ISRG Journal of Economics, Business & Management (ISRGJEBM)

ISRG PUBLISHERS
Abbreviated Key Title: Isrg J Econ Bus Manag
ISSN: 2584-0916 (Online)
Journal homepage: https://isrgpublishers.com/isrgjebm/
Volume – II Issue - II (March – April) 2024
Frequency: Bimonthly

Risk Factors of Postpartum Depression in Sri Lanka (Special Reference in Western Province)

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| **Received:** 23.02.2024 | **Accepted:** 28.02.2024 | **Published:** 02.03.2024

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Abstract

Postpartum depression (PPD) is a global mental health concern affecting women during the postpartum period. This study aimed to explore factors contributing to PPD among postnatal women in Western province. PPD is recognized as a serious mental health issue, affecting 5-60.8% of women globally. It is associated with emotional disturbance during the postpartum transition, lasting up to 12 months. Spousal support is crucial in preventing PPD, but its level varies across cultures. Various factors contribute to PPD, including adolescent pregnancy, unintended pregnancy, depression history, and lack of social support. The study used a self-administered questionnaire with demographic details and 12 depression-related factors. Data from 45 postnatal women were analyzed using multinomial logistic regression, treating EPDS values as the dependent variable. The model's significance was established ($p = 0.004$), indicating its ability to predict outcomes. Goodness-of-fit tests suggested the model appropriately described the data. The pseudo-R-squares showed a 25.9% improvement over the null model. The classification table demonstrated an overall predictive power of 80.7%. Factors significantly influencing PPD included family type, family income level, type of pregnancy, depression history, preterm birth, newborn feeding stage, newborn diseases, spousal violence, and lack of social support. Odds ratios revealed the impact of these factors on PPD levels. The majority of postnatal women in the study had secondary education, were from nuclear families, and engaged in love marriages. Factors contributing to PPD included socio-economic factors, pregnancy intention, and spousal violence. The study emphasizes the need for comprehensive prenatal education, counseling services, and postpartum support groups. It recommends awareness campaigns, accessible mental health services, and family-friendly workplace policies to mitigate PPD risk factors.

Key Words: *EPDS, factors, Multinomial logistic regression, Postpartum depression.*

Introduction

Postpartum depression (PPD) is a widespread mental disorder affecting a global population, with prevalence rates ranging from 5% to 60.8% worldwide (Klainin & Arthur, 2009). The World Health Organization (WHO) (2010) underscores that it is a mild

DOI: 10.5281/zenodo.10753930

mental and behavioral disorder linked to the postpartum period, beginning within six weeks after childbirth. Recognized by the American Psychological Association (APA) as a serious mental health issue, PPD is characterized by prolonged emotional disturbance during a significant life transition and heightened responsibilities in caring for a newborn. This condition, as defined by Ay et al. (2018), encompasses three phenomena: grief postpartum, depression, and psychosis, with postpartum depression being identified as one of the most prevalent and distinctive challenges during pregnancy and beyond (Ay et al., 2018). While pregnancy and the postpartum period are often considered joyful, Secco et al. (2006) emphasize the importance of recognizing this time as susceptible to the development of psychological disorders. The onset of PPD symptoms typically occurs 2 to 4 weeks after delivery, persisting for up to 12 months. Research by Siriwardhana et al. (2022) indicates that this mood disorder can manifest at any time within the first year after childbirth, affecting 10–15% of postpartum women.

Literature Review

Recent research indicates an overall prevalence of maternal PPD at 17%, with a 12% incidence observed among mothers without a history of mental disorders (Shorey et al., 2018). The prevalence rates vary significantly across countries, as highlighted by studies such as Cameron et al. (2016) and Edoka et al. (2011).

As outlined by Kızılırmak (2020), PPD can potentially lead to more severe consequences than depression occurring at other stages in women's lives. The research further highlights that depression experienced during this period is particularly prone to causing harm to both the mother and her baby, adversely impacting their psychological, physical, and social well-being. Mohammad et al. (2011) emphasizes the crucial role of spousal support in preventing PPD, which can have significant adverse outcomes. It is noteworthy that the level of spousal support during the postpartum period varies significantly across cultures. Thus, gaining a comprehensive understanding of the impact of spousal support on PPD requires in-depth studies conducted in diverse cultural contexts worldwide.

PPD is a prevalent and serious mood disorder that negatively impacts the well-being of women, their families, and infants (Mohammad et al., 2011; Roomruangwong et al., 2016). The prevalence of PPD varies across countries and is closely associated with cultural and social factors. Notable prevalence rates include 8.46% in Canada, 17.4% in Australia, 23.8% in Turkey, 21.8% in Nigeria, 22% in Jordan, and 19.8% in Greece (Lanes et al., 2011; Yelland et al., 2010; Ozcan et al., 2017; Tungchama et al., 2018; Mohammad et al., 2011; Gonidakis et al., 2008). Given its high prevalence, it is essential to identify the factors contributing to an elevated risk of PPD.

