FACTORS AFFECTING PREGNANCY OUTCOME IN REFUGEE MOTHERS IN LEBANON

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Abstract

In recent years, Lebanon has been a destination for less privileged refugees who seek better living conditions and shelter from regional wars, conflicts and instabilities. Recently, it is estimated that more than 20% of residents in Lebanon are Syrian refugees who live under questionable conditions regarding quality of life. Pregnant women, among their population, are considered more vulnerable to the effect of such living conditions. This study aimed at assessment of pregnancy outcome (birth weight, infant complications...) in a sample of women in refugees areas who have recently given birth and relate this outcome to multiple factors including socioeconomic status of the family, psychological status of the mother, maternal vitamin supplementation, and previous high-risk pregnancies. This study was conducted by a field-based survey, using questionnaire. Sample taken was by convenient sampling of just delivered women, focusing on major areas in Lebanon with the highest population of refugees. Results of our study detected increased risk of having neonatal complications in women with previous high-risk pregnancies. There was statistically significant difference between Syrian and Lebanese women regarding birth outcome. Syrian women were had a higher percentage of complications and lower birth weight than Lebanese women. There were significantly more neonatal complications in families with low income, women with improper antenatal care, and those with a compromised psychosocial state during pregnancy. There was also a high percentage of refugees who did not know about supplementation during pregnancy. Conclusion: Less privileged women in refugee areas during pregnancy and after delivery are not receiving appropriate antenatal care. Poor living circumstances, low socioeconomic status, and compromised psychosocial status of Syrian mothers increase the risk of having neonatal complications and low birth weight of their newborn infants. It is recommended to encourage awareness programs for the Syrian refugees in Lebanon regarding pregnancy and neonatal health. It is advised to provide more strict antenatal care to women who had previous complications in delivery.

Keywords

Antenatal Care, Birth Weight, Psychosocial Status, Refugees

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1. INTRODUCTION

A war started in Syria since 2011, which lead to displacement of a significant percentage of the Syrian population in the nearby countries including over a million Syrians who have sought refuge in Lebanon. The UNHCR claimed that Lebanon holds the largest number of Syrian refugees, 991,917 are registered Syrian refugees in 2018 (UNHCR, 2018).

Due to this large number of refugees, the socioeconomic situation in Lebanon has changed, unemployment rates have increased, and refugees are living in poor conditions, pregnant women are the most vulnerable due to the effect of low socioeconomic status on birth outcomes, which is discussed later in this study. Prenatal care has a great impact on birth outcomes (Bakken et al., 2015). Syrian mothers have poor prenatal care due to poor living conditions, lack of awareness and no compliance to doctors' visits, the effect of poor prenatal care on birth outcomes is discussed later.

The prenatal care has a non-negligible effect on the birth outcome. According to the World Health Organization (WHO), pregnant women need at least eight antenatal care visits (WHO, 2016), but half of women worldwide have poor attendance of ANC associated with low birth weight and neonatal deaths. According to WHO, there are five types of recommended interventions in antenatal care (ANC) "A. Nutritional interventions, B. Maternal and fetal assessment, C. Preventive measures, D. Interventions for common physiological symptoms, and E. Health system interventions to improve utilization and quality of ANC." (WHO, 2016)

A study was done comparing birth outcomes in the Norwegian population in contrast with the refugees. Immigrants mostly those from Somalia had higher risks for obstetric complications and it was suggested that the main cause was poor care during pregnancy and childbirth (Bakken et al., 2015). This research was conducted in a population with different culture, different circumstances of living in the native country but same compelling reasons that gave the researchers the inspiration to conduct the research. This is why this study was conducted in search for correlation between immigrants and obstetric outcomes in Lebanon.

Another study in Ankara, Turkey was conducted to assess the pregnancy outcomes in women who are Syrian refugees at a maternity center. Refugee infants in the study appeared to have higher morbidity compared to Turkish infants, but further data was needed (Büyüktiryaki et al., 2015). The Turkish research was retrospective study, however this research will be a cross-sectional study. The negative result gave the idea of this research to find out the correlation between antenatal care and obstetric outcomes in different conditions and prenatal circumstances.

In Jordan, a study was conducted in the aim of comparing pregnancy outcomes of Syrian refugee women and Jordanian women. Due to many difficulties faced by the pregnant refugees, there is an increase prevalence in the women's antenatal complications. "Statistical analysis revealed that refugee mothers had a significant increase in the rate of Caesarian section and higher rate of anemia, a lower neonate's weight and APGAR scores when compared to their Jordanian counterparts." (Alnuaimi et al., 2017) Syrians who immigrated to nearby countries, chose Lebanon, Jordan and many other countries as a refuge place, however the percentages of refugees in these countries differ and then the living circumstances of the refugees differ according to the actual state.

