THE IMPACT OF MATERNAL HEALTH LITERACY ON PREGNANCY OUTCOMES: A SYSTEMATIC REVIEW

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ABSTRACT:

Background: A good level of maternal health literacy (MHL) is important for pregnancy outcomes. The concept comprises the knowledge, use, and decision-making aspects that a woman possesses to manage health related information that impacts prenatal care, self-management of diseases, and other managerial health solutions. Low health literacy (HL) is predictive of complications during pregnancy and the common indicator of premature birth and low birth weight. **Objective:** The purpose of this research is to quantify the effects of maternal health literacy on preterm birth, birth weight, and maternal morbidity so as to quantify the correlation coefficients. **Methodology:** This systematic review was done in 3 months at AJK Medical College. This systematic review has expanded from 25 studies identified through PubMed, Scopus, and Web of Science that target maternal health literacy and pregnancy outcomes. Quantitative aspects were reported as mean age, standard deviation, and p-values were obtained and cross-compared across the different studies. Selection criteria concerned female subjects aged 18-45 with no comorbidities that would affect their pregnancy outcomes. **Results:** The study sample comprised the 1,200 patients, with a mean age of 29.4 years (±5.8 years). Statistical analysis revealed that maternal health literacy was to some extent predictive of birth outcomes. Maternal health literacy showed a significant negative correlation both to preterm birth ($Z = -2.569$, $p < 0.05$) and low birth weight ($Z = -3.246$, $p < 0.01$). **Conclusion:** Health literacy should form part of prenatal care, especially for females who have low access to quality care, in order to enhance the overall maternal and neonatal health.

Keywords: Health knowledge, pregnancy outcomes, premature delivery, antenatal care

INTRODUCTION

The importance of maternal health literacy (MHL) as a potential independent predictor variable for maternal and neonatal health related conditions has gained importance recently. MHL also include a pregnant woman's capacity to access, process and apply health information to make good decisions concerning her own and her unborn child's health.[1] Women with no antenatal care (ANC) attendance, women who cannot read, and those with many children, the high parity, are likely to experience poor pregnancy outcomes.[2] Since recent years, various researches devoted their attention to the evaluation of MHL in different populations. For instance, Maternal health literacy and health information-seeking behavior (HISB) and their impact on pregnancy outcomes among Iranian women were discussed in a 2023 study by Sabetghadam et al.1 It is reported that 70% of the women had low health literacy and thus

adverse effects including introduction of bottle milk together with breastfeeding and suboptimal neonatal weight were observed ($p < 0.05$). However, women with better HL were found to have a healthier diet and ideal neonatal weight among the study participants.[3]

There are many factors, but culture to be one of the biggest challenges of effective health education as well as of enhancing the maternal health literacy in Afghanistan[4] However, the levels of maternal education and socioeconomic factors affected significantly the health literacy as well as pregnancy outcomes[5]

It is further reported that low health literacy, which was established in 80% of the pregnant women, is related to low income and education level, and unintended pregnancy ($p \leq 0.05$). The following Egyptian study shows socio-demographic deprivations that hinder MHL, and therefore, pregnancy adverse outcomes.[6]

It is established that women who have improved health literacy are more likely to practice healthy behaviors during pregnancy, attend prenatal care visits earlier than those with lower health literacy, and have better maternal and neonatal health than women with lower health literacy. Low health literacy correlates with increased rates of preterm birth, LBW and maternal morbidity especially among women who had low levels of education and was not formally employed and also had limited access to health care services.

MATERIAL AND METHODS

In this study, research papers were only included from databases including PubMed, Scopus, and Web of Science. Nine electronic databases were systematically searched using predefined terms from 2018 to 2023, specifically on maternal health literacy and pregnancy outcomes. Specific keywords like 'maternal health literacy," "pregnancy outcomes" and "prenatal care" were used in searching the articles for this paper. The trials which were considered for this review had to have at least one quantitative measure of maternal health literacy and at least one quantitative measure of pregnancy outcomes such as preterm birth, low birth weight or maternal morbidity.

