Background: Neonatal intensive care unit (NICU) is care of less gestational age babies, prenatal neurological insult such as asphyxia, and congenital abnormalities such as congenital heart disease (CHD). There is a few evidence about neurological interventions in NICUs. Aims and Objectives: To explore the current physiotherapy neurological practices in NICU by the cross-sectional online survey. Materials and Methods: 150 physiotherapy students from different physiotherapy colleges, who were posted in NICU during their clinical posting as a part of curriculum in the age group between 18 and 25 years were enrolled in the study. The study was carried out by sending the link to the students through social networking sites such as Facebook and WhatsApp. The survey was administrated using the online survey portal, SurveyMonkey (online survey services). The questionnaire was filled by physiotherapy students. Validated questionnaire approved by student project committee comprising 10 questions were included in the survey. Results: Out of 150 physiotherapy students, only 107 were responded back. No incomplete questionnaire was received from survey. We obtained 31%—always; 23%—usually; 24%—sometimes; 6%—seldom; and 16%—never performed neurological physiotherapy intervention in NICU. Conclusion: Less than 50% physiotherapy students performed neurological physiotherapy intervention in NICU. Therefore, more awareness needs to be created regarding neurological physiotherapy intervention performed in NICU.

Keywords: Newborn Intensive Care Units, Questionnaires, Infant, Neurophysiotherapy, Social Networks, Social Medium, Surveys

INTRODUCTION

Neonatal intensive care unit (NICU) is specially designed for frail and preterm newborns.[1] Physical therapy is well developed nowadays in the areas of NICU. The development and advancement in the physiotherapy interventions in NICU help in reducing neonatal mortality, morbidity, and length of the newborn hospital stay.[2] The neonatal physiotherapist must aware about complications and specialize how to treat them.[3] Chest physiotherapy techniques are mainly practiced in NICU than neurological physiotherapy interventions.[4] This is mainly because chest complications are more in neonates than neurological complications, but due to prolonged immobilization there is a high risk of getting neurological complications too.[4] Developmental delay is the most common neurological complication, which may occur when a neonate is admitted in NICU.[5]

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In NICU, a neonate is not aware of different types of sensations. Neurological physiotherapy interventions comprise tactile stimulation, kinesthetic stimulation, vestibular and auditory stimulation, Oro-motor stimulation, positioning, and gentle human touch and massage that help in reducing pain and neurological dysfunctions in hospitalized neonates. The purpose of this study was to investigate the current practices of neurological physiotherapy interventions in NICU among physiotherapy students.

**Materials and Methods**

A total of 150 physiotherapy students in the age group between 18 and 25 years were included in the study by purposive sampling method for the cross-sectional online survey. The study was approved by student project committee of Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation (MMIPR), Maharishi Markandeshwar (Deemed to be University) (MMDU), Mullana, Ambala, Haryana. The study was performed according to the National Ethical Guidelines for Biomedical and Health Research involving human participants (Indian Council of Medical Research 2017) and the Declaration of Helsinki (Revised 2013). The study was conducted on September 2018. Validated questionnaires by a panel of experts were sent to 150 physiotherapy students. Filling the survey questionnaires was considered as consent for participation of physiotherapy students in this study. The estimated time to complete the survey was 1 min. The inclusion criteria of the study were physiotherapy students from different colleges who were posted in NICU during their college posting or curriculum and the exclusion criteria of the study were students who were not aware about NICU. The study was executed by sending the online link (https://www.surveymonkey.com/r/QFDGV79) to the students through social networking sites such as Facebook and WhatsApp. Nowadays, people are mostly on social networking sites and messengers rather than using e-mail, so this method of online survey has been adopted. It is cost-effective, time saving, eco-friendly, and easily accessible for participants. The survey was administrated using the online survey portal, SurveyMonkey (online survey services). We have used the survey method in collecting data, as it allows for standardization and uniformity in questions and method of approach. Validated questionnaire approved by student project committee comprising 10 questions were included in the survey (Annexure 1). The questionnaire was filled by physiotherapy students.

**Results**

Out of 150 physiotherapy students, only 107 were responded back. The response rate of this survey was 71%. No incomplete questionnaire was received from survey. We obtained 31%—always; 23%—usually; 24%—sometimes; 6%—seldom; and 16%—never performed neurological physiotherapy intervention in NICU [Figure 1].

**Discussion**

Physiotherapists spent much time in treating infants with chest complications. Along with chest physiotherapy, other physiotherapy practice patterns were also adopted to prevent and to treat musculoskeletal and neurological disorders in NICU. In a study by Chokshi et al., it was observed that 50% of physiotherapists in India always performed chest physical therapy and only 30% of them performed neuromuscular physiotherapy in NICU. In our study, we only included neurological physiotherapy interventions instead of muscular physiotherapy interventions. Neurological physiotherapy interventions are also important as much as chest physical therapy in NICU. To the best of our knowledge, this was the first study to explore the current practices of neurological physiotherapy interventions among the physiotherapy students in NICU. Knowing the current neurological physiotherapy practices in NICU will help to find out how much awareness needs to be created among physiotherapy students regarding neurological physiotherapy performed in NICU.

**Conclusion**

Thirty one percent (31%) of physiotherapy students regularly perform the neurological physiotherapy intervention in NICU. Therefore, more awareness needs to be created regarding neurological

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**Figure 1:** Survey responses of the current neurological interventions practices in NICU
physiotherapy intervention performed in NICU among the physiotherapy students.

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Conflicts of interest
There are no conflicts of interest.

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Annexure 1: Questionnaires developed to gather the information related to the current practices of neurological physiotherapy interventions practiced in Neonatal Intensive Care Units (NICU)

1. Do you perform early developmental care interventions in a neonate admitted in NICU?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

2. Do you perform therapeutic handling (various different positions) for improving development in a neonate?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

3. Do you perform positioning in NICU for promoting the development of a neonate?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

4. Do you communicate with parents of admitted neonates in NICU to understand and assist child development?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

5. Do you perform Oro-motor stimulation in neonates with feeding difficulties?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

6. Do you perform kinaesthetic stimulation in a neonate?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

7. Do you use any neurological screening tool for assessing neonate in a NICU?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

8. Do you perform Neuro-facilitation techniques in NICU?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

9. Do you recommend Kangaroo mother care in NICU for a neonate?
   - Always
   - Usually
   - Sometimes
   - Seldom
   - Never

10. Do you perform tactile and vestibular stimulation in a neonate?
    - Always
    - Usually
    - Sometimes
    - Seldom
    - Never