Various factors contribute to the occurrence of PPD including adolescent pregnancy (Phipps et al., 2013), unintended pregnancy (Karacam et al., 2018), a history of depression during pregnancy (Park et al., 2015; Roomruangwong et al., 2016; Verreault et al., 2014), the mother's age, parity, immoderate mobile phone vulnerability during pregnancy, gestational hypertensive disorders, amount of fetuses, preterm birth, newborn weight, the timing of breastfeeding initiation, newborn health issues within four weeks postpartum, and newborn weight within the same period (Liu et al., 2017). Other factors include unemployment, the income level of the family (Karacam et al., 2018; Ozcan et al., 2017; Park et al., 2015), emergency cesarean delivery (Xu et al., 2017), spousal violence (Kothari et al., 2016), and lack of social support during pregnancy (Verreault et al., 2014).

During the postpartum period, women typically receive the majority level of support (Sahin et al., 2014). Notably, the spouse plays a crucial role as the primary source of support, aiding women in adapting to motherhood (Albuja et al., 2017; Gremigni et al., 2011).

During the postpartum period, women anticipate support in areas like caring for the infant, managing household tasks, and dealing with emotional matters (Dennis & Ross, 2006; Gremigni et al., 2011). Research suggests that women facing difficulty in obtaining this support are at a higher risk of experiencing PPD (Almutairi et al., 2017; Dennis & Ross, 2006).

The following diverse instruments were employed to evaluate women's mental health:

1. Kuppuswamy Socio-Economic Status Scale
2. Edinburgh Postnatal Depression Scale (EPDS)

EPDS is a generally recognized tool used to screen for depression in the postnatal period. It consists of 10 questions, each scored on a scale of 0-3, with a total score ranging from 0 to 30. In Sri Lanka, the validation of PPD screening through EPDS and its integration into routine postnatal care in 2012 highlighted the identification of various factors associated with postpartum depression in the country, signaling the need for further consideration and attention.

Material and Design

The convenience sampling method was used to select the sample for the study and select the western province. The questionnaire is divided into two sections. The first section captures demographic details of mothers, encompassing information such as age, education level, family type, occupational status, type of marriage, spouse's educational level, family income, and type of pregnancy. The second section consists of items designed to assess twelve depression-related factors. These factors include a history of depression, previous pregnancy experiences, gestational hypertensive disorders, preterm birth, newborn baby's weight, initial stage of newborn feeding, type of newborn feeding, presence of newborn diseases within four postpartum weeks, emergency cesarean delivery, spousal violence, severe marital problems, lack of social support during pregnancy, and adolescent pregnancy. Responses are recorded on a five-level Likert scale, where 1 indicates strongly agree, and 5 indicates strongly disagree.

Data was gathered from a sample of 45 postnatal women who gave birth in December 2023 at Colombo North Teaching Hospital - Ragama. The self-administered questionnaires included responses from mothers, with the values assigned to the Edinburgh Postnatal Depression Scale (EPDS) being treated as the dependent variable. The following values are considered ordinal.

PPD 1 = Depression not likely
PPD 2 = Depression possible
PPD 3 = Fairly high possibility of depression
PPD 4 = Possible depression

Multinomial logistic regression was carried out to identify the factors affecting PPD.

Statistical Analysis

Descriptive statistics followed by the application of comprehensive statistical tools to achieve the objectives of the analysis are

DOI: 10.5281/zenodo.10753930

performed.

Demographic Factors of the Respondents

Table 1: Descriptive statistics of personal factors of postnatal women.

Factor and the levels	Percentage (%)
Education Level of the Postnatal Women	
Primary of lower	12
Secondary	68
University or above	20
Family Type	
Nuclear family	68
Extended family	32
Occupational Status	
Occupied	64
Not occupied	36
Type of Marriage	
Arranged marriage	32
Love marriage	56
Kin marriage	12
Education Level of the Spouse	
Primary of lower	20
Secondary	60
University or above	20
Income Level of the Family	
Lower level	16
Middle level	68
Higher level	16
Type of Pregnancy	
Intended pregnancy	44
Unintended pregnancy	56

Source: Survey Data, 2023

The data indicates that a majority of 68% of postnatal women had a secondary education and a minority of 12% had primary or lower education. Additionally, 68% were in the nuclear family which is significantly higher than the 32% observed in the extended family. Specifically, 64% of the responded postnatal women are occupied and 36% of remains are not occupied.

Regarding the type of marriage, 56% of postnatal women engaged in a love marriage, 32% of them were in an arranged marriage and 3% were in kin marriage. A similar percentage (20%) was indicated in primary or lower and university or above as the spouse education level and the higher rate is indicated in secondary educational level (60%). A minimal percentage of 16% mentioned the lower level and higher level as the income level of the family. Furthermore, the majority of 56% of the responded postnatal women had an unintended pregnancy and 44% of them had an intended pregnancy.

Multinomial Logistic Regression Model

Table 2: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	33.651			
Final	23.009	33.651	17	.004
Link function: Logit.				

Source: Survey Data, 2023

According to table 2, since the p-value is less than 0.05, the model is significant (p = 0.004). It can be concluded that there is a significant improvement in predicting the outcome when have the predictors in the model. Hence, the model-fitting information shows the model adequately describes the data.