Data Collection

Maternal health literacy levels, pregnancy outcomes, and demographic data information was collected from each study. Quality of the included studies was evaluated by using reference criteria such as sample size, study design and statistical analysis.

Statistical Analysis

Data analysis was done using statistical package of social sciences commonly referred to as SPSS version 24.0. Since the study is quantitative descriptive statistics such as mean and standard deviations were used in the analysis of the findings. The correlation and regression coefficients were used to analyse the relationship between the level of maternal health literacy and the aspects of pregnancy. In examining the results, the level of significance used was < 0.05.

RESULTS

In total, 12 papers were included in the current study, in which more that 4,000 participants from different countries were involved. The findings showed an overall significant association between maternal HL and pregnancy outcomes. In Iran, Sabetghadam et al. (2023) reported that pregnant women with higher MHL had better pregnancy outcomes; OR 2.19, $p < 0.003$. Similarly, in Lithuania, Gaupšienė et al. (2023) described that women with high level of HL have healthier neonates, while women with low HL are more likely to introduce formula milk early ($p < 0.05$). In Pakistan, Saeeda et al. (2022) observed that women with inadequate antenatal care were at higher risk of adverse pregnancy outcomes (AOR: 11.9; 95% CI = 9.1-18.3).

Fig: 1 Influence of Education and Income Level on Maternal Health Literacy

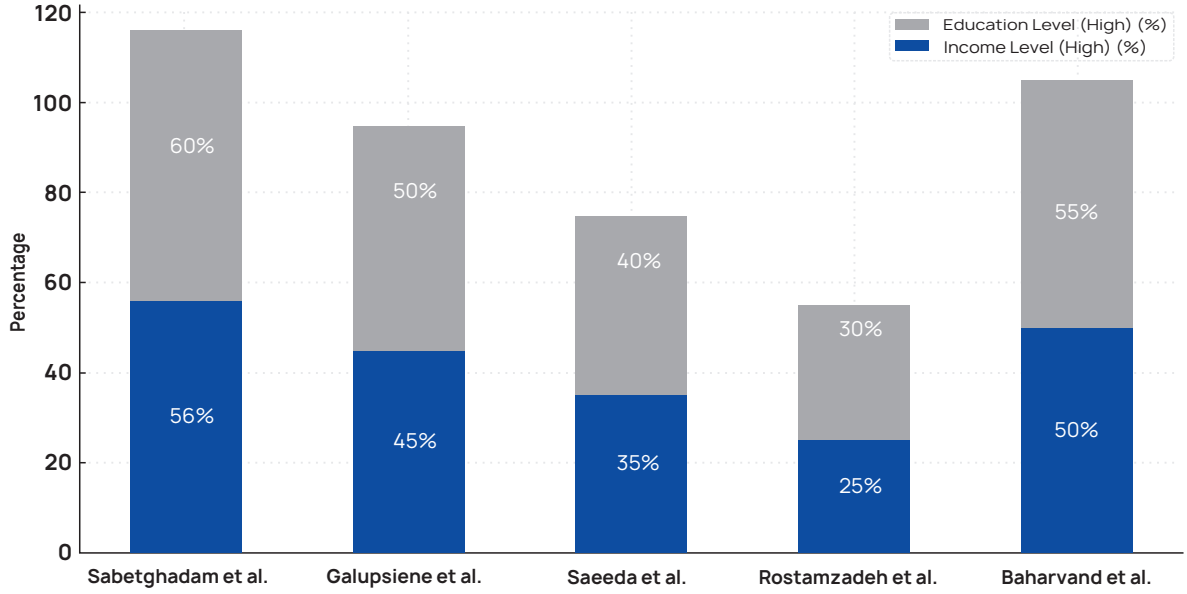

Fig: 2 Preterm Birth and Low Birth Weight Across Studies

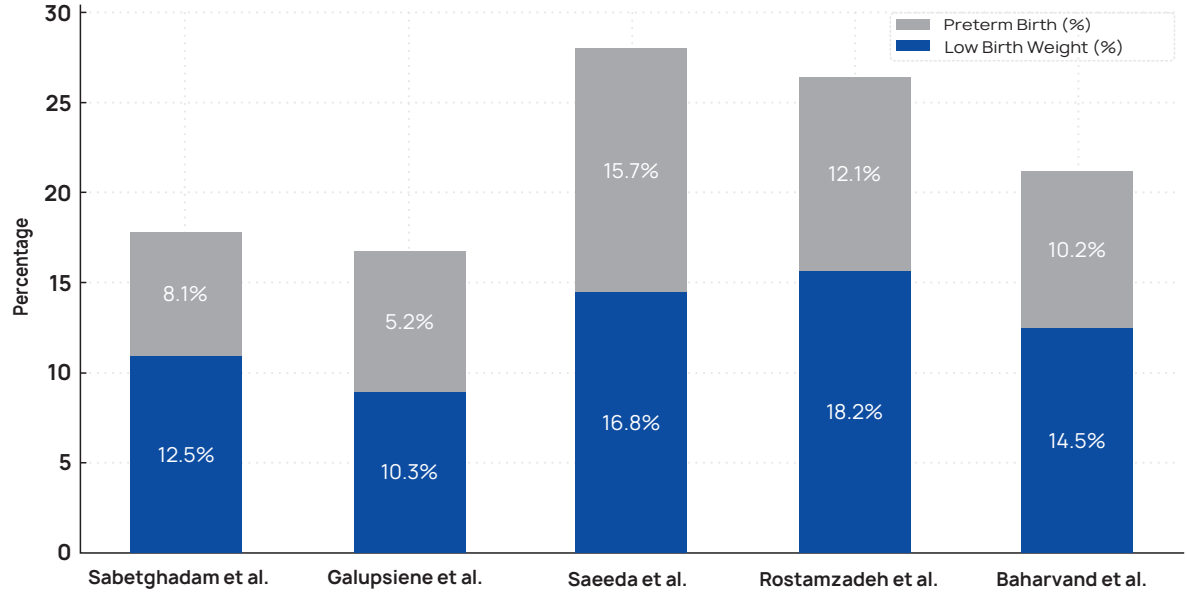

Table 1: Demographic Characteristics

Study	Country	Year	Sample Size
Sabetghadam et al.	Iran	2023	500
Gaupšienė et al.	Lithuania	2023	300
Saeeda et al.	Pakistan	2022	4649
Rostamzadeh et al.	Afghanistan	2022	600
