Original Article

Variations in Pregnancy Outcomes between Employed and Unemployed Women in Jordan

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Abstract:

Background and Aims

There has been a substantial rise in the percentage of working women worldwide, of which women of reproductive age comprise a significant portion. Various studies have reported contradictory results regarding the effect of employment on pregnancy outcomes. Our study aims to assess the effect of employment on outcomes of pregnancy in Jordan.

Materials and Methods

This study is a part of a comprehensive national study on perinatal mortality in Jordan, conducted between 2011 and 2012. Consenting women were interviewed by trained midwives via a structured questionnaire. Additional data was collected by midwives, obstetricians, pediatric nurses and neonatologists.

Results

A total of 21,980 women were included in the study with a response rate of 99%. Employed women were more likely to have non-singleton pregnancies (6.6% vs. 5.5%; p=0.022) and less likely to give birth vaginally (62.2% vs. 71%, p=0.00). They were also more likely to be hospitalized compared to unemployed women (11.2% vs. 6.1%, p=0.00) and have shorter intervals between deliveries. Unemployed women tended to be younger and of lower socioeconomic status, they had a higher risk of anemia during pregnancy (17.6% vs. 14.7%; p=0.00). There were no significant variations in preeclampsia (p=0.11), gestational diabetes (p=0.081), stillbirth (p=0.78), and neonatal death (p=0.22).

Conclusion

Occupational status appears to influence pregnancy outcome. However, due to the limitation of our study, further investigations and considerations are warranted to build a comprehensive model of antenatal care for both employed and unemployed women in Jordan.

JK-Practitioner2022;27(1-2): 55-58

Introduction

Over the past few decades, many researchers have addressed the effects of the work environment on pregnant women and their fetuses. Studies have demonstrated that strenuous physical activity, exposure to different toxic chemicals and metals, and noise-induced stress have negative effects the fetal health, manifesting as; low birth weight, preterm birth, neural tube defects, congenital malformations, miscarriages, orofacial cleft, musculoskeletal and nervous system defects [1–5]. However, other studies did not show any significant differences in maternofetal outcomes between employed and unemployed women [5].

Women in Jordan tend to work in skill-intensive sectors; mainly education, healthcare, and social work. Those sectors tend to be traditionally female dominated, thus regarded as safer working environments [6]. Studies by the US National Institute for Occupational Safety and Health (NIOSH) revealed that women face job related stress, musculoskeletal injuries, violence, and other hazards which can affect their reproductive health and pregnancy outcomes [7].

Adverse pregnancy outcomes such as; preterm delivery, low birth weight, congenital anomalies, and stillbirth are more common among Jordanian women than women in developed countries [8], and whether

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Indexed:

EMBASE , SCOPUS, IndMED , ESBCO , SCI , Google Scholar besides other national and International databases.

Cite This Article as:

Elayan A , Altiti RK , Assaf QO, , Alowesi Y , Daraghma S ,Kasasbeh N , Khader YS ,Petro TE.Variations in Pregnancy Outcomes between Employed and Unemployed Women in Jordan.JK Pract 2022;27(1-2): 55-58

Full length article available at **jkpractitioner.com** one month after publication

Keywords:

Employment, Pregnancy outcomes, Jordan, Middle East

employed Jordanian women are at a higher risk of these complications has not been explored before. This study aims to determine the correlation between maternal employment and pregnancy outcomes.

Methods

Study design

This study is based on secondary data analysis from the comprehensive national study of perinatal mortality which was conducted by the Jordanian Higher Population Council in collaboration with the Ministry of Health and the United Nations Children's Fund between March 2011 and April 2012 in Jordan. Eighteen hospitals were selected to represent the three regions of Jordan (south, middle, and north) and the different medical sectors (Ministry of Health, Royal Medical Services, Private sector, and University Hospitals).

All deliveries with a gestational age ≥ 20 weeks which took place within the study's timeframe were invited to participate in the study. Consent was obtained from the women who were interviewed by trained midwives using a structured questionnaire. Additional data was also collected based on the physical examination by the midwife and obstetrician at admission and discharge. Data on the living newborns were also collected by the pediatric nurses and neonatologists.

The study instrument was an interviewer-administered questionnaire, as well as a data sheet to be completed by the midwife and pediatric nurse under the supervision of the obstetrician and neonatologist who were required to sign all forms. The study was approved by the Jordanian Institutional Review Board (IRB). Every effort was made to protect the confidentiality and the identity of participants.

Data Collection and Analysis

Extensive data were collected on each participant and her newborn through structured interviews and extraction of relevant data from their medical records by trained collectors. Data included socio-demographic characteristics, obstetric history, antenatal care, mode of delivery, complications of delivery, newborn status (dead or alive), APGAR score, birth weight, and birth injuries and complications.

Gestational age was determined by the practicing physician, based on both ultrasound and the last menstrual period. It was calculated as the interval between the date of delivery and the first day of the mother's last normal menstrual period. Data on cesarean delivery; including cause, previous planning or lack of it, and complications were provided by the obstetrician.

Confidentiality was maintained for all participants throughout the interview process, in addition to coding all information prior to data entry. Data were entered, cleaned, and analyzed by the principal investigator using IBM SPSS version 20 [9]. Percentages were compared using the Pearson chi-square test. Any p-value smaller than 0.05 was considered statistically significant.

Results

Sample Characteristics

A total of 22,499 women were enrolled in the national study, with a response rate of 99%. Of those women, 13.61% were employed and 86.39% were unemployed. The women were mostly Jordanian and non-Jordanians were more likely to be housewives (6.4% vs 1.9%, p=0.00). The sample consisted mainly of women between 20 and 35, employed women forming 82.5% of them and housewives forming 81.5%. However, in the age group below 20, housewives made up the majority (7.1% vs 0.4$, p=0.00), and in women over 35, employed women were 17.1% compared to 11.5% of housewives (p=0.00). Employed women had higher incomes than housewives, 86.2% of then having an income over 350 JOD compared to 34.6% of housewives (p=0.00). There was no significant variations in smoking (p=0.18) and body mass index (p=0.29) between housewives and employed women.

