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Impact of the Israeli Occupation on Palestinian Women Health, Narrative Review

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Abstract: Violations of human rights have been linked to the ongoing occupation and attacks on Palestine since 1948. This comprehensive review aimed to shed light on the physical and mental health difficulties and challenges facing Palestinian women of reproductive age. This revealed the impact of the aggression on paralyzing the healthcare infrastructure, depriving access to water and electricity, food shortages, and targeting healthcare centers, hospitals. As results, there are documented increase in maternal and morbidity deaths, deprivation of basic human rights, inability to reach health care centers or hospitals, and poor mental health. All these repercussions have shown complications that clearly and explicitly affect the outcomes of pregnancy, breastfeeding, childbirth, and the postpartum period among Palestinian women who suffer in Gaza and the West Bank from the occupation, considering the potential ongoing consequences for women as well as society in general. This review illustrated the importance of emergency humanitarian intervention and the necessity of making international efforts to meet the health needs of women and society in general during and after the war period. It also emphasized the necessity of putting an end to this aggression, ceasefire, and occupation, which stand as a clear barrier to achieving sustainable development goals and violate all human rights at all levels. Comprehensive, systematic, and accurate studies are necessary to document the effects of wars on maternal health for the purpose of developing policies, health plans, and comprehensive care interventions based on scientific research, in the light of these difficult contexts.

Keywords: Occupation, Women health, childbearing age, maternal mortality, access to health care, Palestine, Gaza

Introduction

Health is a fundamental human right, and the World Health Organization (WHO) emphasizes ensuring health care based on the principle of equality. and affordable cost for all, without discrimination on the basis of race, age, religion, or any other factors (1). The focus on health at the time of peace was so remarkable that the right to health was ignored during armed conflicts and occupations (2). In this way, human rights violations thus occur, including in the health sector, resulting in serious health consequences, discrimination in health care and denial of dignity and independence (1).

Armed conflict and occupation have a direct impact and hinder the achievement of Sustainable Development Goal-16 (SGD-16, peace and justice) and SGD-3 (health and well-being) of the Sustainable Development Goals (3,4). Wars and conflicts lead to a disruption in the availability of water and food, exacerbating poverty, unemployment, and homelessness. These factors have an impact on the health systems, as well as maternal and child health. (5). During times of conflict, the availability of healthcare facilities is compromised, leading to the disruption of vital healthcare services. Furthermore, there has been a steady increase in both the quantity of individuals impacted and the frequency of long-term disabilities. (6).

About 16.67% of children worldwide live in areas affected by military conflict (7) and approximately 265 million women live near armed conflict (8). Pregnancy-related mortality increases among pregnant women living under military occupation and conflict, as well as the likelihood of having newborns with unsatisfactory health outcomes (4,9).

Palestine is under decades-long occupation that began in 1948 (10). According to the Palestinian Central Bureau of Statistics (PCBS), since 1948 year, more than 100,000 Palestinians have been killed by the Israeli occupation forces (11). Furthermore, the Palestinians live under a division of Palestinian geographical areas and Israeli checkpoints, which leads to limited and obstructed access to health services and hospitals. These geographical divisions fall under 3 areas, namely A, B, and C, as Area A is controlled by the Palestinian Authority, while Area B is controlled by the occupation authorities with the Palestinian Authority, this division creates obstacles to movement and access in the West Bank (WB) (6,12). Israel has imposed a siege on the Gaza Strip since 2007. This includes obstructing transportation and access to health centers and hospitals outside Gaza, and reducing medical supplies, including essential medicines. In case the patient requires relocating from the Gaza Strip, Israel forces the patient to obtain an exit permit, and this permit may be rejected. There are patients who lost their lives because of the delay or rejection of the permit for treatment outside the Gaza Strip (12).

According to studies that examined the effects of war on health, it was found that wars and conflicts significantly affect psychological health and increase mental health problems (8,13), intimate partner violence, depression (13), anxiety, Post-Traumatic Stress Disorder (PTSD), and adverse childhood

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experiences (ACE) (14). Additionally, conflicts have an impact on food insecurity (15) and malnutrition (8,16), which worsen the well-being of women and children. It also raises the rates of mortality, morbidity, physical injuries, infectious diseases, poor sexual and reproductive health (8), obstructs access to health care centers, including antenatal care, negatively affects vaccination rates (6,17), and has considerable consequences for childbirth in well-equipped health facilities, childbirth by skilled birth attendants, and oral rehydration therapy (17).

