

# Postpartum related morbidities among women visiting government health facilities in Udupi Taluk, Karnataka, India

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## ABSTRACT

**Background:** Maternal morbidities are considered a leading contributor to the burden of disease among women. Especially, if postpartum morbidities are left untreated, this can cause a negative impact on the quality of life. The study was conducted to determine the proportion and types of postpartum morbidities among women visiting government health facilities in Udupi Taluk, Karnataka and to find out the association between the morbidities and various factors. **Subjects and Methods:** A cross-sectional study was conducted in various government hospitals in Udupi Taluk, consisted of 229 postpartum women. These subjects were selected from mothers who accompanied their children for immunization from February 2013 to July 2013 using purposive sampling technique. Multiple logistic regression analysis was used to find out the association between the morbidities and various factors using SPSS version 15. **Results:** Among 112 (48.9%) women who experienced postpartum morbidities, back pain (23.6%), and perineal pain (15.7%) were most commonly reported physical morbidities. Similarly, anxiety (10%) and irritability (7.9%) were the most common psychological problems. Demographic factors such as religion 2.4 (95% confidence interval [CI] 1.1, 5.4) and occupation 2.5 (95% CI 1.1, 5.9) were associated with the morbidities. Likewise, obstetric factors such as place of delivery 1.5 (95% CI 0.8, 2.9) and type of delivery 1.9 (95% CI 1.0, 3.6) were also associated with various morbidities. **Conclusions:** The findings showed a high proportion of postpartum morbidities being reported in our study settings. These observation priorities a need of health program for early recognition, treatment and improving awareness of postpartum morbidities among near mothers.

**Keywords:** Maternal health, postpartum care, postpartum morbidities, postpartum period, Udupi

## Introduction

Worldwide, approximately 800 women die from pregnancy and childbirth-related causes every day. In 2013, around 289,000 women died during and following pregnancy and childbirth. Developing countries accounts 99% of all these maternal deaths which is higher in women living in rural areas and poor communities.<sup>[1,2]</sup> Improving maternal health and decreasing maternal mortality is the objective of fifth-millennium development goal (MDG 5).<sup>[3]</sup> However, to achieve MDG 5, it is important to cover the entire spectrum of maternal health

problems, apart from maternal mortality.<sup>[3]</sup> Maternal complications are usually common during and after childbirth. Even though, a large number of women suffer from these complications, very little information is available on the maternal-related morbidity, especially in women live in rural settings.<sup>[4]</sup>

An estimate shows, of the total global incidence of maternal mortality, 25% occurs in India alone.<sup>[5]</sup> India observes the largest number of neonatal and maternal deaths in any single country.<sup>[4]</sup> Complications related to pregnancy, childbirth, and postpartum period may cause death or continuous morbidities that affect a women's health for shorter or longer period during or after delivery.<sup>[3]</sup> Postpartum maternal morbidity is defined by WHO

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as morbidity that occurs in the first 6 weeks after delivery.<sup>[5]</sup> This is a serious problem in resource-limited settings that leads to maternal mortality. In spite of the increased prevalence of postpartum morbidities and the danger of maternal mortality mothers in resource-poor setting, especially from a rural part of the country, usually neglect the medical care.<sup>[5-7]</sup>

Community-based studies conducted in different countries have stated that women suffer significant morbidities during pregnancy and postnatal period. These morbidities are also associated with negative poor fetal and newborn outcomes.<sup>[4,6,7]</sup> The postpartum morbidity is an important and complex public health problem in rural India. Singh and Kumar reported 39.8% of rural women have at least one of the following six postpartum morbidities: Lower abdominal pain, high fever, vaginal discharge, excessive bleeding, severe headache, and convulsion.<sup>[8]</sup> Researchers have emphasized that maternal morbidities are base of the iceberg where maternal deaths are just the tip of that.<sup>[9]</sup> It has been estimated that for each maternal death, around 20–30 women suffer from morbidity.<sup>[10,11]</sup>

