Improving the health status of Afghan mothers in the Islamic Republic of Iran

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Abstract

Background: The health care system of the Islamic Republic of Iran provides special maternal health services for mothers, regardless of their nationality.

Aims: This study, supported by the United Nations Population Fund (UNFPA), was conducted to review the available data associated with health indicators of Afghan mothers living in Iran.

Methods: This descriptive study was conducted in 2020. Detailed data on Afghan mothers' characteristics, morbidity and mortality from 2017 to 2019 were extracted from the electronic registration system of the Ministry of Health and Medical Education's Maternal Health Office. Based on the results of the study, interventions were proposed to improve health services for vulnerable mothers.

Results: The number of deliveries over the three years was 168 488. The percentage of deliveries in Afghan women to total deliveries increased from 3.4% in 2017 to 5.2% in 2019. The majority of the target population (more than 70%) was from the vulnerable group (illiterate with lack of access to social welfare). Ten percent of deliveries among Afghan mothers were performed by traditional birth attendants. The rate of caesarean section among Afghan mothers was 30%. The Afghan mothers' maternal mortality ratio was 43 per 100 000 for these three years.

Conclusions: Under the Islamic Republic of Iran's primary health care system, Afghan mothers are using services provided for mothers in the country. Their health situation, although better than Afghan mothers living in their homeland, is different from Iranian mothers. In this regard, some interventions are needed to improve their health status.

Keywords: mother, migrants, health indicator, mortality, morbidity, births

Introduction

According to the WHO report, *Maternal mortality: Levels and trends 2000 to 2017*, Afghanistan is among the countries with a high (500–999) maternal mortality ratio (MMR). This rate declined dramatically, by 56%, from 2000 to 2017. Obstetric haemorrhage, gestational hypertension, sepsis and active-phase cardiac arrest were reported as the most common causes of maternal death. Regional security problems, low access to maternal health services, gender inequality, cultural barriers, inadequate numbers of female health staff, unequipped medical centres, adolescent pregnancy and a high illiteracy rate are factors that may threaten Afghan maternal health *(1)*.

In the last decade, as per a 2021 report by the Office of the United Nations High Commissioner for Refugees (UNHCR), the Islamic Republic of Iran has hosted between 3 million and 4 million Afghan migrants, estimated to be 3.5–4.5% of the country's population. Approximately 780 000 of these migrants have residency permission; 2.1–2.25 million are undocumented; and 586 000 are passport holders. Fewer than 50% of the migrant population is female and about one-third of them are of reproductive age *(2-4)*. Immigration due to food insecurity, resettlement, socioeconomic problems, discrimination, and cultural diversity may also deteriorate their condition and reduce the quality of their lives to below average *(3,5,6)*.

The maternal health programme of the Islamic Republic of Iran is on track with the UN Sustainable Development Goals (SDGs), according to a WHO report published in 2019 *(3)*. Its health care system provides special maternity health services for women during pregnancy and up to 42 days postpartum, regardless of the mother's nationality. The vision of the maternal health programme emphasizes well-qualified care provision for both Iranian and non-Iranian mothers.

Programming to improve the health status of pregnant immigrant women and to adopt appropriate interventions requires adequate knowledge of their health situation, health status problems, their level of access to health services, and the quantity and quality of supportive services, among other factors. In this regard, this study was conducted to review the available data associated with health indicators of Afghan mothers living in the Islamic Republic of Iran from 2017 to 2019. The results of the study aim to increase the capacity to facilitate access to the health system and improve prenatal and postnatal outcomes for these women.

Methods and sources of included data

In 2020, a descriptive study was conducted in the Maternal, Fetal and Neonatal Research Center affiliated with the Tehran University of Medical Sciences. Detailed data on Afghan mothers' demographic characteristics, morbidity and mortality from 2017 to 2019 were extracted from the electronic registration system of the Ministry of Health and Medical Education's Maternal Health Office (www.iman.health.gov.ir). In 2011, the ministry designed and launched this electronic system, named the Iranian Maternal and Newborn Network (IMANN), to register childbirth and neonatal data throughout the country.