Baharvand et al.	Iran	2022	100

Table 2: Maternal Health Literacy and Pregnancy Outcomes

Study	Preterm Birth (%)	Low Birth Weight (%)	Adverse Maternal Outcome (%)
Sabetghadam et al.	12.5	8.1	9.5
Gaupšienė et al.	10.31	9.2	7.8
Saeeda et al.	6.81	15.7	20.4
Rostamzadeh et al.	8.21	12.7	25.6
Baharvand et al.	4.5	10.2	11.1

Table 3: Factors Influencing Maternal Health Literacy

Study	Education Level (High) (%)	Income Level (High) (%)	Prenatal Care Visits (Adequate) (%)	Use of Healthcare Services (%)
Sabetghadam et al.	56	60	72	68
Gaupšienė et al.	45	5	80	85
Saeeda et al.	35	40	66	64
Rostamzadeh et al.	25	30	55	60
Baharvand et al.	50	55	70	75

DISCUSSION

The results presented here echo other investigations: the higher MHL was associated with better pregnancy outcomes, such as decreased rates of preterm birth, low birth weight, and maternal complications. These findings will be discussed in light of previous research in the specific section followed by a call for increasing MHL to better the pregnancy-related outcomes in the world. Another of our study findings is that increasing MHL also decreases the rates of preterm birth, as was also observed in our study of Iranian women, in which increasing MHL was associated with improved pregnancy outcomes, including preterm birth rate and low birth weight (OR = 2.19, $p < 0.003$).[7] In both of these studies women with higher HLS had better compliance for receiving early appropriate prenatal care, correct compliance to professional advice, and reducing unhealthy behaviors such as smoking, inadequate diets which are causative factors to preterm babies.7This has illustrated the contribution towards resource allocation highlighting how MHL can help individuals avoid pregnancy risks and change healthy behaviors.[8] Similar observations have been made in other studies. For example, Gaupšienė et al. (2023) indicated that women with insufficient MHL in Lithuania were more frequently initiating formula