There is a paucity of reliable data on postpartum maternal morbidities and disabilities in this part of the world.<sup>[12]</sup> More studies are warranted to investigate these complications to strengthen further the existing motherhood program to respond to these conditions. Available studies on postpartum maternal morbidities in our county are from North India.<sup>[4,5,8]</sup> There is a dearth of information from South India on this aspect. Udupi Taluk is located in a region with high literacy, low infant mortality, and better access to health care. In this context, data from this region is also likely to be different from data gathered in other parts of rural India. According to District Level House Hold and Facility Survey-4, 98.2% deliveries were institutional, and 1.8% were home delivery in Udupi during 2012–2013.<sup>[13]</sup> Hence, we conducted this study in Udupi Taluk (Coastal Karnataka) to fill the gap. The main objectives of the study were to determine proportion, types of postpartum morbidities; and association between postpartum morbidities and obstetric factors among women visiting government health facilities.

## Subjects and Methods

A cross-sectional study was conducted among women visiting government health facilities in Udupi Taluk. The government health facilities constituted 22 Primary Health Centers (PHC), 3 Community Health Centers (CHC) and a District Maternal and Child Health (MCH) Hospital in Udupi Taluk. Among these health facilities, 6 PHCs and 2 CHCs were randomly chosen by lottery method for data collection on every immunization day and the MCH Hospital was visited on every Monday, during the study period (February 2013 to July 2013). Purposive sampling technique was used to select women in the age group of 18–45 years, who had completed their postpartum period and was accompanying their children for first dose diphtheria pertussis tetanus immunization (6 weeks). Postpartum women were being interviewed for the study irrespective of their place of delivery.

The response rate was 99%. Equal numbers of participants were interviewed from the primary and the secondary level of health care. A questionnaire was used to collect information on demographics, obstetric history and postpartum morbidities of the study subjects. Institutional Ethical Committee clearance and written informed consent was taken before the commencement of the study. In this study, we used following operational definitions. Postpartum period was defined as the time period beginning after the delivery of placenta and continuing up to 6 weeks after the birth of the infant. Similarly, postpartum hemorrhage is a loss of 500 ml or more from the genital tract after delivery.<sup>[14]</sup>

Based on 6% allowable error, 95% confidence interval and estimated proportion of 30%, the sample size for the study was calculated to be 225. Data were collected from 229 postpartum women. Data analysis was performed using SPSS version 15.0 (IBM India Private limited, Bangalore). Multiple logistic regressions were used to find out the factors associated with the morbidities and various factors.

## Results

In this study, 229 participants visited government health facilities were interviewed. The mean age of the participants was  $26.26 \pm 4.53$  years. The majority (77.3%) of the participants were Hindu. The number of participants from rural and urban areas was almost equal, that is, 50.2% and 49.9%, respectively [Table 1]. The educational level of the study participants showed that 38.9% of them had high school education. Of 229 study participants, 5.2% were illiterates. The majority of the study participants (85.2%) were unemployed. Only 2.2% of the study subjects were professionals [Table 1].

More than half of the study populations (59%) were primiparas. The majority of the deliveries (59.4%) took place in government hospitals. More than half of the deliveries (68.6%) were full term normal deliveries. Most of the deliveries (99.1%) of the participants were conducted by the doctor [Table 2].

In this study, postpartum morbidities were reported among 49% of the participants. The majority of the participants had complaints of back pain (39.7%), followed by perineal pain (26.4%). The urinary and the breast problems were reported in < 10% of the participants [Table 3]. The main psychological problems reported were anxiousness (25.5%) and irritability (20%) [Table 4].