The collected data were analysed using the Statistical Package for the Social Sciences, version 23.0 (SPSS, Chicago). Data related to the cause of maternal death, access to prenatal, intrapartum and postnatal health care morbidities among Afghan mothers were also extracted and used *(7)*. Based on the results, necessary interventions to improve health services for vulnerable mothers were proposed.

Results

Statistics and data related to Afghan mothers

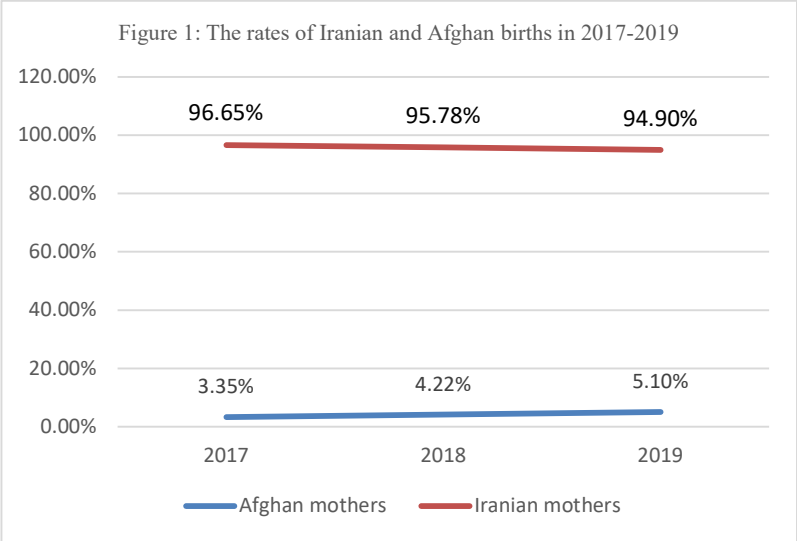
According to data extracted from the electronic health system, the number of deliveries across three years (2017–2019) was 168 488. The percentage of deliveries in Afghan women to total deliveries increased from 3.4% in 2017 to 5.2% in 2019 (see Table 1).

Table 1: Deliveries (%) among Afghan mothers (2017–2019) and demographic characteristics

Variables	Deliveries among Afghan mothers (%)
Total deliveries (4 015 347) 2017 (1 456 346) 2018 (1 357 032) 2019 (1 201 969)	*168 488 (4.2% of total live childbirths in Iran, 2017–2019)* 48 864 (3.4) 57 360 (4.2) 62 264 (5.2)
Geographic regions Urban Suburb and rural areas Missing data	 149 151 (88.52) 19 303 (11.45) 34 (0.03)
Level of education Illiterate Primary illiterate Lower diploma Higher diploma No response	 74 928 (44.47) 50 411 (29.9) 36 292 (21.53) 3036 (1.8) 3821 (2.3)

Maternal age <18 years 18< age <35 >35 years	 8035 (4.8) 142 745 (84.7) 17 708 (10.5)
Parity 1 2-4 >4	 45 493 (27.0) 94 762 (56.2) 28 233 (16.8)
Gestational age (weeks) <26 26-31 32-36 >37	 829 (0.5) 1962 (1.2) 10 494 (6.2) 155 203 (92.1)

The birth rates of Afghan immigrant and Iranian populations (2017–2019) are shown in Figure 1.



From 2017 to 2019, the number of Afghan births (168 488) was equal to 4.2% of all births in Iran (4 015 347). Data related to the three-year period indicate that these births were scattered across the country: 149 151 in urban areas (88.5%); and 19 303 births in suburbs and rural areas (11.5%). It is notable that immigrant mothers, particularly those without residency permission, lived in different provinces of the country.

The majority of the target population (above 70%) was from the vulnerable group with low levels of literacy and a lack of access to social welfare; of all Afghan mothers who gave birth during this period, about 74% were illiterate or had low levels of education and approximately 80% of these mothers were uninsured. Documented migrants could be insured through universal public health insurance by paying the premium fees, and UNHCR covered all costs for those flagged as vulnerable. Vulnerable groups are those with special diseases (e.g. haemophilia, thalassemia, renal transplant, multiple sclerosis) and their family members. About 15% of mothers were aged below 18 or over 35 years old and around 17% of them were grand multiparous. Preterm births accounted for 7.9% of all pregnancies (see Table 1).