Since the beginning of the occupation, the Palestinian people have suffered from Israeli aggression, increased poverty and unemployment, and violations of the most basic human rights in decades (6), since Israeli aggression has increased since October 2023. 2.2 million people have been deprived of basic food, medications, and healthy water, and electricity and fuel have been cut off. It is estimated that approximately 50,000 pregnant women in Gaza need pre-, intra-, and post-natal health care, with more than 180 women giving birth per day. 15% of them are likely to suffer from pregnancy or childbirth complications and need additional medical care (18,19). Hospitals and schools, which shelter many civilians, children, women, and refugees who have been forcibly displaced from their homes, have been bombed, and thousands of cases of killing have been recorded (18–20). One of the hospitals that was bombed was Al-Hilo Hospital, which is a specialized and crucial hospital that provides health care to Gazan women. The aforementioned bombardments, lack of fuel and electricity, and the killing of health workers make access to health care difficult and render the right to health impossible to realize (18,19).

This review aims to highlight the health difficulties and challenges that face Palestinian women of reproductive age during occupation and aggression, including aspects of physical and mental health, discuss complications that could or did occur during hostility, identify the urgent need for humanitarian intervention, and guide future research in this context.

Materials and Methods

Using many electronic bibliographic databases (Medline, CINAHL, Scopus, ScienceDirect, and SpringerLink), a comprehensive search was carried out for research on women's health during wars or conflicts. To find more research, key phrases like "women's health, reproductive health, pregnancy, childbirth, access to healthcare, mental health, depression, anxiety, insomnia, complications of pregnancy and childbirth, vaccination, domestic violence, nutrition, sexual health, migration, and war" were utilized.

Although there was no time constraint on the search, the earliest studies came from the early 1990s and later. Hundreds of studies were found using the database search. To find the papers that satisfied the inclusion requirements for additional examination, a screening of the title, abstract, and methodology was conducted.

Criteria for Inclusion and Exclusion

Among the requirements for inclusion were:

(1) solely original research

(2) Research designs: case control, cross-sectional, and reports

(3) Women who reside in conflict zones with a concentration on Gaza were considered study participants.

(4) At least one of the following was present in the study outcomes targets: malnutrition, prenatal, postnatal, antenatal care, health care access, pregnancy, migrant women's health, mental health such as depression, anxiety, post-traumatic stress disorder, and insomnia, reproductive health, sexual health, violence, and vaccination. Excluded studies were those that did not meet the inclusion requirements. The methodology, study design, study participants, intended outcome, and key findings of each of the chosen studies were examined.

Table 1 displays a summary of these studies that were included in this study, covering the period from 2004 to 2025, which addressed reproductive health, life expectancy, mortality, complications during childbirth and pregnancy, access to healthcare, the impact of wars and their remnants, vaccination, women's mental health, and malnutrition.

Life expectancy

The average life expectancy in Palestine in 2023 was 65.2 years (59.7 for males and 71.5 for women); in 2022, it was 76.6 for males and 74.2 and 79.1 for females (21). The recent war in the Gaza Strip resulted in a loss of life expectancy of more than 30 years in the first year of the war, and actual losses are likely to be higher (22). Since the October 7, 2023, war, the World Health Organization (WHO) has classified the Gaza Strip as a complex emergency (G3), requiring rapid response and support. The main health threats identified are war-related trauma and injuries, malnutrition, mental illness, and non-communicable diseases such as respiratory infections and diarrhea, maternal and neonatal complications, and acute jaundice syndrome (23). In a study that investigated the average life expectancy of Palestinians, it found that there is a significant difference in the average age between women and men and attributed the reason to factors related to the lifestyle in Palestine and the presence of the occupation. As for the difference between the two regions, the study found that women in the West Bank live one year longer than Gazan women (24).

In a study aimed to determine mortality caused by traumatic injuries in Gaza from October 7, 2023, to June 30, 2024, the estimated annual mortality rate was 39.3 per 1,000 people. Women, children, and the elderly (65 years and above) accounted for 16,699 (59.1%) deaths due to traumatic injuries. This study also confirmed that the death toll reported by the Palestinian Ministry of Health is accurate, but these figures should be treated as a lower estimate due to significant underreporting and the large number of missing persons (25). In previous wars in 2008, 2009, 2012, 2014, and 2021, the number of women and children killed ranged from 30% to 41%, demonstrating that the indiscriminate bombing of civilians has been going on for years and amounts to a war crime and a violation of the Genocide Convention (26). These findings highlight the urgent need to stop the aggression on Gaza and ensure humanitarian access throughout the Gaza Strip and the need to hold those responsible for killing civilians accountable, protect medical workers, and facilitate timely access to the injured to minimize the death toll.

Arab women under Israeli citizenship (48 Arab)

The occupation has had a negative impact not only on Palestinian women in Gaza and the West Bank. It has been documented that Arab women who hold Israeli citizenship are also suffering. They suffer primarily from health services inequalities. Arab women in Israel have a higher incidence of health problems than Jewish women (27–29). Arab women

citizens of Israel also experience health inequalities compared to Jewish women, facing obstacles such as unhealthy lifestyles, and limited access to healthcare service.

