

# PSYCHIATRIC SOCIAL WORK INTERVENTIONS FOR POST-PARTUM NEUROLOGICAL ILLNESS IN A NEURO-CASUALTY AND EMERGENCY SETTING: A CASE STUDY

Sunu Merla<sup>1</sup>, Chithirai Valli Kuppusamy<sup>2</sup>, Sinu Ezhumalai<sup>3</sup>

<sup>1</sup>Final year M.Phil scholar, Department of Psychiatric Social Work, NIMHANS, Bangalore, Karnataka,

<sup>2</sup> Former Psychiatric Social Worker, Dept of PSW, NIMHANS, Bangalore Karnataka, <sup>3</sup>Additional Professor, Department of Psychiatric Social Work, NIMHANS, Bangalore, Karnataka.

**Correspondence: Sinu Ezhumalai**, email: esinu27@gmail.com

## ABSTRACT

This study describes a multiple psychosocial problems in a case of a 24-year-old married female, who presented with sudden paraplegia and urinary incontinence, during her post-partum period within 20 days of delivery. She was referred to Neurology casualty and Emergency service by a Gynaecologist. Patient presented with acute onset postpartum paraplegia with bowel bladder involvement after delivery of her second child by LSCS (ectoplasmia). She was conscious, well oriented, and afebrile. She visited the hospital during COVID-19 pandemic lockdown. However, there was no history suggestive of COVID-19 in the patient. Neurological examination showed complete paraplegia (power 0/5 with decreased tone), associated bowel and bladder involvement with complete sensory deficit below the level of Lumbar Vertebra (L1). All necessary blood investigations were carried out. She had anemia. Patient was planned for magnetic resonance imaging (MRI) of Digital Subtraction Angiography (DSA). Patient was initially not agreeing for DSA and denied the same. After counseling she agreed for DSA. Upon clinical and radiological assessment, she was diagnosed with hemorrhagic myelitis. Patient, family members faced crisis and multiple psychosocial problems such as severe psychological distress due to sudden loss of functioning (mobility), feeding the baby in casualty, lack of safe space for the infant in casualty. Persistent worries regarding the future, separation anxiety from the first child owing to hospitalization, worries about risks of infections to the new born baby in the emergency care and financial constraints were revealed in psychosocial assessment. Patient neurological conditioned remained status quo after three months of follow-up. The Psychiatric Social Work team provided following psychosocial interventions; crisis intervention, psychoeducation and liaison services. The interventions have helped the patient in various psychosocial domains. This case study sensitizes the Psychiatric Social Workers the importance of psychiatric social work services in perinatal neurology emergency settings.

**Keywords:** Post-partum, Neurological emergency, Psychosocial issues.

## INTRODUCTION

Neurological conditions with an acute onset in postpartum patients are often referred by the Obstetrician and Gynaecologist to a neurological emergency setting as soon as a

condition requiring emergency care is suspected. Pregnancy and giving birth are considered to be major life events in the lives of individuals. Few mothers' experience certain difficulties during the postpartum

period which can be physical or psychological or both. The distress caused as a result of these conditions is significant and affects their functionality to a great extent. Delay in treatment of hemorrhagic myelitis may lead to permanent disability. There have been several published case reports and case series detailing various neurological manifestations during post-partum. Acute postpartum paraplegia commonly occurs due to predisposing factors, that is, trauma, coagulation abnormalities, vascular malformations, preeclampsia or iatrogenic and due to spinal needle for anesthesia during labor.

### **Perinatal Neurological conditions**

In a neurological setting, patients can present with new acute-onset of neurological conditions that occur with increased frequency during and just after pregnancy. Acute neurological symptoms in pregnant and post-partum women can be due to an exacerbation of a pre-existing neurological problem (Edlow, 2013). These conditions include hemorrhage, stroke, seizures, etc. The incidence of neurological disorders is 584 per 100,000 deliveries (Gupta, 2006). Most common post-partum neurological conditions include headache, seizures, multiple sclerosis, demyelination, neuromuscular disorders (Zafarmund, 2019). Myelitis refers to inflammation of the spinal cord and hemorrhagic myelitis is rarely seen in clinical settings (Tolijan, 2023). The case study is a report of a woman with acute post-partum hemorrhagic myelitis (Thoracic lumbar). Hence, this is a unique case with significant psychosocial issues.

