

Maternal Age and Low Birth Weight in Sindh Province: A Cross Sectional Survey

Maternal Age and Low Birth Weight in Sindh Province

Muhammad Parial Shahani¹, Vija Kumar Gemnani¹, Kaleemulah Abro¹, Abdul Rehman Shaikh², Suhail Aman Jokhio¹ and Faisal Saifullah Jamro¹

ABSTRACT

Objective: To evaluate the association between maternal age and low birth weight.

Study Design: Cross sectional survey

Place and Duration of Study: This study was conducted at the various Neonatal Wards in Sindh province over a period of 9 months from January 2021 to September 2021.

Materials and Methods: Data was collected using a structured questionnaire, mothers of the 430 neonates were interviewed and birth weight of neonates was measured at the neonatal ward.

Results: Most of the mothers 254 (59.1%) were aged between 21 to 30 years. Mothers' age was observed to have significant association with low birth weight. Mothers aged between 21-30 years had 15.29 times higher odds of having low birth weight neonates with (p-value 0.041 95% CI: 0.42 – 107.11).

Conclusion: The study observed that mothers had a higher likelihood to conceive at younger age. It was concluded the younger age mothers had greater tendency to deliver low birth weight neonates.

Key Words: Maternal age, Low birth weight, Sindh

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INTRODUCTION

World Health Organization has defined the low birth weight as the weight less than 2500 grams at the time of birth¹. Maternal age is one of the important factors affecting the fetal outcomes. Among mothers, the extreme aged (too young and too old) pregnancies are considered a major risk factor for the pregnancy and perinatal outcomes in both low- and high-income countries². Maternal age, in particular, is linked to an increased risk of low birth weight (LBW) and premature delivery³. Consequently, besides many other factors, the low birth weight itself, is one of the major important causes of neonatal mortality⁴.

MATERIALS AND METHODS

A cross sectional survey was conducted at, Neonatal wards Shaikh Zaid Children Hospital Larkana, Neonatal Ward GMMMC Sukkur, Neonatal Ward Civil Hospital

¹. Department of Community Medicine / Peads², SMBBMU Larkana.

Correspondence: Dr. Vija Kumar Gemnani, Associate Professor of Community Medicine, SMBBMU, Larkana.
Contact No: 0335-3135679
Email: gemnanivijay@yahoo.com

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Khairpur, Neonatal Ward SASIMS Sindh, Pakistan. The mother/guardian/attendant of 215 low birth weight and 215 normal birth weight neonates were interviewed. Mothers' age was divided into four groups and birth weight of the neonates was categorized into low birth weight and normal birth weight with cut of value 2500 grams. Data was entered and analyzed on SPSS version 23.

RESULTS

In this study, the age of the mother was coded into four groups as ≤ 20 , 21-30, 31-40 and above 40 years old. There were 48 (11.2%) mothers below or equal to 20 years old, 246 (57.2%) mothers aged between 21 to 30, 108 (25.1%) mothers were aged between 31 to 40 and 28 (6.5%) mothers were older than 40 years. Table 1.

Our findings revealed that out of 49 (11.4%) mothers aged ≤ 20 years, 31 (63.3%) mothers delivered low birth weight neonates and 18(36.7%) mother delivered normal birth weight neonates. which is the highest percentage of LBW neonates in four maternal age groups.

Amongst 254 (59.1%) mothers in age category 21-30 years, there were 129 (50.8%) low birth weight.

Amongst the age group 31-40 there were 109 (25.3%) mothers in total, 51 (46.8%) mothers delivered low birth weight neonates, while in the age group >40 years there were four (22.2%) mother delivered low birth weight.

Chi-square analysis compared the percentage of low birth neonates among four age groups of the mothers

which revealed that low birth weight is significantly associated with mothers' age with p-value 0.023 with Chi-square value of 9.517. Table 2.

Maternal Age Among four groups of maternal age, the reference group was the mothers aged >40 year. Multinomial logistic regression results show that for mothers aged between 21- 30 years were the predictors to have low birth neonates. We observed that compared to mothers aged above 40 years, mothers aged between 21-30 years had 15.29 times higher odds of delivering low birth weight neonates with(p-value 0.041 95% CI: 0.42 – 107.11).

The mothers aged 31-40 years had 10.67 times higher odds of delivering LBW neonates (p-value 0.048, 95%CI: 1.12-208.26). While, the mothers aged 20 years or below had 6.74 times higher odds to deliver LBW neonates (p-value 0.176 95%CI 1.02-111.35). Table 3.