Table (1): Summary of the studies included

Authors	Publication year	Study sample	Study duration / period	Study variables	Main findings
Qlalweh et al.	2012	55,105 aged 20 or over	2006 to 2010	Life expectancy And chronic diseases	Life expectancy at age 20 increased from 52.8 years in 2006 to 53.3 years in 2010 for men, and from 55.1 years to 55.7 years for women. By 2010, it had decreased by 1.6 years for men and increased by 1.3 years for women. Among women, women in the West Bank live one year more than women in Gaza.
Jamaluddine Z, et al.	2025	Palestinian Ministry of Health hospital lists, an MoH online survey, and social media obituaries were used as a three-list capture–recapture analysis.	Oct 7, 2023, to June 30, 2024	Mortality rate due to traumatic injury	64,260 deaths were estimated, indicating that the Palestinian Ministry of Health underreported deaths by 41%. Deaths of children, women, and the elderly represented 59% of all deaths. The annual crude death rate was 39.3 per 1,000 people (95% confidence interval, 35.7–49.4).
Daoud N, et al.	2018	21 Palestinian women originally from the West Bank (ages 22–59) denied family reunification	February to July 2016.	family unification Lacking residency and access to health care services	The study found that denial of family reunification undermines women's access to healthcare services, increasing the incidence of health complications among women and their families, as well as political, economic, and social barriers that create feelings of insecurity and permanent instability.
Abu Mourad TA.	2004	485 refugee women were interviewed	from June to September 2001	Environmental health Diarrhea Intestinal parasites	The prevalence of diarrhea and intestinal parasites was higher among less clean environments and households and was closely linked to drinking water sources, 24-hour water supply, and clean water tanks. It was significantly higher among households with mosquitoes and garbage around their homes.
Al-Khatib I. et al.	2005	150 women, 103 were married and 47 were single	January and February 2002	Housing environment, refugee women	The results showed a positive relationship between women's physical and mental health and housing conditions, such as old buildings with cracked walls and unsanitary ceilings. Most homes in the camps are overcrowded, reducing privacy and increasing stress and domestic accidents. Poor ventilation and dampness also increase the prevalence of respiratory diseases among women in the camps.
Hamayel L. et al.	2017	27 women and 20 men (Jerusalem)	October 2013 to August 2015	Reproductive health	Women were exposed to risks during pregnancy and childbirth due to checkpoints, difficulty accessing health centers and hospitals, and a lack of social support due to the inability of their husbands or family to reach them at the time of delivery. Hospitals were overcrowded during wars to treat war-related injuries, thus delaying access to reproductive health services.
Bdier D. et al.	2023	408 Palestinian women (West Bank)	May 2022	Self-esteem social support posttraumatic stress symptoms and postpartum anxiety	Postpartum anxiety was associated with post-traumatic stress disorder, and negatively with social support and self-esteem in the northern West Bank.
Srour M. et al.	2018	300 pregnant women in the southern of Palestine	March to October 2015	Iron deficiency anemia	The prevalence of anemia was 25% among pregnant women, and 52% had iron deficiency. The study found an association between maternal serum ferritin levels and low birth weight, recurrent preterm births, newborn length, gestational age, and head circumference.
Horino M. et al.	2020	587 pregnant women and 582 children (6 to 59 months) in the Gaza Strip	2013	micronutrient deficiency, maternal and child malnutrition	Among pregnant Gazan women, prevalences of anemia and multiple micronutrient deficiencies
Manduca P. et al.	2020	Live births after 28 weeks 14,918 Total deliveries (including miscarriages & stillbirths) 15,188	2011, 2016, and 2018–2019	Exposure to heavy metals in the environment Reproductive health outcomes (surveillance at birth, birth defects and preterm babies)	In Gaza, adverse birth outcomes increased between 2016 and 2019 due to maternal exposure to heavy metals as a result of wars, heavy metal accumulation, and environmental pollution. Rates of miscarriage and birth defects among children increased, and there were higher rates of premature births.