### **Perinatal Social Work**

Perinatal social workers provide mental health services as families adjust to psychosocial

challenges, make decisions, manage the transition to parenthood, grief counseling for terminated pregnancies, manage post-partum depression and help with many types of perinatal loss. In short, perinatal social workers work in many settings adoption agencies, hospitals, community; they provide supportive counseling, case management, and advocacy, mobilize resources.

There are a lot of psychosocial changes that a mother and the family go through during pregnancy and post-partum. It is also a period of transition to the next family lifecycle stage from newly married couple to child bearing families as per family life cycle stages given by Evelyn Duvall. Various social and familial changes such as adjustment to the new family structure, planning and managing finances, caring for the child's health are likely to take place which requires sufficient coping and skills. The occurrence of a neurological disorder is most likely to affect the functionality of the patient with most cases being affected by problems related to the central and peripheral nervous system that affect the motor functions. Thus, it had affected the patient's functionality. Apart from these, there are certain post-partum needs for the mother and the baby and inability to meet these needs caused multiple psychosocial issues for her and the family. Common challenges faced by persons with neurological conditions include difficulty in performing Activities of Daily Living, psychological distress, lack of illness related information, job related difficulties and child care, social relationships and socio-economic issues (Sinu, 2018). When the challenges caused by both the neurological illness and the post-partum period occur simultaneously, the distress faced by the patient was huge. Hence, there is a need for a psychiatric social worker in a perinatal neurology setting. The integration of psychiatric social work practices

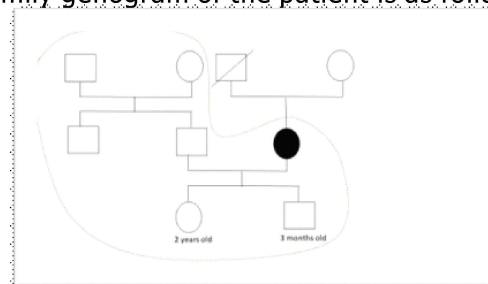
to tailor to the needs of a neurological illness in the post-partum period is crucial.

### Case Vignette

A 24-year-old married woman educated upto 7<sup>th</sup> standard, homemaker, from a low socio-economic background from Gulbarga, Karnataka 560 kms away from Emergency and Casualty Department of NIMHANS, Bangalore with history suggestive of immobility of bilateral lower limb with illness duration of 20 days. She had previously been on in-patient care in three different hospitals for a total period of 18 days before visiting the tertiary care centre, Bangalore in August 2021. After 20 days of lower segment cesarean section (Eclampsia), the patient noticed the above-mentioned changes. She was shifted to the in-patient care after evaluation and was admitted for a period of 11 days; pharmacological treatment was started with steroids and large volume plasmapheresis (LVPP) with a provisional diagnosis of acute onset paraparesis with bladder involvement due to suspected Central Nervous System (CNS) demyelination. Diagnostic tests included Lumbar Puncture and Magnetic Resonance Imaging (MRI). She was also referred to the Department of Neuro-rehabilitation. Psychosocial issues identified during the first admission were lack of knowledge about illness, distress due to sudden physical changes, distress in the family due to the patient's illness, lack of bed facility for the infant. Psychosocial interventions provided include facilitation of accommodation for the 20 days old infant in the mother-baby unit belonging to the Department of Psychiatry, counselling regarding the need for long term care and supportive work with the family. The patient was discharged with a recommendation of follow up after three months.

### Second admission

The patient was re-admitted in the Casualty and Emergency observation ward in October 2021 with persisting complaints of immobility of bilateral lower limb. As there was no improvement noticed, it was decided by the treating team to do a DSA to rule out any dural arteriovenous fistulas and to educate the family on the same, hence Psychiatric Social Work referral was made. The patient also had pain in her upper limbs and back due to lack of movement of the lower limb. The patient was referred to the Psychiatric Social Work team for counselling regarding the Digital Subtraction Angiography (DSA) and admission along with facilitation of welfare benefits. Psychosocial Assessment was carried out on the same day of admission in Casualty and Emergency services: The pathways to care included a visit to three hospitals with a total of 20 days IP care. Patient was referred by the Gynecologist to the Casualty and Emergency department of NIMHANS in August, 2021. However, there was no history of COVID-19 in the patient. She was staying with her family of origin during her perinatal period with her mother. In the hospital, the patient was accompanied by her husband, 3-month-old infant and mother. Functionality score as per the Barthel index was 30 which indicated that she was highly dependent on ADLs. Concerns expressed by the patient and family were the lack of improvement in symptoms, loss of bowel and bladder sensation. The family genogram of the patient is as follows:



**Conceptualization framework**

Psychosocial issues of the parent-infant-family unit were identified using the bio-psycho-social model conceptualized by George Engel in 1977.