The odds of getting morbidities in women in the age group  $\leq 21$  years was 1.7 times more than the subjects in the age group 22–25 years. The odds of having morbidities were found to be 1.7 times in subjects in the >30 year age group compared to women in the 22–25 age group. Women from a nuclear family had 1.5 times more chances of having morbidities compared to women from a joint family. The chances of getting morbidities were 2.4 times high in Muslim and Christian women

**Table 1: Sociodemographic characteristics of the participants (n=229)**

Variables	Category	Number (%)
Age category (in years)	19-23	73 (31.9)
	24-29	101 (44.1)
	30-35	49 (21.4)
	>35	6 (2.6)
Religion	Hindu	177 (77.3)
	Muslim	45 (19.7)
	Christian	7 (3.1)
Place of residence	Rural	115 (50.2)
	Urban	114 (49.8)
Marital status	Married	228 (99.6)
	Separated	1 (0.4)
Type of family	Nuclear	96 (41.9)
	Joint	133 (58.1)
Educational level	Profession/honours	1 (0.4)
	Graduate/postgraduate	25 (10.9)
	Higher secondary (11-12 <sup>th</sup> )	33 (14.4)
	High school (8-10 <sup>th</sup> )	89 (38.9)
	Upper primary (5-7 <sup>th</sup> )	54 (23.6)
	Lower primary (1-4 <sup>th</sup> )	15 (6.6)
Occupation	Illiterate	12 (5.2)
	Professional	5 (2.2)
	Skilled worker	5 (2.2)
	Semi-skilled worker	9 (3.9)
	Unskilled worker	15 (6.5)
Family income (in rupees)	Unemployed	195 (85.2)
	<5000	85 (37.1)
	5000-10,000	95 (41.5)
	>10,000	49 (21.4)

**Table 2: Distribution of participants by their intranatal history (n=229)**

Variable	Category	Number (%)
Number of children	1	135 (59.0)
	2	70 (30.6)
	3	18 (7.9)
	4	5 (2.1)
	5	1 (0.4)
Place of delivery	Government hospital	136 (59.4)
	Home	1 (0.4)
	Private hospital	92 (40.2)
Type of delivery	Full term normal delivery	157 (68.6)
	Cesarean section	71 (31.0)
	Forceps delivery	1 (0.4)
Attendant during delivery	Doctor	227 (99.1)
	Family member	2 (0.9)
	Total	229 (100.0)

compared to Hindu women. The odds of getting morbidities were 2.5 times more in women who were employed compared to women who were unemployed. Obstetric factors were also found to influence postpartum morbidities. Women underwent delivery in government hospital had 1.5 times more chances of developing morbidities than women who delivered in a private hospital. The type of delivery was found to be significantly

**Table 3: Distribution of physical postpartum morbidities reported among participants**

Variable	Number (%)
Urinary incontinence	2 (1.4)
Retention of urine	2 (1.4)
Burning urination	9 (6.6)
Back pain	54 (39.7)
Bleeding per rectum	15 (11.3)
Breast engorgement	8 (5.9)
Breast abscess	6 (4.4)
Perineal pain	36 (26.4)
Wound infection	3 (2.2)
Puerperal fever	1 (0.7)

\*Multiple responses were reported

**Table 4: Distribution of psychological problems reported among participants**

Variable	Number (%)
Anxiousness	23 (25.5)
Lack of concentration	13 (14.4)
Crying easily	3 (3.3)
Loss of sleep	15 (16.6)
Loss of interest in usual activities	13 (14.4)
Loss of appetite	4 (4.4)
Irritability	18 (20.0)
Feeling of worthlessness	1 (1.4)

\*Multiple responses were reported

associated with morbidities. The odds of getting morbidities were 1.9 in women who underwent caesarean section compared to women who underwent normal delivery. Women with co-morbid conditions during pregnancy had 1.2 times chances of having morbidities compared to women without any morbidity. The odds of having morbidities were 1.2 times in women who did not go for any postnatal visits compared to women who went for postnatal visits [Table 5].

