology

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INTRODUCTION

Pregnancy is a complex condition in which the health of the mother and the child is dependent on several environmental factors. Antenatal care (ANC) is a critical element for improving maternal and newborn health and provides a medium for pregnant women to receive social, emotional, and clinical support.¹ Regular ANC visits allow medical professionals to detect potential health problems early and treat them, lowering the chance of complications and bettering pregnancy outcomes.²

In 2016, the World Health Organization (WHO) proposed an increase in the number of recommended antenatal care (ANC) visits between pregnant women and their health care provider from the previously established four-visit focused antenatal care (FANC) model, developed in the 1990's, to a routine eight-visit model.¹ These recommendations sought to combat the rates of maternal and fetal deaths recorded in 2015; a year in which 2.6 million babies were stillborn and 303,000 women and adolescent girls died during pregnancy worldwide.¹ These deaths were almost entirely seen in low and middle-income countries, 98% of the child deaths and 99% of the maternal deaths in 2015, where access to ANC was either limited or non-existent.¹

The health of both the mother and the fetus can be greatly impacted by the fact that many pregnant women in Jordan have limited access to ANC services. Only 55.4% of pregnant Jordanian women obtain the required minimum of four ANC visits during their pregnancy, according to the Jordan Population and Family Health Survey 2017–2018.³ Additionally, only 44.8% of pregnant women in rural regions receive the necessary number of ANC visits.³

The health of the mother and fetus can be negatively impacted by limited access to ANC services in several ways. For instance, insufficient ANC might result in pregnancy-related problems including preeclampsia and gestational diabetes that go misdiagnosed and untreated.⁴ Preterm birth, low birth weight, and even maternal and neonatal mortality are just a few of the devastating effects that these diseases may have on both the mother and the newborn.⁴

Furthermore, insufficient ANC services might lead to insufficient instruction and counseling on pregnancy-related topics like nutrition, exercise, and breastfeeding.⁵ This may have a negative effect on mother and fetal health outcomes and raise the danger of labor complications.

The primary aim of this study is to understand the experience of pregnant women living in refugee camps in Jordan with limited access to ANC.¹ Additionally, this study aims to understand the effect of the WHO's 2016 ANC schedule changes in this population.

METHODS

Our study was done using a mixed methods approach that consisted of structured interviews with predeveloped questionnaires, focus group discussions (FGDs) with female patients trying to conceive, pregnant, or gave birth in the last 6 months, and semi-structured interviews with healthcare providers

utilizing pre-developed guidelines. The study was conducted from May 28th, 2023, to July 26th, 2023. The study population consisted of a sample of patients who visited the Zarqa health center in Jordan within the dates stated above. Participants were recruited using a convenience sampling approach from women attending Zarqa health centers between May 28 and July 26, 2023. Women were eligible if they were currently pregnant, had delivered within the past six months, or were actively trying to conceive. Those who declined consent or were under 18 years of age were excluded. Consent was obtained from each patient before conducting the structured interviews and FGDs.

Structured interviews with 70 female patients who trying to conceive, pregnant, or gave birth in the last 6 months took place in the Zarqa health centers. No formal sample size calculation was performed, as this was an exploratory study aimed at assessing perceptions and barriers to ANC. The final sample size of 70 participants reflected the number of eligible and consenting women attending the clinic during the study period. These interviews were carried out by medical students who were trained in conducting interviews and utilized short questionnaires consisting of closed-ended and open-ended questions. The structured questionnaire covered sociodemographic characteristics, obstetric history, access to ANC services, and perceptions of the WHO-recommended ANC schedule. Additional domains assessed included pregnancy-related knowledge, attitudes, practices, and self-efficacy. Content validity was ensured through adaptation from previously published ANC tools and expert review. The questionnaire was developed in English, translated into Arabic, and back translated to confirm accuracy. Reliability testing (e.g., Cronbach's alpha) was not performed, which we acknowledge as a limitation. The interviews were conducted in Arabic and the patients had access to the questionnaire throughout the interview. Part of the interview collected sociodemographic information consisting of whether the patients live in or outside the refugee camps, the amount of people living in their household, their household income, the patients' highest level of education, employment status, and age. The patients were asked to report if they were currently pregnant, gave birth within 6 months, or trying to conceive and how many pregnancies, and births they have had in the past. In addition, patients were asked to report if they were taking any medications or supplements and, if yes, what type. Patients were also asked if they had access to governmental health centers, UNRWA health centers, how many times they think they should see the doctor, and their opinion about a requirement of 8 ANC visits. Lastly, patients were asked several agree/disagree questions to determine their pregnancy knowledge, attitude, practices, and self-efficacy.