**Table 1: Significant findings from assessment.**

Triad	Biological	Psychological	Social
Patient	*Persistent lower limb weakness. *Double retention. *Lack of postpartum related obstetrics consultations.	*Poor knowledge of the illness.*- *Worries regarding the prognosis. * Unable to focus on child care. *Difficulty to adhere to suggestions given by the treating team due to her disability *Fear and worries regarding the risks involved in the diagnostic procedures. * emotional changes related to other post-partum conditions	*Financial concerns *Lack of social participation. *Dependency for daily activities. * Activity Restriction
Infant	*Risk for infections in the emergency observation ward. *Inadequate physical care including giving bath or using the right soaps and baby products. *Inadequate nutrition. *Disturbed sleep and rest because of the lights and noise in the ward. *Lack of adequate bedding or pacifier.	*Lack of sensory and cognitive stimulation. * Attachment related issues with family and sibling. *Lack of social smile.	*Lack of opportunities for social learning. *Lack of non-verbal gestures of affection, love etc. * Absence of regular pediatric checkups. *Lack of adequate sensory stimulation.
Family	*Caregiver burden (physical) –taking care of the patient’s ADLs. *Disturbed sleep because of the need to take care of the patient and the baby.	*Worries regarding the prognosis. *Emotional distress in the first child owing to separation from parents and siblings *Anxious regarding the patient’s and children’s future.	*Financial burden. *Lack of knowledge on the illness. *Poor social support. *non-availability of neurological care nearby.

Patients with neurological emergencies experience significant difficulties in performing Activities of Daily Living. Neurological emergencies in post-partum women can be devastating for the patient, the infant and the family at various levels. Women with neurological illness who are in their post-partum period have significant bio-psycho-social challenges as compared to other patients. Post-partum neurological conditions and admissions in the casualty and emergency care can affect various aspects of the infant’s development, especially lack of adequate sensory stimulation, nutrition and a healthy growing environment. Individualized or tailor-made psychosocial interventions addressing the mother, infant and family separately and conjointly have shown changes in the psychosocial distress. Catering to the physical health needs of the child and other obstetric needs of the post-partum mothers can be challenging in a neurological emergency setting and future action researches can pave way to cater to these needs.

**Psychosocial Interventions**

Major Psychosocial interventions provided were based on crisis intervention model. *Crisis intervention is a short-term management technique designed to reduce potential permanent damage to an individual affected by a crisis. A crisis is defined as an overwhelming event, which can include divorce, violence, the passing of a loved one, or the discovery of a serious illness (Wang).* The following elements of crisis intervention was provided: relieving the client’s problems, identifying the factors that led to the crisis state, identifying and applying remedial measures, helping the client develop coping mechanisms for the current and any future crises.

**Pre-investigation Counselling**

The treating team had planned to do DSA and the PSW team intervened to educate the family on the same. It was observed that the patient’s mother who was one of the primary care takers was very apprehensive and regarding the risk involved in DSA. It was also found that their knowledge on the DSA process was very poor. The same was discussed with the treating doctor and the patient understood that the procedure was important to rule out any other underlying condition.

Hence, the reason and process of DSA was explained verbally and using pictures. On observation of a disturbed emotional climate accompanied by fear and panic, the help of a senior PSW was obtained to help the family to calm down and understand the rationale behind the test. Towards the end of the session, the family was prepared for the procedure. After the procedure, the patient and caregiver were given feedback regarding the DSA and about their feelings. They had

expressed that the counselling session had prepared them for the procedure and had helped them trust the Professionals. The patient reported that the procedure was not as complicated as she had imagined.