Based on data extracted from the electronic health system, of the 63 universities of medical sciences in Iran, 16 universities reported 67% of Afghan births in 2018 and 2019. About 90.1% of all deliveries in 2019 and 89.5% in 2018 were performed by trained staff (specialists, midwives or general physicians). The percentage of deliveries performed by traditional birth attendants (TBA) was 10% among Afghan mothers (see Table 2).

Table 2: Number of deliveries among Afghan mothers performed at home or by traditional birth attendants (2018–2019)

Variables	2018 (n%)	2019 (n%)
Total Afghan deliveries	57 360	62 264
Delivery by traditional birth attendant	6023 (10.5)	6158 (9.89)
Delivery at home	7256 (12.65)	6163 (11.82)
Delivery on the way	7457 (13.00)	7360 (13.63)

Detailed data related to the history of underlying diseases demonstrated that hypertensive disorders were the most prevalent underlying disease (11%) among Afghan mothers (see Table 3).

Table 3: Underlying diseases among Afghan mothers (2018–2019) based on antenatal care files data

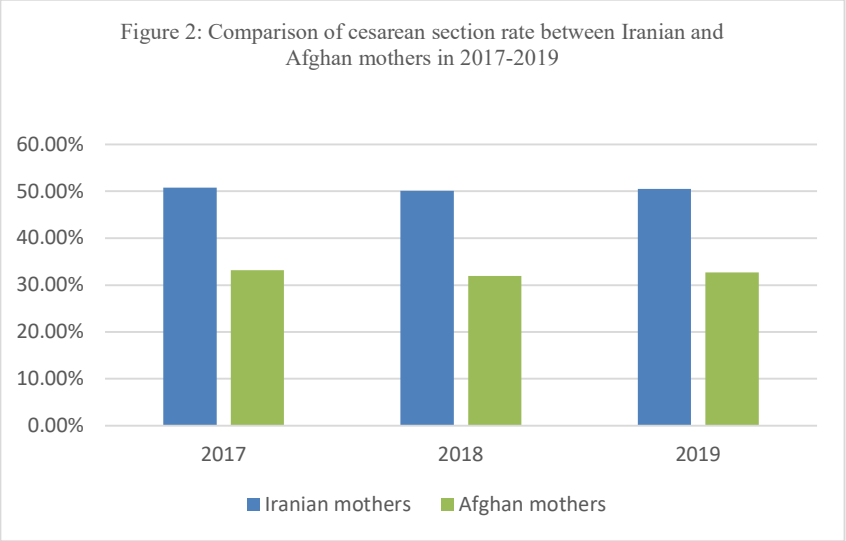
Year	Number of mothers getting antenatal care	Diabetes and gestational diabetes (n%)	Hypertensive disorders (n%)	Pulmonary tuberculosis (n%)
2018	76 055	5590 (7.35)	7202 (9.47)	684 (0.50)
2019	82 140	5340 (6.50)	10 473 (12.73)	685 (0.83)

Prenatal risk factors (addiction, anaemia, cardiac diseases, chorioamnionitis, chronic hypertension, diabetes, eclampsia, gestational diabetes, hepatitis, pre-eclampsia, pyelonephritis and thyroid dysfunction) can adversely affect maternal and neonatal outcomes. In the Islamic Republic of Iran, these risk factors are monitored by the maternal health programme. The data on Afghan mothers with at least one prenatal risk factor between 2017 and 2019 were extracted from the electronic medical system (5.0%, 7.5% and 9.0%, respectively). The results are shown in Table 4, suggesting that risk detection was improving each year.

Table 4: Births with at least one prenatal risk factor among Iranian and Afghan mothers

Year	Nationality	Number	%
2017	Iranian	183 569	13.0
	Afghan	2397	5.0
2018	Iranian	89 545	6.9
	Afghan	4340	7.5
2019	Iranian	97 826	8.5
	Afghan	5897	9.0

Iran is among the countries with the highest number of caesarean sections. The rate of caesarean section among Afghan migrant mothers (about 30%) was lower than the mean rate of caesarean section in Iranians by about 50% (see Figure 2).



