

A Study of Impact of Lifestyle on Maternal Morbidity and Association of Different Lifestyle on Maternal Health

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Abstract

Background: Maternal morbidity remains a significant yet under-recognized public health concern, particularly during the postpartum period. Lifestyle factors such as substance abuse and physical activity are modifiable determinants that may influence maternal health outcomes.

Keywords: Maternal morbidity; Postpartum period; Lifestyle factors; Substance abuse; Physical activity

How to cite this article: Bhadaoriya P, Verma P, Gupta R. A Study of Impact of Lifestyle on Maternal Morbidity and Association of Different Lifestyle on Maternal Health. *Int J Drug Deliv Technol.* 2026;16(53s): 486-491. DOI: 10.25258/ijddt.16.53s.96

Source of support: Nil.

Conflict of interest: None.

Introduction

If India intends to achieve the goal of health for all, far greater attention has to be given to woman health. because maternal health decides the health of their child and the health of their whole family, community, and society. Several statistics are published related to maternal mortality but there is nothing that mainly focused on morbidity, for every mortality, there are several morbidities responsible, which directly or indirectly affect maternal health.

The crucial period for maternal morbidity is from the day of conception to the first 42nd days after childbirth. This period can be divided into 3 major classes antepartum, intrapartum and post-partum. Most government and non-government organization and researcher gives attention to the early phase and late phase of pregnancy and even some of them consider the intrapartum period as well but, many diseases and complications take place in the postpartum period and can lead to permanent damage to the mothers. The 2019-2021 NFHS data found that 61% of females had a postnatal checkup during the first two days after birth. 16% of mothers did not receive any postnatal checkup [1]. The proportion of mothers who received a postnatal check in the first 2 days after birth is decreased from 65% to 61% between 2015-16 and 2019-21[1].

The maternal health status is assessed by certain indicators during the antepartum, peripartum, and postpartum periods. the most important among them is the maternal mortality ratio. "Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" [2]. The leading cause of maternal death is obstetric hemorrhage (38%),

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sepsis (11%), abortion (8%), obstructed labor (5%), hypertensive disorder (5%), and other causes (34%) [3]. However, "Maternal morbidity describes unexpected short- or long-term health problems that result from being pregnant or giving birth." Some common conditions are cardiovascular disease, infection, bleeding, high blood pressure, and blood clots [4]. Many sociodemographic and obstetric factors are responsible for postpartum morbidity like age, age at marriage of woman, educational status of women and her spouse, occupational status of woman and her spouse, family type, woman lifestyle during pregnancy, it includes substance abuse like tobacco, alcohol, and smoking, physical activity, etc. out of this, lifestyle factor can be modified and this can be altering the postpartum health of females. Ultimately this can improve the health of postpartum females. The study aims to identify the effect of lifestyle factors on postpartum morbidities.

Material and methodology

Study setting:

A total of 450 women selected for our study from rural area of Jabalpur district. The study was conducted at the SHC level of every block of Jabalpur. There are 7 blocks in Jabalpur namely shahpura, majholi, patan, kundam, panagar, sihora, and Jabalpur, out of which, Jabalpur is an urban area but consisting of two rural areas namely bargi, and barela. The list of SHC was obtained from PHC and selected SHCs were approached by investigator. All the SHCs had one CHO, one ANM and one ASHA. The ANM and ASHA maintain the register of all the antenatal and postnatal women. All the participants who had completed their puerperium period were trying to gathered at one place for in depth interview.

Study period:

The study was conducted for one year from April 2021 to March 2022, because at every SHC the registers maintain for this period only.

Study design:

This study was a cross-sectional observational study that focused on the impact of lifestyle on maternal morbidities and association of the different lifestyle with morbidities.