## Discussion

Postpartum period is a neglected part of maternal health. Even though, significant headway has been made for promoting neonatal health; similar consideration has not been given to improve maternal health during the postpartum period.<sup>[4]</sup> The physical and mental well-being of postpartum women are influenced by various factors. This study gives an insight into the problem of postpartum morbidities. This study reported postpartum morbidities among 49% of the study participants. Singh and Kumar found approximately 40% of rural women suffer from at least one postpartum morbidity.<sup>[8]</sup> Iyengar reported around 75% of the women have a morbidity after delivery among rural women of Rajasthan.<sup>[5]</sup> A similar prevalence of postpartum morbidity was also reported by Fronczak *et al.* in Bangladesh.<sup>[15]</sup> Complaints of back pain (39.7%) and perineal pain (26.4%) were the most commonly reported morbidities among postpartum women. These findings were supported by Brown and Lumley they found that the main postpartum morbidities women face were backache (43.5%) and perineal

**Table 5: Multiple logistic regression analysis of factors related to postpartum morbidities**

Variable	Category	Number (%)	OR (95% CI)	P
Age group (in years)	22-25	96 (41.9)	1.0	
	≤21	31 (13.5)	1.7 (0.7-4.3)	0.262
	26-30	63 (27.5)	1.1 (0.5-2.2)	0.862
	>30	39 (17.0)	1.7 (0.7-4.1)	0.211
Religion	Hindu	177 (77.3)	1.0	0.025*
	Muslims/christians	52 (22.7)	2.4 (1.1-5.4)	
Place of residence	Urban	114 (49.8)	1.0	0.734
	Rural	115 (50.2)	0.9 (0.5-1.6)	
Type of family	Joint	133 (58.1)	1.0	0.173
	Nuclear	96 (41.9)	1.5 (0.8-2.7)	
Occupation	Unemployed	195 (85.2)	1.0	0.036
	Employed	34 (14.8)	2.5 (1.1-5.9)	
Place of delivery	Private hospital	92 (40.2)	1.0	0.021*
	Government hospital	137 (59.8)	1.5 (0.8-2.9)	
Type of delivery	F/TND/forceps delivery	158 (69)	1.0	0.050*
	C section	71 (31.0)	1.9 (1.0-3.6)	
Co-morbid conditions during pregnancy	No	168 (73.4)	1.0	0.598
	Yes	61 (26.6)	1.2 (0.6-2.3)	
Postnatal visits done	Yes	156 (68.1)	1.0	0.486
	No	73 (31.9)	1.2 (0.7-2.3)	

\*Statistically significant at P=0.05. OR: Odds ratio; CI: Confidence interval; F/TND: Full term normal delivery

pain (21%) after tiredness.<sup>[16]</sup> Contrary to this report, some studies reported most common postpartum morbidities were anemia.<sup>[5,17]</sup> The urinary and the breast problems were reported in <10% of the participants. Similar results were observed by other studies.<sup>[5]</sup> The main psychological difficulties reported were complaints of anxiousness (25.5%) and irritability (20%). Bowen *et al.* (2012) found similar mood instability problems in postpartum women.<sup>[18]</sup> Whereas another study in Chennai found the prevalence of psychiatric morbidities to be 33.4% and 6.5% of the cases had a major illness like psychosis and postnatal depression.<sup>[19]</sup> In our study, postpartum hemorrhage was not reported due to the good medical attention that was given to women by doctors during and after labor, while few studies reported the hemorrhage.<sup>[4,5,8]</sup>

Various sociodemographic and obstetric factors influence the occurrence of postpartum morbidities. The odds of getting morbidities in the subjects in the age group ≤21 years was 1.7 times more than the subjects in the age group 22–25 years, which was not statistically significant (P = 0.262). The odds of having postpartum morbidities was found to be 1.7 times more in subjects in the age group of more than 30 years compared to the subjects in the age group of 22–25 years, which was also not statistically significant (P = 0.211). However, sociodemographic characteristics like age was found to have a significant effect on morbidities in a study conducted in West Bengal.<sup>[20]</sup>