Al Baraquoni N. et al.	2022	15,422 mothers and their newborns	2015, 2016, and 2018-2019	Developmental milestones and metal load in infant and in utero.	When analyzing the hair of newborns, it was found that increased metal pollution in the uterus and mothers' exposure to heavy metals during the war and its remnants increased the risk of low birth weight, dwarfism, and delayed growth in newborns.
Horino M. et al.	2023	772 pregnant Palestine refugee women in Jordan	February and June 2021.	Adverse childhood experiences and negative pregnancy outcomes	The prevalence of adverse childhood experiences (at least one) among refugee women was 88%, and 26% had experienced 4 or more types of such experiences, and this was associated with an increased proportion of female smokers, obesity before pregnancy, depression during pregnancy, and psychological issues.
Gibbs A. et al.	2020	534 Palestinian women	February 2017	occupation-related events, Depression and intimate partner violence	Occupation-related events increased anxiety, stress, intimate partner violence, depression, and conflict with the spouse.
Leone T. et al.	2019	16,793 children and women 8477	2000–2014	Maternal and child access to care, vaccination, intensity of conflict	Areas under occupation and most affected by conflict are associated with a lack of access to preventive services such as maternal care and vaccinations.
Gammoh O. et al.	2024	177 Palestinian refugee women residing in a Gaza camp located in Jerash, Jordan	10–29 January 2024	Depression Anxiety, and insomnia	Having relatives trapped in the Gaza Strip during the war was significantly associated with elevated rates of severe depression, anxiety, and insomnia (73%, 60%, and 65%, respectively). Severe depression was associated with a previous diagnosis of chronic illness and having a first-degree relative in Gaza, while severe insomnia was associated with the loss of relatives and friends in the war and loss of contact with family and friends.

In a study conducted by (Daoud, 2008) included Palestinian women who have citizens in Israel, reported: Arab women in Israel face more health difficulties than Jewish women. These disparities were investigated through six focus groups with 86 Arab-Moslem women from the Triangle area in central Israel, who discussed barriers to good health and ways for sustaining it. The perceived barriers ranged from personal to sociopolitical: unhealthy lifestyles, the political situation, poverty and lower socioeconomic standing, and inadequate access to certain health care services. These barriers appeared to work together to limit women's access to social support and health-care systems, exacerbate feelings of powerlessness, and encourage unhealthy behaviors. The findings provide a basis for building more culturally competent and adequate health care services for Arab women in Israel, as well as more research into Arab women's health in the region (27).

Poverty among Arabs is twice as prevalent as among Israeli Jews, with more than half living below the poverty line (30). Lack of public transportation in Arab villages and cities is another issue that limits Arab women's economic options (31). lack of government investments in infrastructure and education in Arab cities and towns (32). All of the above factors have all been repeatedly associated with disparities in health outcomes.

The rates of mental health problems among the Arab minority in Israel are significantly higher than in the Jewish population (33,34) Shemesh et al found that 45.7% of Arab women over the age of sixty experienced considerable psychological discomfort, compared to 33% of Arab men and 25.2% of Jewish women. While (35) found that Arab women had greater rates of any affective or anxiety illness (12%) in the last 12 months than Jewish women (10.1%).

Denied Family Unification

Palestinian women have faced difficulties in obtaining family unification, with approximately 20,000 Palestinian women from the occupied Palestinian territories denied the right to comprehensive healthcare services and residency after marrying Palestinian citizens and moving to Israel. The lack of family unification and residency has other implications, including poverty, with the additional costs of private health insurance, permits, and legal fees, as well as family separation and the risks associated with military checkpoints. The lack of residency exacerbates gender inequality due to increased dependence on the husband, and the constant fear of deportation and instability compounds the problems, tearing families apart and harming children (36).

Arab women who live in East Jerusalem,

This group of women is understudied and received no attention from the researchers which make the literature sources are very sparse (37). Arab women in East Jerusalem encounter significant health disparities compared to their Jewish counterparts, influenced by socioeconomic challenges, language barriers, and systemic issues (38).

It was found that Arab Palestinian women in Jerusalem were having trouble talking with doctors and understanding their instructions due to language challenges. The women also reported difficulty interpreting their blood test results and obtaining medical information, as well as a lack of knowledge about their screening requirements. They reported not knowing what their medical rights were. They also complained about inconsistency in medical personnel, which made building a relationship with their doctor difficult (37).

Israeli policies obstruct the access to maternal health services for residents of the Kafr Aqab neighborhood in East Jerusalem. The presence of military checkpoints increases the

rate of pregnancy and childbirth complications and the lack of family social support (36,39).

Challenges to Women's Health in Palestine

Despite all these hardships—bloodshed, violence, loss of loved ones, and limited access to resources—the resilience of Palestinian women is admirable. They are the primary caregivers and supporters in their communities and are committed to future generations. However, acknowledging that these women face difficult challenges is a challenge, exacerbated by the intersecting dynamics of conflict, limited educational opportunities, lack of access to healthcare, poverty, and gender inequality, which exacerbate these women's vulnerability and marginalization (40).