It can be further justified by table 3. If the p-value is higher than 0.05 the model fits the data adequately. The goodness of fit test refers to measuring how well the observed data correspond to the fitted model and here an insignificant value (p = 0.231 and 0.080) would mean that there are no significant differences in the observed data and the fitted model.

Table 3: Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	25.456	3	.231
Deviance	30.600	3	.080
Link function: Logit.			

Source: Survey Data, 2023

Table 4: Pseudo R-Square

Cox and Snell	.440
Nagelkerke	.384
McFadden	.259
Link function: Logit.	

Source: Survey Data, 2023

Based on the McFadden value of R square, there has been a 25.9% increase in the predictor of the outcome based on the predictors in the comparison to the null model.

According to the classification table, the model employed in this study demonstrates a high overall productivity power of 80.7%.

Table 5: Parameter Estimates

Variable	B	Std. Error	Wald	df	Sig.	Exp (B)
Intercept	77.083	16.416	.045	1	.023	
Family type (Nuclear)	14.510	13.243	.391	1	.003	5.269

DOI: 10.5281/zenodo.10753930

Family type (Extended)	0[c]			0		
Family Income Level (Lower)	.000	33.433	.163	1	.000	1.000
Type of pregnancy (Unintended)	38.542	7.097	.947	1	.002	22.004
Type of pregnancy (Intended)	0[c]			0		
Depression history of previous pregnancy may affect the PPD = 1	57.803	7.743	.045	1	.042	7.862
Depression history of previous pregnancy may affect the PPD = 2	29.729	.779	.508	1	.035.	3.258.
Preterm birth may affect to decide the PPD = 1	23.599	.213	.743	1	.000.	4.258.
Preterm birth may affect the PPD = 2	29.889	32.025	3.243	1	.023	11.025
The beginning stage of newborn feeding may affect the PPD = 1	12.000	6.469	.000	1	.000	1.000
The presence of a disease in the newborn within four postpartum weeks may affect PPD = 1	28.510	13.023	.289	1	.004	5.269
Spousal violence may affect the PPD = 1	25.542	7.097	.900	1	.000	34.004
Spousal violence may affect the PPD = 2	12.012	2.890	.259	1	.023.	23.250
Lack of Social Support during the pregnancy may affect the PPD = 3	4.258	3.159	.274	1	.009	22.028

The reference category is 1: Depression not likely
Source: Survey Data, 2023

When it is adjusted to all the other compounding factors the odds ratio of the respondents who are in the nuclear family type is 5.269 times greater than the odds happening the respondents who are in the extended family type. Considering the odd ratio of postnatal women in the western province who had a lower family income level is 1 time higher than middle-income level and high-income level. The odds ratio of the respondents who had an unintended pregnancy is 22.004 times higher than the odds happening the respondents who had intended pregnancy.

Considering the Likert scale data, the statement strongly agrees that the depression history of previous pregnancy is 7.862 times greater than the other levels of depression history. Statement of strongly agree in preterm birth is 4.258 times greater than compared with the other levels. The statement of strongly agree in the beginning stage of newborn feeding is 1 time higher than the other levels. The odds ratio is reported under the strongly agree that the presence of a disease in the newborn within four postpartum weeks is 5.269 times higher than the levels of others. The highest probability of the statement is strongly agreed that Spousal violence is 34.004 times higher than the levels of others. Also, the statement of neutral in lack of social support during the pregnancy is 22.028 times higher than the other levels.

Conclusion and Recommendation

Conclusion

A significant portion was reported in the secondary education level of the postnatal women 68%. Around 68% were from the nuclear family. Nearly the majority of 64% of postnatal women are occupied and most of them are in a love marriage. Considering the education level of spouses, the majority of them had a secondary education level. 68% of the highest are from the middle-level income in their families. Most of the sample had an unintended pregnancy 56%.

Regarding the factors contributing to PPD, the multinomial logistic regression model identified several variables with a significant positive influence on the odds ratio. These variables included the nuclear family type, lower family income level, unintended pregnancy, depression history, preterm birth, beginning stage of newborn feeding, presence of diseases within the four postpartum weeks, spousal violence, and the lack of social support during the pregnancy.

Recommendations

- Provide comprehensive prenatal education to expecting mothers and their families, including information on postpartum mental health.
- Offer counseling services during pregnancy to address concerns and provide coping strategies.
- Establish postpartum support groups where new mothers can share their experiences, seek advice, and receive emotional support.
- Encourage community involvement to reduce feelings of isolation.
- Conduct awareness campaigns on postpartum depression, its signs, and the importance of seeking help.
- Educate healthcare professionals, families, and communities to recognize and respond to the needs of mothers at risk.
- Ensure that mental health services are readily available and accessible to new mothers.
- Train healthcare professionals to screen for postpartum depression during routine check-ups.
- Foster a supportive environment within families and communities.
- Encourage family members to actively participate in caregiving and share responsibilities to reduce stress on new mothers.
- Promote family-friendly workplace policies, such as flexible schedules and maternity leave, to reduce stress on working mothers.
- Encourage a supportive work environment that acknowledges the challenges faced by new parents.

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