### **Illness Education**

Education regarding the illness was given to the patient and family. It was an informational and rehabilitation model of illness education with the following components: education on the condition, nature, need for treatment adherence, importance of healthy lifestyle modification and need for physiotherapy was emphasized. The nature of the condition was explained i.e it is purely due to medical cause which was emphasized avoid stigma or blaming the child's birth.

### **Liaison services**

As mentioned earlier, the patient was accompanied by the new born baby as well. During the first admission, he was 25 days old. Keeping in mind the infections which the baby was prone to develop arrangements were made for the baby safe stay in the Mother-Baby Unit under the Department of Psychiatry based on requests from the team and approval from the respective officials. During the second admission, the patient stayed in the Emergency observation ward throughout the IP care. Hence, the PSW team coordinated with the team from the Mother-Baby Unit to arrange for an accommodation for the three month old baby and the process for the same was initiated from both sides.

### **Reassurance**

It was noticed that the family was constantly worried regarding the patient's prognosis and as a result, as observed in many instances, the care of the infant was compromised. The

patient's mother was concerned about the patient's condition and hence the necessary stimulation and care for the infant had reduced. Lack of improvement in any of the symptoms was another factor that was adding on to their distress. Hence there were requests for high dosage medicines, injections etc which the patient mother believed would reduce the symptoms. When the risks of inappropriate medicines for the patient and the infant were explained, the caregiver was ready to compromise on the health and breastfeeding which was being done for the infant.

The patient's husband was also concerned but he was cooperative with the treating team and he could understand the situation. It was noticed that the caregivers' concern regarding the patient's prognosis was increasing significantly and so supportive work in the form of reassurance was provided. They were explained about the possibilities of the treatment and the importance of focusing on the strengths. The importance of continuing the physical exercises and physiotherapies were also discussed constantly.

### **Importance of social support**

The resources in the extended family were assessed. The patient's brother-in-law was identified as source of social support. However, he was reported to have alcohol dependence as stated by the patient's family. Hence, his help was not sought. The patient's family of origin has been supportive and have been significantly involved in care giving. The need for seeking help from neighbours and friends was explained in relation to caregiver burden.

### **Pre-discharge counselling**

When the plan for discharge was made, the

patient party wanted the PSW team to meet them and provide certain informative help. However, as pre-discharge counselling is a regular intervention for all the patients by the PSW team, the patient and family were given pre-discharge counselling after discussion with the doctor in charge regarding the plans and prognosis. The digital subtraction angiography (DSA which provides an image of the blood vessels in the brain to detect a problem with blood flow) and other reports were not suggestive of any other condition except for the CSF being Oligoclonal bands OCB positive. Oligoclonal bands (OCBs) are a type of protein that occurs in the cerebrospinal fluid (CSF).

The presence of these immunoglobulins indicates inflammation in the central nervous system. The plan was to start a new course of steroids and review after two months. As discussed, the nature of the condition was summarized and the plan to start a new dose of steroids was told. They were also told about the need to observe and evaluate the prognosis after two months during next follow-up. The session also included information on the importance of physiotherapy and regular medication. In addition to the above, the need for Clean Intermittent Catheterisation (CIC), healthy diet and lifestyle modification, need for possible movements and engagement in daily activities using the upper limbs were explained. The possible emotional distress undergone by the first child owing to separation was explained and the need for enabling a bond between the siblings and with the mother was explained to the family. Education on the need for mandatory vaccination for the child from the nearby Primary Health Centre was also given.

### **Challenges faced**

The family's dilemma regarding the DSA

procedure was a challenge that had to be addressed. The family's genuine concerns regarding the risk involved in the procedure and the need for ruling out the etiology for better understanding of the condition had led to a flash of emotions in the patient and family. During the psychoeducation, the family's helplessness regarding the poor prognosis or lack of improvement as subjectively stated by the family was an area that couldn't be addressed appropriately as the prognosis was actually static and no major findings were revealed from the diagnostic tests. Though the PSW team had coordinated with the Mother Baby Unit (MBU) regarding the safety of the child, the patient's mother did not agree for the same as she wanted to be around the patient.

The patient also agreed with the mother and insisted that her mother and child to stay with her in the ward. The requirement of a female caregiver for the infant in the MBU and the possibility of bringing the baby during breastfeeding were explained. Spite of informing them about risk for infection, sleep disturbances and other physical and emotional conditions that the infant is vulnerable to, they did not agree. Discharge was planned two days after the arrangements were made and so they continued to stay in the observation ward as the procedure including RTPCR test for the caretaker would be time consuming.