1- Limited access to healthcare services

The racial oppression and domination in Occupied Palestinian Territory (OPT), tantamount to apartheid, It stands as an obstacle to the realization of the right to health for Palestinians (41,42). The occupation is considered a significant obstacle to accessing health services due to the presence of military points in Palestine. A longitudinal analytical study that included a fifteen-year period (2000–2014) and included 16,793 children and 8477 women in five regions of the OPT confirmed that the occupation has a negative impact on access to maternal health services and immunizations in the WB (6). Additionally, healthcare centers are typically overstretched due to the limited healthcare facilities, which in turn encourages the early discharge of mothers and their babies after birth (2–3 hours). This reduces the chances of detecting potential medical complications and providing life-saving interventions (43). Considering the recent aggression, rescue teams are facing difficulty carrying out their mission because of ongoing bombardments, a severe shortage of fuel for vehicles to transport patients and equipment and limited or no connectivity to mobile phone networks. Only 66% (05 November) of hospitals and 36% of primary care clinics across Gaza are partially operational, but they're all about to collapse. Furthermore, health care workers were killed and injured while on duty in both Gaza and the WB (44) .

2- Maternal Mortality and Morbidity

Maternal mortality

Although the maternal mortality rate in the West Bank in 2023 was 18.6 per 100,000 live births, which is fairly good (45) compared to other conflict-affected areas such as Syria and Yemen (2020), with rates of 30 and 183 per 100,000 live births, respectively (46), the ongoing humanitarian crisis in Gaza has exposed women to life-threatening complications without access to adequate health and medical services, leading to significant increases in maternal, neonatal, and fetal mortality rates, as well as morbidity; however, so far, there are no precise data or statistics available.

Women of reproductive ages living in war zones have three times higher mortality than do women in peaceful settings (8). In a study conducted by Jawad et al. (2021), it was found that wars increased maternal mortality by 36.9 per 100,000 live births (5). Notably, a study demonstrated that war during pregnancy is associated with perinatal death and stillbirth (47). Maternal deaths because of wars remain high even after the end of the war, and deaths may continue to rise for up to 7 years (5), which indicates the long-term effects of the disruption of health services for pregnant women and the lack of infrastructure for health centers (48, 49). In Gaza, 546 thousand women of childbearing age (15–49 years) live, and 58% are married (50). According to PCBS, 51,000 Palestinians, mostly children and women (17,954 and 12,365, respectively), have been killed by Israeli occupation forces (during the period 7/10/2023-15/04/2025). In addition, hundreds of health workers were killed, and 32,750 injuries were documented (51). These numbers reflect the urgent need and necessity to intensify efforts and humanitarian interventions to achieve a ceasefire, bring peace, and achieve the SDG.

Maternal morbidity

Public health and maternal and child health are significantly affected by wars and aggression. The lack of essential medicines and the interruption due to the recent Israeli aggression on Gaza put 350,000 patients suffering from diabetes, heart disease, and chronic respiratory diseases at risk of a rapid increase in morbidity and mortality. On the other hand, there are many cancer and kidney dialysis patients (at least 30 children) who are at risk of losing their lives at any moment (44). In addition, the lack of potable water, the collapse of sanitation infrastructure, and the overcrowding of shelters and hospitals increase the likelihood of disease and crisis moments (44). This has a significant and direct impact on the increase in miscarriage and infection (52).

Since 1967, the occupying forces have arrested more than 13,000 Palestinian women, including mothers and pregnant women, who suffer from deliberate medical neglect, which exacerbates the diseases they suffer from, including asthma, diabetes, kidney and eye diseases, sickle cell anemia, cancer, third-degree burns, osteomyelitis, and seizures, as well as physical and psychological violence and threats of rape (53). During 2003–2008, 4 Palestinian women were documented prisoners who were compelled to bear children while held in Israeli prisons; all of them attained very limited or no prenatal and postnatal care. Women are being chained to their beds until they enter the delivery room and re-shackled shortly (after a few minutes) after childbirth (53). In addition to the psychological health effects that pregnant women are exposed to in these circumstances, it has been found that the pregnancy can end in miscarriage and stillbirth (54).

A study indicated that exposure to wars in the first 5 years of a person’s life increases the probability of developing metabolic diseases and cancer (55). Cancer is the third cause of death in the OPT, accounting for 14.1% of total deaths in 2020 (56). Breast cancer is considered the most common cancer among Palestinian women (accounting for 32.0% of cancer diagnoses in the WB and Jerusalem and 18% of these in Gaza) (57). A study by Salem et al. (2022) revealed that the high rates of breast cancer and other types in the southern occupied WB due to the presence of Dimona's nuclear reactor, which directly affects the public health of OPT (58). In addition, cancer patients from Gaza and the WB face significant delays in diagnosis and treatment due to their inaccessibility to treatment and health centers due to occupation policies (59).