According to UNHCR: "90 percent of refugees in Jordan who are of Syrian nationality, 93 percent of whom are living under the poverty line." (UNHCR, 2017) These percentages are different in Lebanon and affect the outcome of the care to the refugee. According to these results, the idea of another research in Lebanon was significantly taken into consideration.

The purpose of the study was to look for a correlation between the low socioeconomic status, maternal lifestyle factors like poor eating and drinking habits, the prenatal care the participant received, the psychological status and the birth outcome which was observed for complications, low birth weight and need for postnatal care. After all, it would be a great addition to the value of researches done before in other countries and different circumstances to do such a study that highlights if any improvement should be done for a good birth outcome or if the actual ones are sufficient.

2. METHODOLOGY

2.1 Study Design

This is a cross-sectional study where 294 female volunteers were recruited from April 2017 till April 2018. The calculation of the sample size of 420 relied on the proportions of the variables having equal chances 50% to be associated with the difference in birth outcome and an accepted margin of error of 5%. The confidence level tolerated is 95% and a power of 80%. The final sample was limited to 340, with 294 participant responses due to administrative difficulties accessing some hospitals in Beirut and Mount Lebanon. The recruitment of participants happened at the maternity blocks of hospital dispensaries, in addition to some refugee camps in the Beqaa valley.

2.2 Ethical Considerations

Institutional Board Review approval for the study was obtained from Beirut Arab University, (IRB approval number: 2017H-0054-M-R-022). The study was conducted anonymously for the participants. Participants were asked for their voluntary participation in our study and agreed to a consent form stating their rights, and anonymity of the data collection before answering our questionnaire.

2.2 Inclusion/Exclusion Criteria

Women of refugee status of nationality other than Lebanese, and women of Lebanese nationality above the legal age of 18 and who recently gave birth were included in the study.

2.2 Data Collection/Technique

The data was collected through a survey consisting of a series of questions concerning the demographic aspects (age, nationality, place of birth), socioeconomic status (family income, working or not) of the participant, any financial aid she received, her eating habits, and the quality of the consumed water, food, the vitamins she was taking, in addition to her psychosocial status, and lastly information about the birth outcome (birth weight, height, complications).

Every two investigators went together to the health care centers, hospitals, refugee camps to collect the data. The questionnaire was handed in-person to consenting mothers after explaining to them the goal of the study and its anonymity. Questionnaires were printed as hard copies, and in Arabic language so that the mother could easily fill them. Mornings were the best times to find the greatest amount of delivering mothers before leaving the hospital.

A pilot study was first conducted on 15 volunteer participants from different areas in the north and south of Lebanon, the participants responded well to the questionnaire, and their responses ere later on included in the study data. 294 responses were collected out of 340 visits, with a response rate of 86.47%.

2.2 Data Analysis

Data entry and analysis was done with Statistical Package of Social Science (SPSS). Data was analyzed with the Fisher exact test, Chi-Square test, as well as the Kruskal-Wallis test to compare between the groups.

3. RESULTS AND DISCUSSION

3.1 Demographic Analysis

This study showed that Syrian women are more vulnerable to birth complications with 14.3% of them having birth complications compared to 6.7% of Palestinian women and none of the Lebanese women in the sample, indicating that Syrian refugees in Lebanon are more prone than Lebanese or Palestinians in Lebanon to having birth complications (Table 1).

Table 1: Preterm and Normal Delivery Count and Percentages in 294 participants.

			Origin			Total
			Lebanon	Syria	Palestine	
Did you have a preterm or a normal delivery?	Preterm	Count	0	36	1	37
		%	0.0%	14.3%	6.7%	12.5%
	Normal	Count	27	216	14	259
		%	100.0%	85.7%	93.3%	87.5%
Total		Count	27	252	15	294
		%	100.0%	100.0%	100.0%	100.0%

It was also found, using Kruskal-Wallis test that there is a statistical difference in terms of birth s weight between each country, p value of 0.03. Using the mean rank, it was estimated that Lebanese women get a higher mean birth weight than the other nationalities (194.44). While Syrians get a lower mean birth weight than the other nationalities (139.1), indicating that Syrians are the most vulnerable group of having lower birth weight infants (Table 2).