FGDs were organized with female patients who were pregnant, 6 months post-natal, or trying to conceive and visited the Zarqa health clinic in Jordan. FGDs provide an interactive space for participants to engage in group discussions and share their perspectives to each other and the interviewer. The guidelines ensured that key aspects related to the patients' experiences with family planning and contraceptives were covered in the discussion. The FGDs provided valuable qualitative data to complement the findings from structured interviews. The FGDs were conducted in Arabic by medical students who were trained in leading and conducting group discussions. Patients were asked why they think women should seek ANC, how many times they think women

should see the doctor during pregnancy, barriers that they believe women face that prevent them from utilizing ANC, and how to promote ANC.

Semi-structured interviews were conducted with the senior medical officer, physician, midwife, senior staff nurse, and staff nurse working at the Zarqa health center. The sample included a variety of providers to obtain a balanced representation of perspectives within the healthcare setting. The semi-structured interviews were conducted in Arabic and English by medical students who were trained in conducting interviews and allowed for in-depth discussions with the providers regarding their insights, challenges, and observations related to family planning and contraceptives in Jordan and UNRWA health centers. The providers were asked how many ANC visits are considered optimal, barriers that they believe women face that prevent them from utilizing ANC, and how to promote ANC.

Quantitative data were analyzed using descriptive statistics (frequencies and percentages) to summarize sociodemographic characteristics, perceptions of ANC, and reported barriers. No inferential statistical analyses were performed, as the study was exploratory. Qualitative data from FGDs and provider interviews were analyzed thematically.

RESULTS

The study included 70 female participants from the Zarqa Health Center, with the majority (97%) residing outside refugee camps and only 3% living within them (Table I). Participants were predominantly aged 25–29 (39%), followed by 18–24 (29%), 30–34 (16%), 35–39 (14%), and 40+ (3%). Educational attainment varied, with 33% completing preparatory/middle school, 24% completing secondary/high school, and 31% holding a diploma. Only 10% had a bachelor's degree or higher, while 1% completed only primary school. Employment data revealed that 87% of participants identified as housewives, 9% were unemployed, and only 4% were employed. Household size was distributed as follows: 60% lived in households with 3–5 members, 23% in households with more than six members, and 17% in smaller households of 1–2 members. Regarding household income, 81% reported earning under 500 Jordanian Dinars monthly, 17% earned between 500–999, and none reported incomes above 1,000 Dinars (Table 1).

When asked about their perceptions of the WHO's recommended eight ANC visits, 72.9% of participants believed the number was "just optimal," while 15.7% viewed it as "many but needed." A smaller proportion (5.7%) found it "few but convenient," and 2.9% felt the visits were "too few" or "too many" (Table 2). This perspective is further visualized in (Figure 1), where 73% of participants agreed that 8–9 visits were optimal, 19% suggested 10–12 visits, and only 8% recommended 4–7 visits. One participant stated, *"Eight visits make sense because every stage of pregnancy brings new challenges, and we need to check on the baby frequently."* Another added, *"I feel reassured every time I see the doctor; even if everything feels fine, it's good to confirm."*

Participants identified several barriers to accessing ANC services (Table 3). Childcare duties were