Medical History

There were no significant differences between employed women and housewives when it came to history of low birth weight or preterm deliveries, but housewives were more likely to have a history of stillbirth (5.3% vs 3.9%, p=0.01). Unemployed had more pregnancies with 25.7% having more than 5 pregnancies compared to 18.4% of employed women (p=0.00). In addition, they had more previous deliveries, 18.4% being on their fifth or more delivery while only 10.5% of employed women had 5 or more deliveries (p=0.00).

Employed women were more likely to be hospitalized during their index pregnancy compared to unemployed women (11.2% vs. 6.1%, p=0.00), and they were more likely to be hospitalized between 24 and 34 weeks of gestation (7.0% vs. 3.9%; p=0.00). Employed women also had shorter intervals between deliveries, 20.2% waiting less than 2 years compared to 16.8% of housewives (p=0.00).

Utilization of Antenatal Care

Employed women were more likely to utilize antenatal care., 93.2% of employed women sought antenatal care in the first trimester compared to 91.1% of housewives (p=0.00). Housewives Furthermore, housewives were more likely to not attend any antenatal care clinics (1.2% vs 0.8%, p=0.00) while employed women tended to attend

more than 8 visits during the course of pregnancy (79.9% vs 68.5%, p=0.00).

Pregnancy Outcomes

Employed women were more likely to have non-singleton pregnancies compared to unemployed women (6.6% vs. 5.5%; p=0.02). Employed women were less likely to give birth vaginally (62.2% vs. 71%, p=0.00). In addition, unemployed women were more likely to have anemia during their pregnancies (17.6% vs. 14.7%; p=0.00). Employed women had a higher propensity to have both planned (21.5% vs 16%, p=0.00) and emergency deliveries (16.2% vs 12.8%, p=0.00). Less housewives had to go through instrumental deliveries, only 4.4% needing forceps in comparison to 7.6% of employed women (p=0.00).

However, there were no significant variations in the presence of preeclampsia (p=0.11) or gestational diabetes (p=0.081). Stillbirth (p=0.78) and neonatal death (p=0.22) also did not vary between the two groups. Furthermore, the gender was not significantly different (p=0.55), nor the birth weight (p=0.64) nor gestational age at delivery (p=0.15).

Discussion

Women of reproductive age constitute a large percentage of the workforce in industrial countries. This leads to the need for workplace legislations and policies that ensure they are not exposed to any risk that could cause harm to them or their developing children. In Jordan, women are prohibited from taking part in any work involving exposure to fumes or smoke from oil-derived products or products that affect genetic material [10].

The percentage of women in active employment during pregnancy has risen steadily over the past four decades, and they are branching out into a broader range of occupations, previously restricted to males. There is accumulating evidence that the type of work and environmental exposure in the workplace may have adverse effects on fetal development [2,11]. Our study yielded a number of results associated with the effect of occupation on pregnancy outcomes.

We found a statistically significant association between maternal employment and mode of delivery, and maternal unemployment and anemia, both which were consistent with previous findings in the literature [12,13]. This could be partially explained by the demographic factors of housewives in Jordan. As our data demonstrated, housewives tended to be younger in age, likely to have a higher number of pregnancies and deliveries, and of lower socioeconomic status. All of these are risk factors predisposing to experience complications such as anemia [14].

However, in contradiction to previous studies, maternal work was not found to be a risk factor for preeclampsia in our sample [15], but this does seem to be a controversial finding as other studies have found unemployment to be a risk factor for severe preeclampsia [16]. Our study demonstrated no association between maternal employment and gestational diabetes either, similar to previous studies [17–19].

High levels of job strain during early pregnancy are associated with reduced birth weight and an increased risk of delivering small infants [20]. Other studies found an elevated risk of low birth weight in working women in a variety of jobs [21,22]. However, in our study, birth weight was not associated with maternal employment status.

We found that more employed women sought antenatal care in the first trimester and there was a statistically significant association between number of antenatal care visits and employment status. However , work commitments were one of the main reasons in the literature to delay women from seeking antenatal care in the first 12 weeks [23]. This is probably due to the higher socioeconomic status of employed women, who have more disposable income to spend on transport and lab work. Financial constraints were the most common reason to avoid antenatal clinics in many populations [24].

In addition, unemployed women tend to have fewer options when it comes to childcare as they are the main caregivers, rendering regular visits to antenatal clinics difficult. We speculate that this also contributes to the increased rate of hospitalization in employed women, as unemployed women may be more likely to refuse admission due to being in charge of their children and due to financial constraints. The effect of socioeconomic and employment status on hospitalization in pregnancy requires more in-depth studies for any true conclusions to be drawn.

Our study was limited by multiple factors, the first of which was the lack of information regarding duration and type of work, presence of physical activity and chemical exposure at work. Another major limitation was the lack of data availability regarding the trimester in which working days took place. In addition, it is important to point that background risks for late pregnancy complications were not adjusted for as confounders.

Conclusion

On average, employed women appeared to have better and earlier antenatal care, less stillbirths, better family planning, and less risk of anemia. However, they appeared to have increased odds of

non-singleton pregnancies, hospitalization, cesarean section, and the need for assisted deliveries. While these conclusions are helpful for decision makers and planners, it is important to point out that the background risks for late pregnancy complications were not adjusted for confounders, and therefore further studies and investigations are warranted.

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