The rates of return to the operating room (other than for caesarean section), transfers to the intensive care unit, and severe labour/delivery-associated complications (like blood transfusions and third- or fourth-degree lacerations) are monitored in all maternity centres. In 2017, the rates of return to the operating room and complications associated with labour/delivery were higher among Iranian mothers while there was no difference between Iranian and Afghan groups in the rate of transfer to the intensive care unit. When data were compared in 2019, transfer to the intensive care unit and maternal complication rates were slightly more frequent in Afghan subjects compared to Iranians (see Table 5).

Table 5: Comparison of pregnancy outcomes between Iranian and Afghan mothers (2017–2019)

Year	Nationality	Transfer to the operating room		Transfer to the intensive care unit		Severe delivery complications	
		Number	%	Number	%	Number	%
2017	Iranian	15 816	1.0	4477	0.3	17 672	1.2
	Afghan	217	0.4	191	0.3	61	0.1
2018	Iranian	9543	0.7	5269	0.4	6642	0.5
	Afghan	286	0.4	384	0.6	375	0.6
2019	Iranian	6679	0.5	5003	0.4	5585	0.4
	Afghan	315	0.5	436	0.7	419	0.6

Data indicate that the rate of immediate severe morbidity (e.g. massive haemorrhage, sepsis, uterine rupture) in Afghan mothers was about two times (3.78%) that of Iranian mothers (1.76%), usually due to higher parity, delay in noticing danger signs or delay in seeking medical care. For every Afghan maternal death, 94 immediate serious complications were reported.

In terms of maternal mortality, 24 Afghan mothers died in 2017, 24 died in 2018 and 25 died in 2019. The three-year MMR for Afghan mothers in Iran was about 43 per 100 000 live births. The Iran National Maternal Mortality Surveillance System (NMMSS) showed that, in 2018–2019, only 22.5% of maternal mortality cases among Afghan migrants had residency permission (see Table 6).

Table 6: Afghan maternal mortality based on socioeconomic variables and cause of death, 2017–2019 (%)

Variables	Number of maternal deaths			Total number (%)
	2017	2018	2019	
Place of residence				
Urban	12	14	16	42 (58.0)
Rural areas and suburbs	12	10	9	31 (42.0)
Maternal age				
<18	0	1	1	2 (3.0)
18< age <35	19	19	18	56 (76.0)
≥35	5	4	6	15 (21.0)
Residency permission				
Yes	6	6	5	17 (34.0)
No	18	18	20	56 (76.0)
Cause of death				
Abortion	1	0	1	2 (2.7)
Hypertensive disorders	3	4	1	8 (11.0)
Bleeding	6	4	6	16 (22.0)
Sepsis and infections	1	1	1	3 (4.1)
Other obstetrical causes	4	2	2	8 (11.0)
Complications of anaesthesia	0	0	0	0
Non-obstetrical causes	5	9	8	22 (30.0)
Unknown/undetermined causes	3	3	3	9 (12.0)
Coincidental	1	1	1	3 (4.1)
X causes[1]	0	0	2	2 (2.7)

Based on NMMSS, 43% of maternal deaths took place in rural areas and suburbs (see Table 6). Of all Afghan maternal deaths during the three-year period, 22% were during pregnancy and 78% occurred postpartum. Moreover, 79.5%, 5.5% and 15.1% of all maternal deaths occurred in hospital, on the way to the hospital or at home, respectively.

Comparing the total number of Afghan deliveries, maternal death at 35 years or older was about 2.5 times higher than in mothers aged 18 to 35 years. Based on the International Classification of Diseases (ICD-MM), the top three causes of maternal mortality are: in group 7, non-obstetrical causes (30%); group 3, bleeding (22%); and group 2, hypertensive disorders (11%). The various causes of Afghan maternal mortality in Group 7 are listed in Table 7.