Table 1. Demographics of Patients at Zarqa Health Center

Characteristic	Frequency	Percentage
Place of living		
In Camps	2	3%
Outside Camps	68	97%
Age groups		
18-24	20	29%
25-29	27	39%
30-34	11	16%
35-39	10	14%
40+	2	3%
Educational Level		
Illiterate	0	0%
Primary school (completed grade 6)	1	1%
Preparatory/middle school (completed grade 9)	23	33%
Secondary/high school (completed grade 12)	17	24%
Diploma (completed 14 years)	22	31%
Bachelor's degree or higher	7	10%
Employment status		
Employed	3	4%
Unemployed	6	9%
Housewife	61	87%
Household Size		
1 to 2	12	17%
3 to 5	42	60%
6+	16	23%
Household income		
Under 500 Jordanian Dinars	57	81%
500 – 999 Jordanian dinars	12	17%
1,000+ Jordanian Dinars	0	0%
Preferred not to mention	1	1%

Table 2. Perspective on 8-visit Schedule

Increasing the required number of ANC visits to 8 is		
	Count (n=70)	Percent Total
Too few	2	2.9%
Few but convenient	4	5.7%
Just optimal	51	72.9%
Many but needed	11	15.7%
Too many	2	2.9%

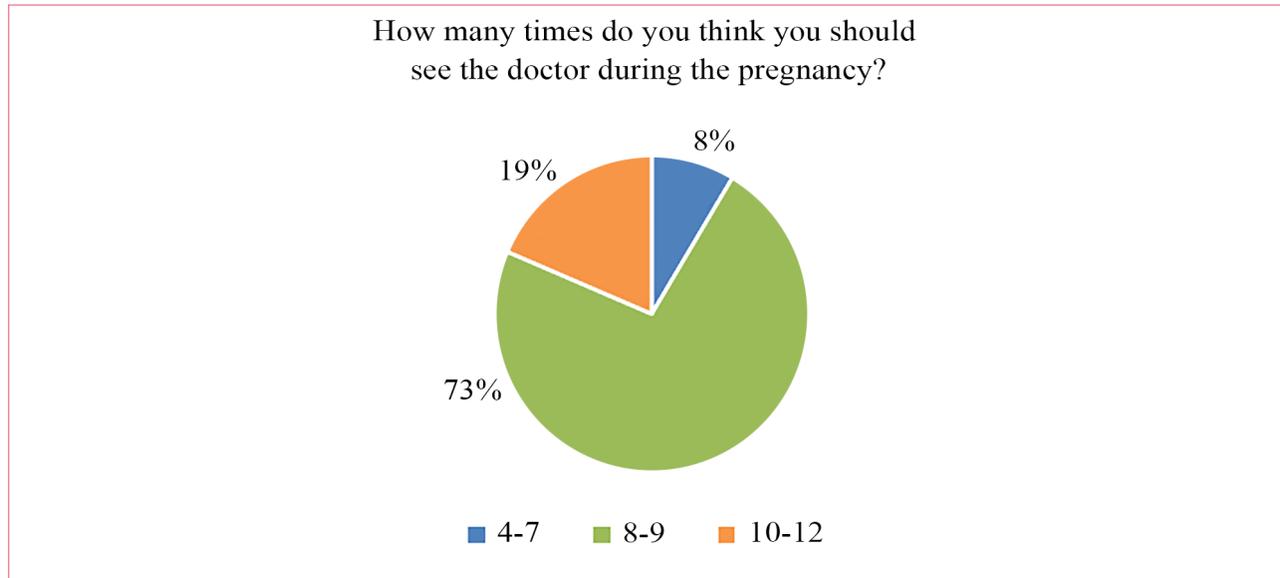


Figure 1. Perspective on optimal pregnancy visits

Table 3. Perceived barrier of care among patients interviewed

Perceived Barrier	Count	%
Childcare duties	38	54.3%
The need for companion	31	44.3%
Time limitation	30	42.9%
Transportation	20	28.6%
Travel distance	19	27.1%
Cost	18	25.7%
Other responsibilities	15	21.4%
Health conditions	9	12.9%
Social pressure/norms	8	11.4%
Work duties	2	2.9%

the most reported barrier (54.3%), followed by the need for a companion (44.3%), time limitations (42.9%), and transportation challenges (28.6%). Additional barriers included travel distance (27.1%), cost (25.7%), other household responsibilities (21.4%), health conditions (12.9%), social pressure/norms (11.4%), and work duties (2.9%). One participant explained, "I have kids at home. I live far away, and transportation isn't always available." Another shared, "Sometimes I am way too tired or sick, and I cannot go."