Gazan women's situation during the 2023 war

In Gaza, approximately 183 women give birth daily. Due to the war and recent aggression, it is expected that 15% of women will need additional medical care due to pregnancy and childbirth complications (premature birth, low birth weight, miscarriage, stillbirth, prematurity, congenital malformations, etc.) related to the war, lack of medicines, inadequate nutrition, unsanitary water, lack of access to healthcare centers and medical supplies,

and caesarean sections performed without anesthesia or electricity in some cases. It was reported that mothers were leaving only 3 hours after giving birth due to severe overcrowding in the hospital, an excessive number of war casualties, and a lack of beds. There was no access to postnatal services and even a lack of hygiene supplies to maintain their mental and physical health (60).

Under the current difficult conditions that women in Gaza are experiencing, there is a severe lack of access to adequate nutrition. 1 in 5 pregnant women suffer from malnutrition, and women in famine are forced to prioritize feeding their children over their own nutritional needs, which negatively affects them and their ability to breastfeed. Due to the lack of resources and feminine hygiene products, the psychological and physiological management of the menstrual cycle is a new challenge for women, with women replacing sanitary pads with fabric strips and diapers, which negatively affects their health. Some women have reportedly chosen to resort to using birth control pills as an emergency action, adding to the physical and psychological health complications (61).

Israel is using internationally banned weapons in Gaza, including white phosphorus, resulting in horrific injuries and burns (62). In addition to burns that can even penetrate the bones, there are other damages to the eyes and respiratory system due to the presence of phosphoric acids and phosphine (63). In a study carried out in Gaza that aimed to investigate the relevance of metal war remnants in utero on growth, it was indicated that infants that were in the uterus during the attacks at 6 months suffered more from stunting and underweight (42). In a similar study conducted in Gaza, it was found that maternal exposure to war minerals and residues increased the incidence of premature births, birth defects, and adverse health outcomes at birth (64).

3- Maternal health

Pregnancy

In a systematic review that aimed at the delivery of maternal and neonatal health interventions in conflict settings, it was found that the barriers to the implementation of maternal and neonatal health interventions were insecurity, lack of resources, lack of skilled health workers, limited funding, quality of care, and a lack of guidelines (48). Before the last aggression (in 2023) on Gaza, 94.8% (WB 94.3%, Gaza 95.4%) of pregnant Palestinian women visited the antenatal clinics at least four times (during 2019-2020) (65). In the aforementioned study, Leone et al. (2019), which was conducted in WB, emphasize that occupation has a negative impact on access to antenatal health services, particularly in the South WB (6). Furthermore, it reduces the likelihood of receiving prenatal care, such as blood pressure assessment, urine and blood tests, and iron supplements during pregnancy (4). However, in light of the most recent act of aggression, 50,000 pregnant women are struggling to access basic health services, and it is estimated that more than 840 women could suffer complications related to pregnancy and childbirth (44, 50). This will increase the likelihood of pregnancy complications that will not be assessed and controlled and thus increase morbidity and mortality among pregnant women.

Areas of armed conflict are significantly affected by an increased prevalence of unwanted pregnancies (66). increasing the risk of low birth weight, preeclampsia, and preterm labor (67).

Intrapartum and post-partum

As detailed in the introduction, all OPT is suffering from free movement and access due to Israeli checkpoints. The crossing of checkpoints imposed by the Israeli occupation is unpredictable (it can last from minutes to hours); this has led to an increase in deliveries at checkpoints and home deliveries (68, 69). Which leads to increased neonatal and maternal mortality and morbidity and severe maternal hemorrhagic shock (70).

Daily, 183 neonates are delivered in the Gaza Strip (18, 50). Considering this aggression, pregnant women have a higher risk of not having a skilled birth attendant during delivery and giving birth within a healthcare facility (4). Amid the shortage of medical supplies and medicines, emergency cesarean sections were performed without anesthesia (71), causing severe pain, which causes shock and mental anguish (72). The shortage of materials and medicines in light of the aggression will have serious and wide-ranging repercussions on both physical and psychological health.

Breast feeding

Despite the challenges that breastfeeding women in the OPT face, malnutrition due to poverty, a lack of health awareness, societal norms, and the siege imposed by Israel on the Gaza Strip (73). According to the multiple indicator cluster survey conducted by UNICEF and the PCBS, the median duration of any breastfeeding was 13.3 months during the period 2019-2020 (65). No studies or reports have yet been published assessing the state of breastfeeding during the escalation of aggression in Gaza or the WB. However, the quality of breast milk is negatively affected by the malnutrition of mothers living in a war zone (16). A study found that breastfeeding practices have decreased in areas of armed conflict (74), where the likelihood of breastfeeding for a period longer than 4 months is reduced, and stressful life events lead to the cessation of breastfeeding in children over the age of 12 months (16).