Sample size:

As per the previous studies prevalence of morbidities among post-partum women was 48.9%. This prevalence, I had used to calculate the sample size. Total sample size was calculated by using the formula $N = Z^2PQ/L^2$ where Z is corresponding to level of confidence, P is expected prevalence, (that can be obtained from same study or pilot study conducted by researcher), and L is precision. The total sample collected was 11.05% from kundam, 13.9% from Jabalpur rural, 15.08% from majhauri, 13.19% from pnagar, 14.82% from patan, 16.82% from sahpura and 15.02% from sihora. The sample was collected through probability proportion to size method. Data entry had been done by using Microsoft Excel and data analysis was done in IBM SPSS version 20.

Inclusion and Exclusion criteria

This study includes all those women who were permanent resident of selected block and study area, and should have been booked case at their nearest PHCs or CHCs. While all women who were not willing to participate in this study or terminally ill or died during their intrapartum or postpartum period were excluded from the study.

Result

1.Sociodemographic profile of study participants

A total of 450 participants were selected for our study, who had been selected from a rural area of Jabalpur district. All the participants were aged between 17 to 40 years. The mean age of the participants was 24 years. All participants were married. The mean age of marriage of the participants was 21 years, 51.1% of females were married between the age group of 21 to 25. Out of all participants, 3.33% were married below the legal age of marriage, which is 18 years according to the Indian constitution. 77.8% of participants belong to a joint family while 20.8% of participants were from a nuclear family. 24% of participants were illiterate and only 7.5% of participants' spouses were illiterate. 84.9% of participants were homemakers while 10.9% were a farmer and clerical by occupation. Similarly, 60% of participant spouses were farmers and clerks by occupation. 50% of the participants were belonging to the middle class (class-III) socioeconomic status according to the B.G prasad 2021 scale. 18.22% of participants belong to lower middle-class socioeconomic status.

2.Risk factors in study participants

Two risk factors have been considered in this study for maternal morbidity in the postpartum period up to 6th week after delivery. 8% of participants were using the substance in their daily life before they conceived. Out of these 94.4% of participants were addicted to tobacco products while only 5.6% of participants were addicted to alcohol. Similarly, another risk factor is physical activity which has been classified into sedentary and moderate physical activity. 89.8% of females were associated with sedentary physical activity they all were homemakers, and only 10.2% of females were associated with moderate physical activity.

3. Lifestyle association with postpartum morbidity

Maternal morbidity consists of various infections like puerperal sepsis, urinary tract infections, mastitis, surgical wound infection, episiotomy wound infection, postpartum depression, postpartum hemorrhage, and domestic violence. This study reveals that around 50% of females who were addicted to a substance like tobacco and alcohol developed infections. Similarly, 50% of females addicted to substances were associated with postpartum depression, both associations were statistically significant with a p-value of <0.001. In our study, 22% of females experienced domestic violence with their spouse or family members with a significant p-the value of 0.002. However, 17% of females experienced postpartum hemorrhage who was addicted to a substance but the association was not statistically significant. Similarly, 19.55% of participants with sedentary physical activity had been found with infections, while more proportion of 21.73% of participants with moderate physical activity had been found with certain infections. the results were not statistically significant (p-value, 0.724). 22.02% of females with sedentary physical activity were associated with postpartum depression and 28.26% of females with moderate physical activity were associated with postpartum depression, the result was not significant (p-value 0.339). only 7.1% of females with sedentary physical activity had experienced postpartum hemorrhage while 13.04% of females with moderate physical activity were associated with postpartum hemorrhage, but this was also not significant, (p-value 0.209). only 8.1% of females with sedentary physical activity were associated with domestic violence and 10.86% of females with moderate physical activity were associated with domestic violence.

Discussion

Maternal morbidity is a major cause for mothers to undergo permanent medical illness or even toward death or near miss. Many risk factors are responsible for maternal morbidity, which may begin from the day of conception to the day of delivery or even after the delivery as well. Out of these risk factors some are modifiable, and by changing these factors we can prevent several morbidity and mortality. This study reveals the prevalence of addiction and physical activity in pregnant women, and how these two factors affect the health of mothers during the postpartum period. The lifestyle has been measured by two parameters, one is addiction in

study participants and the second is daily physical activity done by participants.