Table 2: Birth Weight Rank with Respect to Country (Kruskal-Wallis Test)

Country	Mean Rank
Lebanon	194.44
Syria	139.1
Palestine	163.27
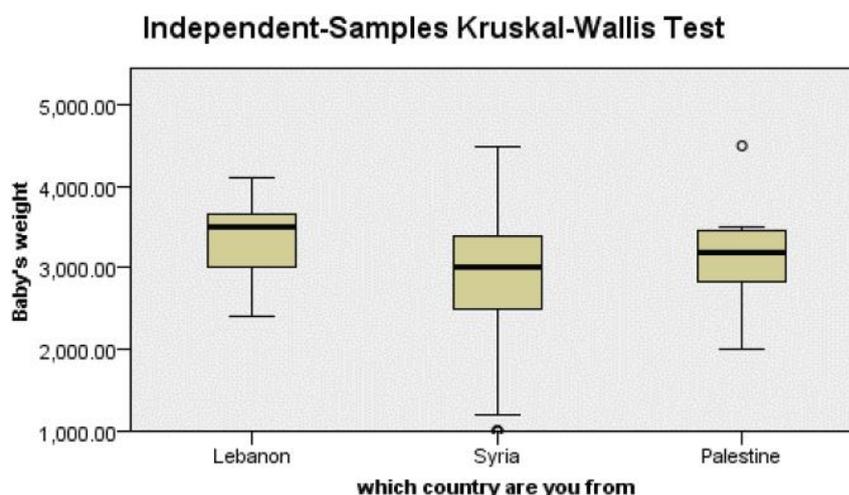
3.2 Correlation Between Previous Complications in a Previous Delivery and Current Complications in a Current Delivery

Concerning delivery complications, 17.2% of women who did not have a previous complication in a previous delivery had a current complication in a current delivery, whereas 34% of mothers who had a previous complication had a current complication (Table 3). The findings were significant with a p value of 0.017, indicating that having a previous complication in a previous delivery increases the risk of having subsequent complication in later pregnancies.

Table 3: Complications in Previous Delivery and Complications in Current Delivery Count and Percentages in 294 participants.

Did you have any complication with any of your previous deliveries?		Current delivery complications		Total
		No	Yes	
No	Count	197	41	238
	%	82.8%	17.2%	100.0%
Yes in Lebanon	Count	33	17	50
	%	66.0%	34.0%	100.0%
Yes in Syria	Count	6	0	6
	%	100.0%	0.0%	100.0%
Total	Count	236	58	294
	%	80.3%	19.7%	100.0%

Statistically significant p value= 0.017 (using Fisher exact test)

It was also noticed that 48.3% of women with a family income of less than 200,000 LBP had birth complications, compared to 37.9% complications in women with a family income between 200,000 LBP and 500,000 LBP, 10.3% in those with a monthly income between 500,000 LBP and 1,000,000 LBP and 3.4% complications in those with an income of more than 1,000,000 LBP per month (Table 4). These findings were significant with a p value of 0.038, indicating that there is a significant correlation between lower monthly income and more birth complication.

Table 4: Infant Complications and Monthly Income Count and Percentages in 294 participants.

Infant complications		What is your total monthly income?				Total
		Less than 2000	[200000-500000[	[500000-1000000[	More than 1000000	
No	Count	70	110	32	24	236
	%	29.7%	46.6%	13.6%	10.2%	100.0%
Yes	Count	28	22	6	2	58
	%	48.3%	37.9%	10.3%	3.4%	100.0%
Total	Count	98	132	38	26	294
	%	33.3%	44.9%	12.9%	8.9%	100.0%

Statistically significant p value = 0.038 (Using a Chi-Square test)

It was also noticed that 14.4% of women with a low monthly income (< 500,000 LBP) had a preterm delivery compared to 4.8% preterm deliveries in women with a high monthly income (> 500,000 LBP) with a p value of 0.033 (Table 4), indicating that there is a direct correlation between delivery term and monthly income. Women who have a low income are about 3 times more susceptible to having a preterm delivery.