Pregnancy-related knowledge, attitude, and self-efficacy were assessed through structured interviews. A significant majority of participants agreed or strongly agreed with statements affirming their ability to care for themselves and their baby, their comfort with physical changes during pregnancy, and their confidence in knowing when to seek medical help. However, 40% agreed or strongly agreed with the belief that doctor visits were only necessary if something felt wrong during the pregnancy, while 57.1% disagreed with this. One participant expressed, "I only go to the doctor

if something feels wrong; otherwise, everything seems normal to me."

Focus group discussions (FGDs) provided deeper insights into participants' experiences. Women highlighted challenges such as the lack of transportation, fatigue, and childcare responsibilities as primary barriers to ANC visits. One participant noted, *"I have kids that go to school, some in the morning and some in the afternoon. It's hard to find time for myself."* Long waiting times and insufficient communication from healthcare providers were also highlighted as challenges. A participant mentioned, *"Sometimes I wait for hours, and when I finally see the doctor, they rush and don't explain my test results properly."* Another stated, *"There's no ultrasound, and referrals are only given if there's a problem."*

Overall, participants demonstrated a positive attitude toward the WHO's eight-visit ANC schedule, showing strong awareness of its benefits. However, systemic barriers, including logistical challenges and communication gaps, remain significant obstacles to optimal ANC access in refugee setting.

DISCUSSION

UNRWA's proposed changes from a 4-visit antenatal care schedule to an 8-visit care schedule per WHO recommendations are well-received by the study population in the Zarqa Health Center. Most participants felt that an increase to the 8-visit schedule was optimal, and that they would attend the visits with the revised schedule. This positive response shows a strong awareness of the importance of ANC and self-efficacy among women regarding maternal health and the well-being of their babies.

Despite this positive outlook, the study also highlights barriers faced by these women, including transportation challenges, time constraints due to childcare, and the need for better communication from healthcare providers. Approximately 90% of participants noted a desire for clearer communication about their health and care instructions, an area that could be strengthened to enhance patient understanding and satisfaction. By addressing logistical barriers and enhancing communication, UNRWA health centers can not only improve attendance rates for ANC visits but also empower women with knowledge and confidence in their healthcare journey.

Furthermore, while participants generally showed a high level of self-efficacy in managing their health and knowing when to seek help, 40% agreed with the sentiment that they only need to see a doctor if complications arise. This belief indicates that despite the willingness to attend more frequent visits, there remains a gap in understanding the preventive aspect of ANC. Targeted education could bridge this gap, reinforcing the benefits of regular monitoring beyond merely responding to complications. Addressing these elements could optimize the impact of the new 8-visit schedule.

Healthcare providers also noted systemic challenges, including resource limitations and long wait times, which further exacerbate barriers to ANC access. Addressing these logistical and systemic

barriers through improved scheduling, transportation support, and community outreach programs could significantly reduce obstacles to care.

In conclusion, while the WHO's eight-visit ANC model is largely supported by refugee women in Jordan, successful implementation requires a multifaceted approach. Efforts must focus on improving communication between providers and patients, addressing logistical challenges, and reinforcing the preventive importance of ANC through targeted education campaigns. These interventions have the potential to optimize maternal health outcomes and ensure that the benefits of the revised ANC schedule are fully realized.

CONCLUSION

In this study, user perspectives toward the increase in the frequency of antenatal care visits for women serviced by the UNRWA health centers from the 4-visit schedule to 8-visit schedule was explored. Although most study participants demonstrated willingness to adopt the 8-visit schedule, further studies need to be conducted to explore the public opinion about the 8-visit schedule. Most participants supported the revised schedule, recognizing its importance for maternal and newborn health. However, barriers such as transportation, childcare responsibilities, and communication gaps persist.

Further research is needed to better understand these challenges and develop targeted solutions. Ongoing data collection aims to provide deeper insights into improving ANC accessibility and effectiveness. Addressing these barriers is essential for enhancing maternal health outcomes in refugee settings in Jordan and beyond.

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