Our finding revealed that 8% of females were found to be addicted to tobacco and alcohol. Out of these addicted females 7.4% were addicted to tobacco while 0.4% were addicted to alcohol, and no participants were found to be addicted to smoking. NFHS 5 data shows, that 8.9% of females aged above 15 years are addicted to tobacco consumption, and 1.3% of females are addicted to alcohol in India. Somewhat, more females are addicted to substance abuse in NFHS-5 data. Similarly, NFHS 5 data of Madhya Pradesh unveil, 10.2% of females aged above 15 years are addicted to tobacco consumption and only 1% of females aged above 15 years are addicted to alcohol.[5]

We found that 34.72% of participants addicted to substances, had associated with postpartum morbidities which were statistically significant too. An addiction in mothers may damage to the umbilical cord structure, increased risk of abortion, stillbirth, ectopic pregnancy, placenta previa, placenta abruption, PROM, increased rate of several infections, higher risk of postpartum depression, postpartum hemorrhage, increased risk of domestic violence [6]. 50% of participants addicted to tobacco and alcohol had developed infections like puerperal sepsis, mastitis, UTI, surgical wound infection, and episiotomy site infection. about 50% of participants addicted to tobacco and alcohol developed postpartum depression with a statistically significant p-value. A study by Meharun- Nissa khaskheli et al. in 2013 unveil that 3.89% of participants were found to be with puerperal sepsis but there was no association of addiction with any substance [11]. 22% of participants addicted to substances experienced domestic violence with their spouse and family members. A study by Dr. Saurabh basu, nidhi budh et al. shows 29% of females addicted to tobacco and alcohol experienced postpartum depression, it was a multivariate analysis using the EPDS scale [7]. Another study by Ravi Prakash Upadhyay et al. On 2017. revealed 22% of females addicted to tobacco and alcohol were found to be depressed in the postpartum [8]. Another study by Shawna l. Carroll Chapman et al. shows 19.7%-46% of females addicted to tobacco and alcohol experience postpartum depression [9]. So, after comparing different studies, we found that the prevalence of postpartum depression has increased in recent years.

22% of females addicted to the substance experienced domestic violence with their spouse and other family members. A study done in 2018 by Elizabeth a. Mumford et al. found that women classified as higher-risk drinkers over the study period faced a significantly increased risk of physical abuse [10].

Another factor studied under the lifestyle of the participant was physical activity. Our study it had been taken in two groups one was sedentary physical activity and the second was moderate physical activity. We found 89.77% of females with sedentary physical activity, while 10.22% of participants were found to be with moderate physical activity. A study on physical activity and adverse birth outcomes has been done by Adriana Sousa rego et al. in 2016. They found a level of physical activity, of 39.7% as low, 42.8% moderate, and 17.5%

vigorous [12]. This shows a huge difference in both results, which may be due to the large sample size and the classified sample only into two categories.

No association had been found between physical activity and infections, 19.55% of females with sedentary physical activity had developed postpartum infections, while 21.73% of participants in the moderate physical activity group had developed infections. Other studies show that physical activities reduce the risk of cesarean sections, preterm delivery, and IUGR but revealed no association between infections and physical activity [12]. 22.02% of participants with sedentary physical activity developed postpartum depression and 28.26% of females with moderate physical activity developed postpartum depression, with no statically significant value. A study by Yamuna ana, Mellisa Glenda lewis, et al. unveil, 7.2% of participants had a low level of physical activity. the prevalence of prenatal and postnatal depressive symptoms was 9.0% and 31.9% respectively and the result had significantly higher odds of developing postpartum depressive symptoms [13]. 7.1% of participants with sedentary physical activity had developed postpartum hemorrhage, while, 13.04% of participants with moderate physical activity developed postpartum hemorrhage with no significant p- value. Several studies have demonstrated the impact of addiction and physical activity on maternal health during the postpartum period and revealed that both factors are responsible for postpartum maternal health. However, to our best knowledge, the effect of a different risk factor on maternal health is yet to be explored.