[1] This group includes direct deaths without an obstetric code in ICD-10 (X60-X84 in ICD-10)

Table 7: Cause of death among Afghan mothers in group 7-ICD-MM

Non-obstetrical complication	2017	2018	2019
Cardiac disease	2	2	3
Respiratory diseases	3	–	4
Nephrotic syndrome	–	1	–
Cerebrovascular complications	–	1	1
Influenza	–	1	–
Chronic hypertension complication	–	1	–
Epilepsy	–	1	–
Diabetes complication	–	1	–
Pulmonary oedema	–	1	–

Discussion

Maternal morbidity and mortality, particularly in developing countries, remain a global challenge *(8)*. MMR as a maternal health impact indicator is affected by diversities in communities, countries and regions. Migrant populations are one of the most vulnerable groups for maternal mortality and near-miss morbidities *(9,10)*.

This study explored the health status of Afghan immigrant mothers in the Islamic Republic of Iran based on data extracted from existing electronic health registration systems. Mothers' characteristics, mortality and morbidity rates, and their distributions in the country, were assessed. We attempted to show the current health status of the target population, identify predisposing risk factors related to maternal mortality/morbidity, and determine the health situation.

According to the results, the birth rate among Afghan women increased from 3.4% in 2017 to 5.2% in 2019. These births were scattered across the country: 88.5% in the cities and 11.5% in the rural areas. It seems that resettlement of the immigrant population in the big cities of the host country can provide a chance to access the health system, but a lack of knowledge about the health care centres may deprive pregnant women of antenatal health services *(10)*.

Moreover, based on the UNHCR report, about 2 million Afghan migrants in Iran are undocumented *(11)*. Lack of documentation for these migrants may result in difficulties in seeking medical care, especially in hospitals. Primary health care in Iran is free of charge for every mother, regardless of their nationality or residency permission. However, in-patient health care provision is not free of charge in the public sector and the costs, especially for undocumented migrants, could be a major barrier to access. Without insurance, tariffs for non-Iranian mothers with or without residency permission are the same or higher, respectively, in comparison to Iranian mothers.

Beyond financial constraints, some undocumented women are reluctant to use free-of-charge services in primary health care centres because of the fear of deportation. This fear is even more pronounced for childbirth. Although health centres and hospitals are obliged to issue delivery notes and birth certificates, even to undocumented persons in Iran, in practice these mothers may face problems in obtaining such certificates due to invalid residency documents.

According to the study results, the majority of the target population is illiterate and not medically insured. Moreover, adolescent and geriatric pregnancies occur in about 15% of mothers and multipara pregnancies (more than four) were also observed in 17% of mothers. The correlation between low levels of education, early first pregnancy and multiparity was also demonstrated among Afghan migrants in Pakistan *(12)*. Other investigations confirm that illiteracy and low levels of education, adolescent and

geriatric pregnancy, and grand multiparity are significant risk factors that can adversely affect the maternal health status of migrant populations *(13-16)*.

According to the study results, the rate of Afghan mothers' home births or births in the presence of TBA in Iran was 10% over the three years. These notable rates were also reported by Bartlett et al., who reported that 60% and 52% of all Afghan mothers in Pakistan had a delivery attended by untrained staff and delivery at home, respectively *(12)*. These results highlight the role of skilled birth attendants in improving maternal health and reducing mortality rates *(16)*.

Data indicate that immediate severe morbidities, such as massive haemorrhage, pre-eclampsia, sepsis and uterine rupture, were about two times (3.78%) higher in Afghan mothers when compared to their Iranian counterparts (1.76%). Mothers' lack of awareness about their complications and obstetric danger signs, delay in seeking maternity care, late referral to hospital, and lack of timely treatment may be responsible for this severe morbidity *(17)*.

The types of morbidity among Afghan mothers were the same complications that are frequently observed among the host population. Another study from Iran demonstrated that immediate severe morbidities, including haemorrhage, pre-eclampsia, eclampsia and sepsis, were the most common threats to mothers' lives *(18)*. In addition, a study from Pakistan showed that obstetric haemorrhage, pregnancy-induced hypertension, puerperal sepsis, obstetric embolism and uterine rupture are the most frequent cause of near-miss morbidity among Afghan migrant mothers *(12)*.