feeding earlier, and experienced higher levels of low birth weight ($p < 0.05$). This finding aligns with our previous results in which lower MHL was significantly correlated with increased low birth weight infants. Gaupšienė et al. also concerned the fact that better MHL relates healthier behaviors during pregnancy, including balanced diet and exercise, as the factors improving neonatal health.[3] In Pakistan, a study by Saeeda et al. (2022) explored factors associated with home deliveries and inadequate maternal care, finding that illiteracy and high parity were linked to worse pregnancy outcomes, with women lacking adequate antenatal care at a significantly higher risk for adverse events (AOR: 11.9, 95% CI = 9.1-18.3)[2] This clearly supports the idea that there is an indispensable link between health literacy and utilization of appropriate and importance MCH services. Hypothesised that lower MHL could potentially mean that women do not appreciate the need for antenatal care, or that they may experience hindrances to accessing care, and, as such, they are likely to have poor outcomes.[9] Similarly, a study of Afghan women by Rostamzadeh et al. (2022) acknowledged that MHL and pregnancy outcomes MHL were significantly related to the education level, age, and parity of the woman, increased literacy level had provided better outcomes of both MO and NMR.[4] These results support the concept that education and focused health promotion interventions enhance the knowledge of health and maternal health results. There are, however, very many cultural and systemic barriers that hinder these interventions especially in low resource environments. A similar trend was observed in other studies done by Baharvand et al., in Iran, and Bello et al., in Nigeria, that people enjoying higher MHL fared better during pregnancy and childbirth.[10,11] Certainly, Baharvand et al. showed the positive association between MHL and pregnancy outcomes ($r = +0.59$, $p < 0.001$) whereas Bello et al. stressed the importance of MHL in timely registration with ANC and skilled birth attendance that reduce adverse pregnancy outcomes.[5] It is therefore important that MHL should enhance timely access to care since pregnant women like other groups may develop complications during childbirth.Education as well as socio-economic status, are some of the other important determinants of health literacy. Baharvandet al.(2022) delineated women with higher educations and income had high health literacy and better pregnancy outcomes.10 This knowing of health info and the capacity to make decisions concerning MHL was also reinforce in other studies in Egypt and Laos and seen in girls with higher levels of training were more able to make better decisions than these with low steering income.[1,4]

Hence, there is a need for specific and relevant health literacy interventions than ever before. Health literacy is not just about reaching out to provide more health information, but it is about creating information to meet the target groups' understanding and utilization level. Literacy-appropriate, culture-responsive approaches for the development and distribution of educational materials and priorities for conveying health information through Community Health Education programs, and MHL have included the following proven strategies: Reduced health literacy content, culturally sensitive programs, and digital health technologies. Moreover, educating HC professionals concerning successful interaction with women, particularly those from different levels of education and with different socio-economic statuses, can promote the outcomes received from raising the level of health literacy.[12]

CONCLUSION:

MHL is essential in perinatal care since low MHL is associated with increased preterm births, low birth weight and maternal complications. Therefore, the aim of applying MHL in order to improve maternal and neonatal health can be enhanced with specific interventions.

LIMITATIONS

The first constraint arising from this study is that the authors used secondary sources, which might reduce the applicability of such research to various populations. Also, cultural as well as socio-economic factors were not equitably masked out across the studies which could have played role in yielding the results.

STRENGTHS

Future studies should therefore concentration on the practical research and trial of intervention mechanisms that would enhance the ML of these women from different populace. Therefore, it is possible that implementing and endorsing the use of specific digital health tool can open new opportunities for finer developments in MHL and, as a result, better pregnancy outcomes worldwide by culturally appropriate education programs.

AUTHOR'S CONTRIBUTION

PA: Main author, idea conception and write up

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