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Table 1; Distribution of type of substance abuse in study participants (N=450)

Type of substance abuse	Frequency (N)	Percentage (%)
Tobacco	34	7.6
Alcohol	2	0.4
No abuse	414	92
Total	450	100

Table 2; Association between substance abuse and different maternal morbidity (n=36)

variable	postpartum infection		Postpartum depression		Postpartum hemorrhage		Domestic violence	
	Yes	No	Yes	No	Yes	No	Yes	no
Substance abuse	18 (50%)	18 (50%)	18 (50%)	18 (50%)	6 (17%)	30 (83%)	8 (22%)	28 (78%)
p-value	<0.001		<0.001		0.054		0.002	

*Statistically significant p-value = <0.05

Table 3; Distribution of physical activity in study participants (N=450)

Physical activity	Frequency (N)	Percentage (%)
Sedentary	404	89.8
Moderate	46	10.2
Total	450	100

Table 4; Association between physical activity and maternal morbidity

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variable		Any infection		Postpartum depression		Postpartum hemorrhage		Domestic violence	
		Yes	No	Yes	No	Yes	No	Yes	no
Physical activity	Sedentary (n=404)	79 (19.55%)	325 (80.44%)	89 (22.02%)	315 (77.97%)	31 (7.1%)	373 (92.32%)	33 (8.1%)	371 (91.83%)
	Moderate (n=46)	10 (21.73%)	36 (78.26%)	13 (28.26%)	33 (71.73%)	6 (13.04%)	40 (86.95%)	5 (10.86%)	41 (89.13%)
p-value		0.724		0.339		0.209		0.532	

*Statistically significant p-value = <0.05

Figure 1;

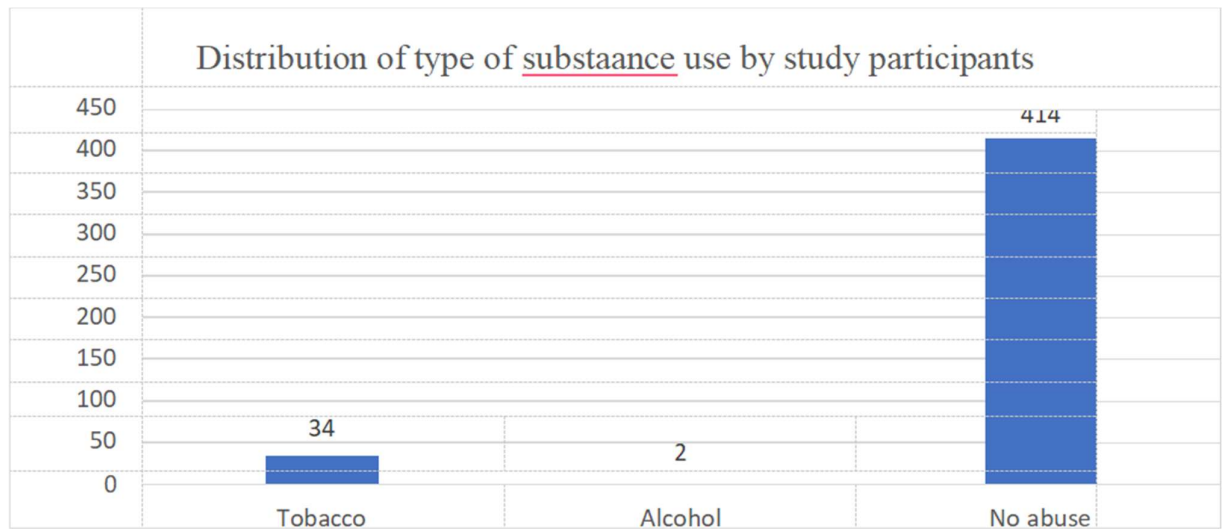


Figure 2;