In 2015, WHO stated that caesarean section rates higher than 10% are not associated with reductions in maternal and newborn mortality rates, so the rate shows that, for the immigrant population in Iran, access to caesarean section is more than the anticipated optimal rate (about 30%). This may be due to Iran's high rate of caesarean section (about 50%) *(19,20)*. In contrast to our findings, however, an investigation from Iran demonstrated that there was no significant difference in the rate of caesarean delivery (87.0% vs 73.0%; p=0.10) between 54 Iranian and 22 Afghan mothers *(21)*. Since the national data were analysed in this project, we believe the three-year study's results are more justifiable.

Concerning maternal mortality, the results show that 8-10% of all maternal deaths in Iran during these three years were of Afghan mothers. The three-year MMR for Afghan mothers in Iran was about 43 per 100 000 live births; this is much lower in comparison to the rate in their homeland, and yet almost 2.7 times the MMR in their host country.[2]

These results are similar to the results of a 2014 meta-analysis in Western Europe, which showed that MMR in migrant mothers was twice that of the host population *(22)*. It is also reported that maternal mortality in the migrant population is 1.5–3 times more than this rate in the place of residence, which may be due to inability to access or late access to the health care system, lack of health insurance, poverty, delivery at home or delivery by unskilled birth attendants; and that legal barriers like undocumented migration may be factors in such a high mortality rate *(23,24)*.

A study in Pakistan demonstrated that Afghan migrants have a higher risk of maternal death compared to the host population *(12)*. Another study showed that the rate of postpartum maternal death among foreign women in France was twice that of French women *(25)*. Geriatric pregnancies, settlement in rural areas and lack of residency permission are notable characteristics that could increase the risk of mortality. Furthermore, the majority of maternal deaths (78%) occurred during the postnatal period.

An investigation of Afghan women's views of maternity care indicated that immigrant women in Australia were more likely to be "very satisfied" with intrapartum care compared with postpartum care (70% vs 57%). Participants said that factors such as "doctors or midwives were too busy and less

[2] MMR in the Islamic Republic of Iran was 16 per 100 000 live births in 2017; in Afghanistan, the maternal mortality was 638 per 100 000 live births in 2017 (see WHO's *Trends in Maternal Mortality: 2000 to 2017*).

sensitive" and "waiting long times to be answered" could influence their satisfaction with postnatal maternity care *(26)*.

Recommendations based on the study

WHO recommends a three-step effort that includes assessing the structures, analysing the situation and implementing useful interventions to improve maternal health *(27)*.

Considering that all health services for migrant mothers are provided in the context of the health system of the Islamic Republic of Iran, all programmes related to promoting the health of this population need to be integrated into the health and medical networks of the country. Integrating programmes should be based on priorities like high birth parity, delivery by untrained attendants, geriatric pregnancy, living in rural areas and pregnancy/delivery-related complications.

Afghan mothers under the Islamic Republic of Iran's primary health care system are using services provided for mothers in the host country; and their health status, although better than those Afghan mothers living in their homeland, is different from Iranian mothers, based on the study results. In this regard, the following interventions are needed to improve their health status:

1. Classifying migrant mothers as a high-risk group, especially those without residency permission and/or those living in areas with a high rate of homebirth/TBA childbirth;
2. Providing mandatory education about danger signs across the different stages of pregnancy and childbirth, with special attention to determining how and when to seek care;
3. Sensitizing mothers and care providers about their underlying and gestational complications;
4. Overcoming cultural barriers and providing better support by employing university-graduated Afghan women (Afghan midwives and nurses educated in the Islamic Republic of Iran) for maternal health care provision;
5. Suggesting that UNHCR add pregnant women to the list of vulnerable groups so they can access free-of-charge insurance and support.

Ethical considerations

This study was conducted based on an agreement between the Ministry of Health and Medical Education-Maternal Health Office of the Islamic Republic of Iran and the United Nations Population Fund (see work plan GPS ID: 2020-157281). The translation of the agreement is attached as a supplementary file.

Conflict of interest

The authors declare that there is no conflict of interest.

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