Working with the family regarding the concerns of the patient's children, especially the second child was challenging as it was found that the attention was more towards the patient and her condition and they were not open to discussions regarding the same. The family had requested for new catheters and medicines during discharge which were not possible as the patient was shown discharged, however they continued to stay in the ward and the catheter was changed

during discharge. The patient and the family requested for the PSW's phone number and they kept on insisting that they would want to contact them when they are in need of help. They were told about the emergency contact number mentioned in the discharge summary and were assured that the team would contact them after a week to follow up. It was also found that the ward being an emergency setting inclusive of all patients, specific infant centered interventions and therapies couldn't be planned. Interventions focusing on the first child could not be addressed due to other health emergencies in the patient and the unwillingness of the family.

### Follow up

Follow up was done over telephone after a week of discharge and two times over a two month period. The family reported that the patient continues to have lower limb immobility and requested for a change in medicines over phone. They had financial difficulties for transportation to bring the patient to the hospital. They were suggested to visit the nearby hospital for emergency services. However, they were explained that they could visit the tertiary hospital as prescription of medicines over phone is not a possible option. The phone number of the patient's husband (caregiver) is out of service and hence, further telephone follow-up could not be done.

### Future plans

1. Facilitate possible welfare benefits including disability certification.
2. Liaison with local organizations for neuro-rehabilitation.
3. Facilitation of assisted devices.

### DISCUSSION

Neurological emergencies can cause significant emotional and physical distress to

the patients. *Postpartum maternal morbidities and disabilities are the long-term physical or mental consequences resulting from pregnancy, childbirth, acute maternal morbidities, or the management thereof* (Koblinsky, 2012). Beyond the acute obstetric complications and potential for consequent morbidities and disabilities—either physical or mental or both—it is assumed that the health of women during pregnancy or childbirth further impacts the health and development of the next generation and the well-being of the family—both economically and socially. Hospitalization requirements for acute neurological illnesses are relatively rare for women in the child bearing age. However, during pregnancy and the postpartum period, several diseases show increased prevalence (Hosley, 2011). A study conducted on a neurological illness during pregnancy and puerperium showed that the mean age of women was 26 (Sharma, 2019). The age of the patient in this case study is 24.

Several bio-psycho-social issues were identified from the case study. With regards to the issues faced by the patient, the current study identifies lack of continuing obstetric care for the patient as one of the issues. This is supported by a study conducted on pregnant women with Multiple Sclerosis (Mainguy et.al, 2023) which shows that 58.2% of women had inadequate follow-ups. Thus, it is noted that women in their pregnancy or post-partum, when affected with neurological conditions are likely to miss out on their gynecology follow-ups which are recommended by health services. Emotional distress including anxiety about the functionality and future, worries regarding the prognosis were some of the psychological issues identified in the patient. This finding is supported by Webb et al (2008) Study results showed that the presence of physical morbidity increased the frequency of functional limitation and depressive

symptoms. Studies also revealed that 22% of the women in India have post-partum depression. When post-partum mental health problems are common due to the various issues such as transitioning to the next life cycle stage, physical changes and so, an additional stress such as a neurological emergency resulting in immobility would significantly become burdensome for the patients.

A report states that the costs of neurological disorders in Europe and the USA have produced dramatic findings (Abrahamson, 2022). Another study in Europe estimated the cost of neurological disorders at €798 billion in 2010, of which 63% was attributed to indirect costs and non-medical costs. However, as reported by the family, majority of the expenses were for non-medical costs. Most neurological illnesses affect the patient's activities of daily living (ADLs) and so he or she would be highly dependent on the family for those activities. A study (Akila, 2013) was carried out in the Neurology Department of a tertiary care hospital with 30 caregivers. 24% of the caregivers were found to be having anxiety symptoms, 18% met the criteria for depression. Burden experiences were expressed as follows: 54% in the Time Dependence burden, 34%, in the developmental burden; 21% in the physical burden, 16% in the social burden and 8 % in the emotional burden. This supports the finding of the case study which states that the family members of the patients have experienced anxiety and caregiver burden. A concept analysis by Liu et al (2020) explained that caregivers with restricted social networks are more prone to feeling burdened, which is consistent with the finding reported in our study that the family had less extended social support.