Table 5: Monthly Income and Preterm/Normal Delivery Count and Percentages in 294 participants.

|			Delivery		Total
			Preterm	Normal	
Monthly income	Low income (< 500,000 LBP)	Count	33	196	229
		% within monthly income	14.4%	85.6%	100.0%
	High income (> 500,000 LBP)	Count	3	62	65
		% within monthly income	4.6%	95.4%	100.0%
Total		Count	36	258	294
		% within monthly income	12.2%	87.8%	100.0%

Statistically significant p value = 0.033 (Using a Chi-Square test)

3.2 Correlation between Psychosocial Status and Birth Weight

The degree of satisfaction and the change of the mother's perception were used to assess the mother's psychological state. It was found that women who are not satisfied with their current living conditions or whose behavior changed when they came to Lebanon had significantly more complication than those who did not experience such conditions. Using Kruskal-Wallis test, it was found that there is a statistical difference in terms of infant's birth weight between the degrees of satisfaction, p value = 0.039 (Table 6), indicating that a significant relation is present between the degree of satisfaction of the mother and the infant's birth weight. Women who were not satisfied with their living condition had an infant with a lower birth weight.

Table 6: Birth Weight Rank with Respect to Satisfaction Level (Kruskal-Wallis Test)

Satisfaction	Mean Rank
Not satisfied at all	122.2
Somewhat satisfied	152.08
Very satisfied	180.028
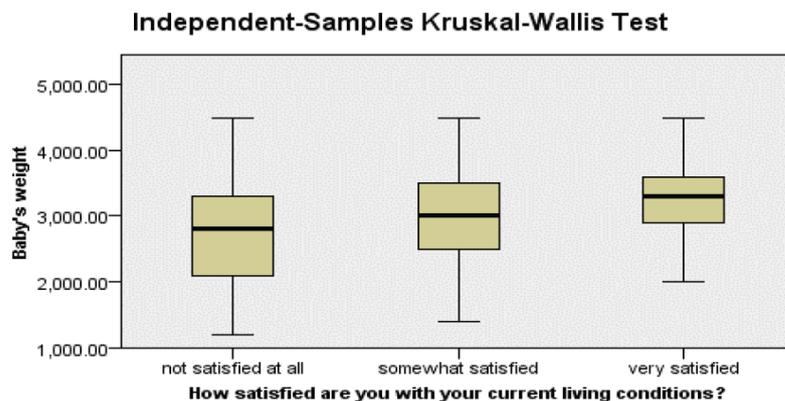
It was also found that the infant's birth weight is correlated with the mother's perception of the world. Using Kruskal-Wallis test, it was found that there is a statistical difference in terms of infant's birth weight between each category of perception when coming to Lebanon (Table 7). Women whose perception of the world changed after coming to Lebanon had infants with a lower birth weight.

Table 7: Birth Weight Rank with Respect to Perception of the World (Kruskal-Wallis Test)

| Perception of the World	Mean Rank
Perception hasn't changed at all	140.73
Perception has somewhat changed	121.92
Perception has extremely changed	111.69
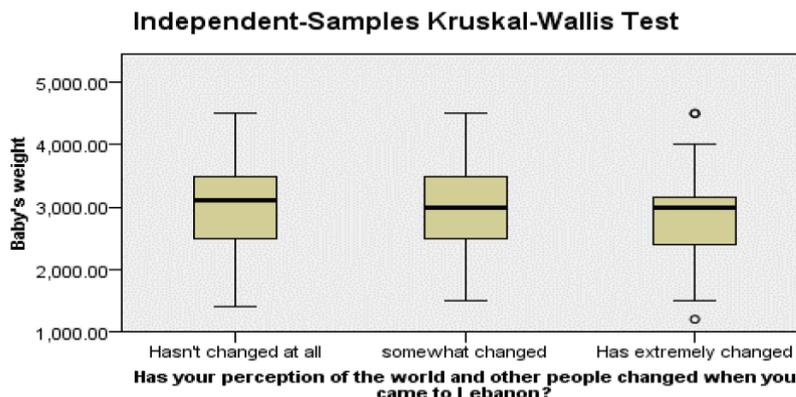
3.3 Correlation between Source of Drinking Water and Birth Weight

When comparing the source of water the mothers drink, using Kruskal-Wallis test, it was noticed that that there is a statistical difference in terms of infant's birth weight between each type of water (tap water, bottled water and other), p value = 0.027. Women who drink tap water had a mean rank score of 131.24 compared to 157.99 for those who drink bottled water (Table 8), indicating that drinking tab water increases the susceptibility of having an infant of lower birth weight as compared to infants born to mothers who drink bottled water.