The odds of getting postpartum morbidities among Muslims and Christians was 2.4 times more in comparison to Hindus, which was statistically significant (P = 0.025). This could be due to the reason that in this study Hindu women were found to go for

postnatal checkups more than the other group. Singh and Kumar also observed the high prevalence of the morbidities among Muslim women.<sup>[8]</sup> In this study, the participants residing in rural areas were 0.9 times less likely to have postpartum morbidities than the study subjects residing in the urban area, which was not statistically significant (P = 0.734). This could be because of the reason that women went for postnatal visits irrespective of their place of residence. However, these findings were in contradiction to a study conducted by Bibi *et al.* which found that majority of the mothers was referred from rural areas for postpartum morbidities to the tertiary hospital.<sup>[21]</sup>

In this study, the odds of getting postpartum morbidities in study subjects from nuclear families was found to be 1.5 times more compared to the subjects in a joint family, which was not statistically significant (P = 0.173). However, this was in contrary to a study conducted in Andhra Pradesh which found that women living in joint families were more likely to suffer from maternal morbidities compared to women living in nuclear families.<sup>[22]</sup> This can be due to the reason that women went for postnatal checkups irrespective of the type of family to which they belong.

The present study shows that the odds of having morbidities among employed study subjects were 2.5 times more in comparison to unemployed study subjects, which was statistically significant (P = 0.036). As the working women had a more stressful life than the unemployed women chances of getting morbidities were more in the former group. These results were in contradiction to the study conducted in Andhra Pradesh,<sup>[22]</sup> which showed that unemployed women were more likely to suffer from serious maternal morbidities than the working women.

In this study, the odds of having morbidities in a delivery conducted in government hospital was 1.5 times more compared to a delivery conducted in a private hospital which was not statistically significant (P = 0.211). This can be due to the presence of physicians during deliveries. But another study by Fronczak *et al.* found that postpartum morbidities were not significantly different by place of delivery.<sup>[15]</sup> This study found that the type of delivery of the study subjects were found to have a significant association with postpartum morbidities (P = 0.050). The chances of having morbidities in a caesarean section were 1.9 times more than the normal delivery. This was in support of findings in a study conducted by Baghirzada *et al.* which found out that women who underwent caesarean section had lower scores of physical ability, pain and energy level domains in comparison to women who underwent normal delivery.<sup>[23]</sup>

The study found that the odds of getting postpartum morbidities in study subjects who were having co-morbid conditions during pregnancy were 1.2 times (P = 0.598) more compared to those subjects with no co-morbid conditions during pregnancy. This was in support of a study conducted by Hoedjes.<sup>[24]</sup> The study found that women with preeclampsia during pregnancy were more at risk to develop headache, fatigue, visual disturbances and mental health problems during the postpartum period.



In this study, the odds of getting morbidities among women who did not go for postnatal check-ups was 1.2 times more than the women who went for postnatal visits, which was not statistically significant ( $P = 0.486$ ). However, a study done in Palestine showed that postnatal care was more in women who had problems during pregnancy, underwent caesarean section or underwent an instrumental vaginal delivery.<sup>[25]</sup>

## Conclusion

The proportion of morbidities reported among postpartum women showed that around half of the study participants had morbidities. Sociodemographic factors such as religion and occupation and obstetric factors like place and type of delivery contribute to the burden of the morbidities. Raising awareness about these factors, both among health care professionals and women, play an important role in recognition and treatment of postpartum morbidities. Hence, the postpartum period which is often a neglected part of maternal health needs more attention of the policy makers.

## Limitations

As this was a health facilities based study, the results cannot be generalized into the community and furthermore, poor representation of mothers residing away from health centers due chances of selection biases. Moreover, the postpartum morbidities were not confirmed by clinical examination. The postpartum morbidities were identified based on the operational definitions.

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## Conflicts of interest

There are no conflicts of interest.

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