Our study findings regarding bio-psycho-social

needs of the infant are in accordance with the WHO and other manuals that describe the necessities of newborns and infants. There is no identifiable existing literature on the same. The factors that support the findings of the study are listed below: The psychosocial needs of the infants include easy access to the mother, appropriate feeding, adequate environmental temperature, a safe environment, parental care, cleanliness, observation of body signs by somebody who cares and can take action, nurturing, cuddling, stimulation, protection from disease (WHO, 1998).

It is seen that many times, these psychosocial factors around the mother and the infant continue to be present and this calls for perinatal social work interventions keeping in mind the importance of the postpartum mother-infant-family unit.

## RECOMMENDATIONS

A woman goes through various psychological changes during her post-natal period which usually go unaddressed unless it manifests as a psychiatric condition. In addition to this, when she is faced with an emergency condition, the psychosocial risks are even higher. This requires adequate in-depth assessment apt for an emergency setting to understand the psychosocial aspects of the patient, the infant and the family. A proforma can be framed for assessing the psychosocial aspects of the patients.

Based on the WHO guidelines for improving maternal mental health the infant has to be with the mother and regularly breastfed but at the same time, in an emergency or IP setting, the infant is prone to infections which risk the child's life. Hence a mother-baby unit in the emergency department of hospitals can be considered. A study (Stephenson, 2018)



has shown that there was a significant improvement in mental health and mother–infant interaction after admission in the mother -baby unit in the case of psychiatric conditions. The mother-baby interaction can be facilitated when there is a mother baby unit. This would enable a protected space for both the mother and the child thereby addressing some of their psychosocial issues such as privacy during weaning. Availability of toilet facilities exclusively for the post-partum mothers and facilities for the infants can address some of their sanitation needs. Besides these, a mother-baby ward could be designed in such a way that certain protocols regarding loud noises or unwanted lighting can be avoided in the night or even during the day so that the infants and the neonates get adequate sleep. It would also help the nurses or other professionals to teach the mothers to breastfeed or provide the necessary support when needed. Discharge of patients is comparatively quicker in the Emergency setting and so the mother and the infant can make use of the facility from the admission to discharge so that even the minimal risk of acquiring other infections can be avoided.

Timely psychosocial interventions need to be planned for the mother-baby-family unit to address the crisis and other social treatment specific to the patients. Number of post-partum cases admitted need to be documented separately which would benefit future research in the area as well as implementation of specific treatment protocols and standard operation procedures. A registry of pregnant and post-partum patients with acute neurological emergencies might improve our understanding of the various conditions (Edlow, 2013). The study shows the importance of the role of psychiatric social workers in perinatal neurology which is a new scope for psychiatric

social work practice.

## CONCLUSION

Casualty and Emergency is an important area for crisis intervention by Psychiatric Social Workers. The number of referrals and the need for timely assessments and interventions keep them running on their foot. As stakeholders in the treatment, it is important to understand the factors around each patient in relation to his/ her specific vulnerabilities as well which would help in preventing secondary mental health or physical health issues for the patient, the infant or the family. This study provides scope for more research in the field of psychiatric social work in perinatal neurological emergency settings.

## LIMITATIONS

This study has been conducted only on one of the patients admitted in the Casualty and Emergency Department and hence the psychosocial risks and factors identified cannot be generalized to all post-partum cases of neurology emergencies. More data would be required to understand the need for implementation of changes in the structure of the setting to accommodate the Baby. Other limitations include the research gap in the field of study is inadequate knowledge on the psychosocial issues faced by postpartum mothers with a neurological conditions and the suitable interventions are not present.