Table 8: Birth Weight Rank with Respect to Source of Drinking Water (Kruskal-Wallis Test)

Source of Drinking Water	Mean Rank
Tap water	131.24
Bottled water	157.99
Other	145.23
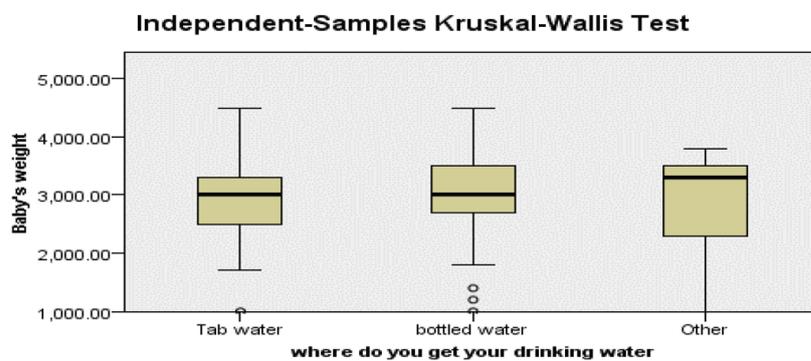
4. DISCUSSION

Syrian refugees are not receiving proper antenatal care. This study is aimed at finding the impact of socioeconomic status, nutritional habits, and psychosocial status on birth outcome; and it reveals that there is a significant correlation between these factors and infant birth weight. These results correspond with previous studies (Bakken et al., 2015; Alnuaimi et al., 2017) where similar results were found in regard to poor antenatal care and hardships faced by refugees.

On average, 48.3% of women with a family income less than 200,000 LBP had infant complications, this percentage decreases as the monthly income increases, as only 3.4% of women with a family income more than 1,000,000 LBP had infant complications. The same can be said about preterm deliveries, where 14.4% of women with a family income less than 500,000 LBP had a preterm delivery, while only 4.6% of women with a family income more than 500,000 LBP had it.

One of this study's noticeable results is the correlation between the psychosocial status and the infant birth weight, which was unexplored in previous studies. Women with a poor psychosocial state had an infant with a lower birth weight. In fact, using the Kruskal-Wallis test, the study shows that women who were not satisfied at all with their current situation had a lower birth weight mean rank of 122.2, compared to women who were very satisfied with their current situation with a birth weight mean rank of 180.28.

Perception of the world was also evaluated, and results show that women whose perception has changed after coming to Lebanon had a birth weight mean rank of 111.69, while women whose perception hasn't changed at all after coming to Lebanon had a higher birth weight mean rank of 140.72. The association between mental health and birth outcome was not expected to be of this importance, and thus should not be neglected during antenatal care.

For all we know, there was no previous mentions about impact of different water sources on pregnancy outcome. This study introduced this notion with an observed relation between different water sources on birth weight, with tap water being associated with a lower birth weight, as shown by the mean rank of 131.24, compared bottled water which is associated with a higher birth weight with a mean rank of 157.99. Further studies are needed to study this particular factor and its relation to pregnancy outcome.

In regard to vitamins taken during pregnancy, there were limitations in regards to collecting data about the vitamins taken by the mother due to their lack of knowledge about them, and lack of reliable prescriptions. From a research standpoint, it is recommended in future studies to investigate the vitamins and the supplements taken by the expectant female population. From a public health standpoint, it is recommended to raise awareness and educate women about the different vitamins, their benefits, their recommended doses, and the recommended regimen plans for pregnancy.

All the difficulties faced by pregnant refugee women, whether socioeconomic or psychological, are intertwined and lead to more birth complications. There is a deficit in the antenatal care of this population, and it needs to be corrected by providing more organized antenatal care and awareness programs. Special emphasis should also be put on psychological assistance, as its impact is not insignificant.

5. CONCLUSION

This study showed that less privileged women in refugee areas during pregnancy and after delivery are not receiving appropriate antenatal care. Poor living circumstances, low socioeconomic status, and compromised psychosocial status of Syrian mothers increase the risk of having neonatal complications and low birth weight of their newborn infants. It is recommended to encourage awareness programs for the Syrian refugees in Lebanon regarding pregnancy, antenatal care, and neonatal health, and to provide more strict antenatal care to women who have had previous complications in delivery. It is also recommended that NGOs as well as the Lebanese government to provide help to the Syrian refugees and provide them with job opportunities.

6. LIMITATIONS

There were limitations faced while collecting data from Beirut and Mount Lebanon hospitals, which resulted in limiting the final visits to 340 instead of 420. There were limitations with participants declining to fill the survey, which resulted in 294 participant responses out of 340. In addition, there was some difficulties in filling the information including the vitamins taken by the mother due to lack of the mother's knowledge of them and lack of prescriptions.

7. ACKNOWLEDGEMENTS

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