4- Immigration and Housing

“To be a refugee is hard, but to be a woman and a refugee is the hardest of all”

Palestinian refugees who reside in neighboring countries like Jordan, Syria, and Lebanon suffer challenging living conditions. The living conditions inside camps in Jordan have been described as "generally poor, with high population density, cramped living conditions, and inadequate basic infrastructure. Palestinian refugees living inside camps had lower school enrollment and education attainment, higher unemployment, lower income, larger households, substandard housing, poorer perceived health, lower health insurance coverage, and increased reliance on UNRWA and other relief services. Persistent discrepancies can lead to humanitarian issues and health imbalances among Palestinian refugees, including women (75).

Displacement resulting from war and armed conflict has been linked to damage to physical, psychological, and social health. Poor, unstable, and unsanitary living conditions in camps increase feelings of insecurity; women are exposed to violence and rape, and their access to justice is often restricted (76). In a systematic review of qualitative studies, including 494 participants, aimed at understanding the experiences of women in armed conflict, war zones, and forced migration, it was revealed that changing living conditions, including a lack of safety and inadequate access to basic resources such as food and medicine, also contribute to the increased vulnerability of

migrant women to complications during childbirth and pregnancy, exposure to violence and psychological illness, and a lack of access to healthcare and social support (77). Complications among immigrant mothers include elevated blood pressure (78), low birth weight, stillbirth, perinatal deaths, low Apgar scores, and an increased risk of neonatal mortality (79). A study of Palestinian refugee women living in camps in Lebanon indicated that deprivation, inequality, and poor environments were inversely associated with poor reproductive and mental health and with unequal access to health services (72).

Approximately 5.5 million refugees live in the Middle East, representing the largest refugee population in the world. After the Nakba in 1948, Palestinians from the occupied territories took refuge in five areas: Jordan, Lebanon, Syria, the West Bank, and the Gaza Strip. The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) provides them with humanitarian assistance and protection (80). Refugees constitute approximately 26.3% of the population in the West Bank and 66.1% in the Gaza Strip (45).

Since the war began on October 7, 2023, more than 1.93 million people out of a population of 2.3 million in the Gaza Strip have been displaced (81). The conditions currently facing displaced individuals in Gaza are extremely dire. The lack of access to proper water and sanitation facilities has led to the spread of disease (44). In 2004, a cross-sectional study conducted in the Nuseirat Refugee Camp of the Gaza Strip of 485 women revealed that intestinal parasites and diarrhea were strongly associated with crowding, the source of drinking water, unclean water, and unclean homes (82).

Overcrowding in the camps and lack of basic supplies have increased tension among the displaced, and cases of gender-based violence have been reported. Overcrowding leads to a lack of privacy and increases the level of anxiety, fear, and sadness among refugees (44). A study conducted in the Al-Ain refugee camp in Nablus, Palestine, with 150 women revealed a positive relation between women's physical and mental health. Living in a crowded home increases stress due to a lack of privacy, while humidity and poor ventilation increase the spread of respiratory diseases (83). On the other hand, the prevalence of severe depression, anxiety, and insomnia was high among Palestinian refugee women in Jordan who had relatives trapped in the war on Gaza. Severe depression was 73%, and it was significantly associated with having first-degree relatives and having chronic illnesses (84).

5- Malnutrition

One of the crucial issues that is fundamental to human rights is nutrition. Unhealthy environments, poverty, and inadequate maternal care all contribute to malnutrition. In conflict, these factors become more pronounced, exacerbating malnutrition among vulnerable groups (15). Pregnant, lactating women and children are vulnerable people in war and at risk of malnutrition, which can have harmful effects on both mother and child (16). In the Gaza Strip, there are excess prevalences of anemia and multiple micronutrient deficiencies, which include iron, zinc, vitamins A, D, B12, and E, varying from 11.4% to 84.7% among pregnant women (80). In a cross-sectional study that included 300 pregnant women and was conducted in WB, the prevalence of iron deficiency anemia among pregnant women was 25.7%, and 52% of them were iron-depleted (85). Another study carried out in Gaza revealed that the prevalences of anemia were estimated to be 20.7% and 42.8% in the first and second to third semesters, respectively (86). These high prevalence of anemia among Palestinian pregnant women raise concerns about the increased risk of low birth weight, maternal death, preterm labor, stillbirth, preeclampsia, gestational hypertension, and postpartum hemorrhage (87). The prevalence of zinc deficiency in Gaza was high among pregnant women, at 67.9% in the first trimester and 84.7% in the second and third trimesters (86). and zinc deficiency extend to the lactation period, which is 88.8% in the WB and 92.7% in Gaza (73). Zinc deficiency is associated with fetal growth restriction, low birth weight (88), preterm premature rupture of the membranes (PPROM) and preterm labor (89). Worries about these complications seem to be growing, especially considering the increasing aggression, food insecurity, poverty, and the blockade of Gaza.