## REFERENCES

- Akila P, Monica A (2016). Caregiver's Burden on Patients with Neurological Disorders. *International Journal of Science and Research*, 5(2), 575-577.
- Did a quality improvement intervention improve quality of maternal health care? Implementation evaluation from*

- a cluster-randomized controlled study / International Journal for Quality in Health Care / Oxford Academic.* (n.d.). Retrieved July 11, 2023, from <https://academic.oup.com/intqhc/article/32/1/54/5673751>
- Edlow, J. A., Caplan, L. R., O'Brien, K., & Tibbles, C. D. (2013). Diagnosis of acute neurological emergencies in pregnant and post-partum women. *The Lancet. Neurology*, *12*(2), 175–185.
- Guideline: Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services.* (n.d.). Retrieved July 11, 2023, from <https://apps.who.int/iris/handle/10665/259386>
- Gupta, M., Pradeep, Y., Singh, R., & Shrivastava, P. K. (2020). A study of neurological disorders in pregnancy and puerperium. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *9*(10), 4236–4244.
- Hosley, C. M., & McCullough, L. D. (2011). Acute Neurological Issues in Pregnancy and the Peripartum. *The Neurohospitalist*, *1*(2), 104–116.
- Koblinsky, M., Chowdhury, M. E., Moran, A., & Ronsmans, C. (2012). Maternal Morbidity and Disability and Their Consequences: Neglected Agenda in Maternal Health. *Journal of Health, Population, and Nutrition*, *30*(2), 124–130.
- Lanjewar, S., Nimkar, S., & Jungari, S. (2021). Depressed Motherhood: Prevalence and Covariates of Maternal Postpartum Depression among Urban Mothers in India. *Asian Journal of Psychiatry*, *57*, 102567.
- Liu, Z., Heffernan, C., & Tan, J. (2020). Caregiver burden: A concept analysis. *International journal of nursing sciences*, *7*(4), 438–445.
- Mainguy, M., Le Page, E., Michel, L., & Leray, E. (2023). Pregnancy-related healthcare utilization among women with multiple sclerosis. *Frontiers in Neurology*, *14*, 1129117.
- Mitchell, K. A., Haddock, A. J., Husainy, H., Walter, L. A., Rajapreyar, I., Wingate, M., Smith, C. H., Tita, A., & Sinkey, R. (2023). Care of the Postpartum Patient in the Emergency Department: A Systematic Review with Implications for Maternal Mortality. *American Journal of Perinatology*, *40*(5), 489–507.
- Sharma, N., Sharma, S. R., & Hussain, M. (2019). An audit of cerebral venous thrombosis associated with pregnancy and puerperium in teaching hospital in North Eastern India. *Journal of Family Medicine and Primary Care*, *8*(3), 1054–1057.
- Singh, G., Kaur, D., & Kaur, H. (1984). Presumptive Stressful Life Events Scale (PSLES)—A New Stressful Life Events Scale for Use in India. *Indian Journal of Psychiatry*, *26*(2), 107.
- Sinu, E., Nirmala, B. P., Reddy, K., & Thomas, P. (2018). Needs of Persons with Neurological Disorders. *Indian Journal of Psychiatric Social Work*, *9*(1), 29–37.
- Stephenson, L. A., Macdonald, A. J. D., Seneviratne, G., Waites, F., & Pawlby, S. (2018). Mother and Baby Units matter: Improved outcomes for both. *BJPsych Open*, *4*(3), 119–125.
- Toljan, K., Mahadeen, A., Amin, M., Rensel, M., Jones, S. E., Ontaneda, D., & Kunchok, A. C. (2023). Pearls & Oy-sters: Hemorrhagic Myelitis Following SARS-CoV-2 Infection. *Neurology*.
- Wang, D., & Gupta, V. (2023). Crisis Intervention. In *Stat Pearls*. Stat

- Pearls Publishing.
- Webb, D. A., Bloch, J. R., Coyne, J. C., Chung, E. K., Bennett, I. M., & Culhane, J. F. (2008). Postpartum Physical Symptoms in New Mothers: Their Relationship to Functional Limitations and Emotional Well-being. *Birth, 35*(3), 179–187.
- World Health Organization. Maternal and Newborn Health/Safe Motherhood Unit. (1998). *Postpartum care of the mother and newborn: A practical guide/ : report of a technical working group* (WHO/RHT/MSM/98.3). World Health Organization.
- Zafarmand S, Javanmardi H, Ameri M, et al (2019). Evaluation of the Neurological Complaints during Pregnancy and Postpartum, *Galen Med J, 8*, e1616.
- Zolghadrasli, Y., Moazzam, M., Aramesh, A., & Borhani Haghighi, A. (2019). Evaluation of the Neurological Complaints during Pregnancy and Postpartum, *Galen Medical Journal, 8*.

**Conflict of interest:** None

**Role of funding source:** None