Table No.1: Frequency Distribution of Maternal Age

Independent Variable	Description	N	Percentage
Maternal Age	1. ≤20 years	49	11.4
	2. 21-30 years	254	59.1
	3. 31-40 years	109	25.3
	4. >40 years	18	4.2

Table No.2: Chi Square Association Between Birth Weight and Maternal Age

Maternal Age	LBW		Non LBW		Chi Square	
	N	%	N	%	Statistic value	p-value
≤20 years	31	63	18	36.7	9.517	0.023
21-30 years	129	51	12	49.2		
31-40 years	51	47	58	53.2		
>40 years	4	22	14	77.8		

Table No.3: Multivariate Logistic Regression Maternal Age and Low Birth Weight

Maternal Age	Wald	p-value	Multiple Logistic Regression		
			Adjusted Odds Ratio (Adj. OR)	95% Confidence Interval CI	
≤ 20 years	1.829	0.176	6.741	0.424	107.113
21-30 years	4.19	0.041	15.293	1.123	208.269
31-40 years	3.914	0.048	10.67	1.022	111.355
>40 years			Ref		

DISCUSSION

Maternal age is one of the important factors affecting the fetal outcomes. Among mothers, the extreme aged(too young and too old) pregnancies are considered a major risk factor for the pregnancy and perinatal outcomes around the world². Maternal age, in particular, is linked to an increased risk of low birth weight (LBW) and premature delivery³.

In this study, there were 48 (11.2%) mothers below or equal to 20 years , 246 (57.2%) mothers aged between 21 to 30, 108 (25.1%) mothers were aged between 31 to 40 and 28 (6.5%) mothers were older than 40 years. The distribution of mothers according to age was comparable with a study conducted in Ethiopia where 120 (25.4%) mothers were in age group 31-40 compared to a similar proportion of mothers in same age group in our study 108 (25.1%). However, in our study the proportion of mothers aged between 21-30 was higher. There were 246 (57.2%) mother aged 21-30 in our study compared to 143 (30.3%) were 20-30 years. We had only 28 (6.5%) mothers older than 40 years in our study showing a much lesser number compared to 101 (21.4%) mothers were above 40 years of age, also mothers younger than 20 were only 48 (11.2%) in our study compared to 108 (22.9%) in a cross sectional study conducted with 472 samples in Ethiopian capital Dilla, Ethiopia⁵.

In our study, most of the mothers 246 (57.2%) were aged between 21 to 30 while a research conducted in Libya by Alabed et al⁶ observed that most of the mothers (49%) were aged between 19-26 years and least number of mothers were aged below 19 years²⁴ (5.9%).

In our study 57.2% of the mothers belonged to age group 21-30 years, this observation is roughly similar to the findings of a study with 51% mothers aged between 20-29 years⁷.

In our study proportion of middle aged mothers were way higher than rest of the age categories, similar finding was observed in a study conducted in Tehran, Iran, where 80.6% of mothers were between 18-35 years⁸.

The majority of mothers (59.1%) belonged to age category 21-30 in our study. Nearly similar finding was observed in a study conducted in in a public hospital in Killis, Turkey ⁹.

We observed that the association of maternal age with low birth weight was significant not only in chi square test of association but in multivariate model as well. In multivariate analysis, we observed that the association of maternal age with low birth weight was significant, this observation in our study is in line with several studies available in the literature^{7,9-12}.

Mothers aged 20 or below had 6.74 times higher odds of having LBW neonates compared to mothers'

age >40, our finding is in line with a study conducted in Sub-Saharan Africa⁷.

This observation was nearly similar to the research conducted by Adem et al¹⁰ who observed that mothers aged ≤20 years had three times higher odds to have low birth weight neonates compared to mothers in age bracket 21-30 years (AOR = 2.9, 95% CI: 1.55, 5.47). In contrast to our findings, Niknejad et al¹¹ observed that the risk of giving birth to LBW infants was higher in mothers over 35 years of age. Our observation showed that the mother aged > 40 had lesser odds of having low birth weight compared to rest of the categories, moreover, odds of LBW births were highest 15.293 in mothers aged 21-30 years taking >40 years as reference. In contrast to this observation, Tessema et al⁷ observed that compared with mothers aged 15-19 years, mothers in age bracket 20-29 had 25% (AOR = 0.075, 95% CI: 0.071, 0.80), mothers in age bracket 30-39 had 24% (AOR = 0.076, 95% CI: 0.071, 0.82) and mother aged 40 and above had 14% (AOR = 0.86, 95% CI: 0.78, 0.95) lesser chances to have LBW neonates.

CONCLUSION

Most of the mothers 254 (59.1%) were aged between 21 to 30 years. Mothers' age was significantly associated with low birth weight. Mothers aged between 21-30 years had higher odds of delivering low birth weight neonates compared to rest of the age categories. Our study concluded the younger age mothers had higher tendency to deliver low birth weight neonates

Recommendations: In our observations, young age mothers were more likely to deliver low birth weight neonates. We strongly suggest avoiding teenage marriages and pregnancies for young girls to avoid the odds of low birth weight deliveries. Also the parents and community needs structured programs of awareness to discourage the early marriages and pregnancies during the teenage. This target is only achievable by involving the community itself. Parental involvement, community advocacy and involving the youth could be the promising ideas for the change.

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Author's Contribution:

Concept & Design of Study: Muhammad Parial, Vijia Kumar Gemnani
 Drafting: Kaleemulah Abro, Abdul Rehman Shaikh
 Data Analysis: Suhail Aman Jokhio, Faisal Saifullah Jamro
 Revisiting Critically: Muhammad Parial, Vijia

Kumar Gemnani
 Muhammad Parial
 Shahani

Final Approval of version:

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