6- Psychological health

Mental health issues in Palestine are caused by a sequence of factors, which include recurrent escalations of hostilities, a lack of mental health services, and ongoing traumatic experiences related to the Israeli occupation and aggression in the region . In 2020, 198 797 adults (45% women, 55% men) and 299 979 children (50% girls, 50% boys) were estimated to suffer from moderate to severe mental health disorders (44). In a systematic review and meta-analysis study that included 15,121 participants from WB and Gaza, the pooled prevalence of PTSD among Palestinian children and adolescents subjected to political violence action was 36%, varying between 6% and 70% (93). In a further longitudinal study (2006–2021), a cohort of 607 adolescents and adults, aged between 10 and 30 years, among whom were also those children who participated in the 2006 study, The findings revealed that at least 97.2% of participants had experienced at least six war traumas prior to 2006, and 100% of the participants were exposed to war traumas in 2021. Which means that Palestinians suffer for a decade from PTSD, which should be called chronic traumatic stress disorder (CTSD) instead of PTSD (94). Through this bad impact on the mental health of society, a study of 534 Palestinian women concluded that the impact of occupation-related events elevates intimate partner violence due to increased worsening mental health and gender-inequitable attitudes (13).

Six out of ten Palestinian women were exposed to disturbing occupation-related events reported in Gibbs et al.'s study, the most common of which were the arrest or humiliation of a family member, home invasion, demolition of the home, or witnessing the death of a family member. 5.0% of them claimed that the occupation forces had personally or directly injured them (13). Women who live in areas of political conflict and occupation live in constant tension and stress, which affects fetus growth. This situation becomes more complicated when appropriate health care is not available during pregnancy or in the postpartum period (6). In this context, it was found that exposure to traumatic experiences among Palestinian women was positively and significantly associated with pregnancy complications and postpartum anxiety (90,95). Postpartum anxiety and posttraumatic stress symptoms were positively correlated with posttraumatic stress symptoms and negatively correlated with social support and confidence (90). In 2021, it was found that 57% of WB reported PTSD, with a higher prevalence among women and those who had been displaced (44). This PTSD or CTSD is incurable unless the underlying cause of the problem is solved by ending the 75 years of living under occupation and aggression (94).

Adverse childhood experiences are a public health issue because of their lifelong impact on physical and mental health. A cross-sectional study conducted to investigate ACEs and their relationship to mental and health outcomes among pregnant Palestinian refugee women revealed that exposure to ACEs is prevalent among pregnant Palestinian refugee women. which are associated with obesity, mental health conditions, smoking, eating disorders, anemia, depression, and experiencing suicidal thoughts (14). The recent escalation in both the WB and the Gaza Strip (with rising numbers of dead and wounded and scenes of death and destruction of infrastructure) will affect the mental health of the population in the long term. The impact of the ACEs on women will affect the mental health of mothers and their offspring after that, making the effects of this war and occupation dangerous and harmful and extending across generations. In this context, the importance of emergency intervention and an integrated support system for all groups is paramount.

Conclusion and Recommendations

The long-term occupation in Palestine has affected every aspect of life, including women's health. Limited access to health services and the targeting of health centers, hospitals, and health workers have created unique obstacles for the Palestinian health system, especially regarding reproductive health. Furthermore, the deliberate and documented denial of access to international and humanitarian assistance, including water, food, essential medicines, and electricity, amounts to ethnic cleansing.

This study has shown that international actors, human rights institutions, decision-makers, the WHO, and the United Nations must respond with immediate intervention to end this occupation, ceasefire, and violation of Palestinian human rights and use their strong collective voices to pressure the Israeli occupation for its compliance with international humanitarian laws. There is also an urgent need to create laws, policies, and interventions to improve maternal and child health considering these violations; to train midwives and health workers to achieve the well-being of women in Palestine; to create thoughtful plans to support the health system; and to protect health workers. Empowering women and preserving their health and protection paves the way for sustainable peace, development, and justice in Gaza and beyond. Research is also important to bridge the gap in the literature in this area, through which a comprehensive understanding of the effects on reproductive health can be facilitated to find solutions and policies in this regard. Many references were reports and review studies; more studies are needed for a deeper understanding of the current humanitarian and health situation.

Documenting deaths, complications, the number of wounded, chronic and infectious diseases, malnutrition, lack of medicines and medical supplies, bombing of hospitals, and killing and threatening medical staff is essential for decision makers to put pressure on the responsible party to cease fire and commit to achieving the necessary peace, as well as ensuring the safety and security of health workers during their work and not being exposed to the occupation. Ensuring the safety and protection of medical personnel is imperative. Protecting health workers, creating a resilient health system that can withstand the pressure of adversity, and achieving safe access to health services can minimize the negative and catastrophic consequences of war.

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Consent for publication

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Conflicts of interest

The authors declare that they have no competing interests.

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Author's contribution

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