



AWARENESS OF THE ROLE OF OCCUPATIONAL THERAPY IN THE NEONATAL INTENSIVE CARE UNITS AMONG OCCUPATIONAL THERAPISTS - A SURVEY

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ABSTRACT **BACKGROUND:** Occupational Therapist is an integral part of Neonatology team. The purpose of this research is to explore and promote the awareness of the role of Occupational Therapy (OT) within Neonatal Intensive Care Units (NICUs). A survey was created to determine and assess the awareness of neonatal care guidelines by occupational therapists using a stratified random sample, distributed to occupational therapists working in Government Hospitals, Private Hospital Settings and in Private Practice throughout India.

Study Design: Survey Research Design.

METHODS: A survey was created by the researchers using Google Forms based on a thorough literature review of the topic. The survey consisted of 20 quantitative and qualitative items. After pilot testing, the survey was sent via social media through WhatsApp link to occupational therapy practitioners working in various healthcare setups throughout India. Data was collected from 26th May 2020 to 5th June 2020. Total 54 responses were received.

RESULTS: Out of 54 therapist responses 60% were from tertiary care Government hospitals, out of which 3.8% were working full time in NICU, among all 29 % therapist had comprehensive knowledge about practical applications, but 50% therapists were interested in gaining in-depth knowledge. All the therapists were aware about commonly used practices such as positioning, Kangaroo Mother Care etc.

CONCLUSION: This survey helped to assess Occupational Therapy knowledge about the role of occupational therapist in the Neonatal Intensive Care Unit (NICU) and also provided awareness to the therapists about the various approaches used for intervention in NICU. Many therapists are aware about this developing branch in Occupational therapy, but have restricted scope to practise in the highly specialised area. The results may guide and facilitate further research of this important speciality area of occupational therapy practise.

KEYWORDS : Neonatal Intensive Care Unit, Occupational Therapist, Kangaroo Mother Care, Surveys & Questionnaire.

INTRODUCTION

India tops the list of 10 nations contributing 60% of the world's premature deliveries. In India, among the total 27 million babies born annually, 3.6 million babies are born preterm, and over 300,000 of these preterm babies die each year because of associated complications. India, with its highest number of preterm births and the highest number of preterm deaths worldwide, contributes 25% of the overall global preterm related deaths.^[1]

The NICU is a complex and highly specialized care unit designed to care for infants who are born prematurely or are critically ill.^[2] However, little is known about the current interventions utilized in the NICU related to the role of occupational therapists. According to the American Occupational Therapy Association (AOTA), the role of Occupational Therapists (OTs) in the NICU includes acknowledging the interaction among the physical and social environments, educating caregivers on the NICU process, and developing individualized intervention plans and staying competent (AOTA, 2006b).^[3] The purpose of this survey is to explore and create awareness regarding the role of occupational therapy (OT) within neonatal intensive care units (NICUs) throughout India as well as interventions used and the experience needed before working in the NICU. Many studies have been done in other countries.^[4]

Google Form surveys were sent via WhatsApp to understand the current role of occupational therapists in the NICU. The study was conducted using stratified random sample on occupational Therapists working in Government Hospitals, Private Hospital Settings and in Private Practice throughout India. The survey consisted of 20 Quantitative and Qualitative questions that inquired about the different aspects of occupational therapists such as knowledge, observational skills, awareness and OT practise role/ skills within NICU. The purpose of this paper is

- To present the uniqueness of occupational therapy intervention in the area of intensive care treatment of premature babies and neonates and
- To inform its professionals, about the services provided by occupational therapists in this area.

METHODS

The present independent study was a non-experimental exploratory design with 20 Quantitative and Qualitative questions to gather

information regarding the different roles of occupational therapists and interventions used in the NICU to assess different skills & knowledge of qualified occupational therapists in the field of Neonatology.

In order to understand the current role of occupational therapists in the NICU, in this independent study, Google Form surveys were sent via WhatsApp using a stratified random sample to occupational Therapists working in various sectors in India.

Prior to the survey distribution a pilot study was conducted. The pilot study involved two occupational therapist with paediatrics NICU knowledge and experience, one occupational therapist that specialized in paediatrics and two occupational therapists with other field's experience. The five pilot study subjects read through the survey and made suggestions regarding the survey content. Based on these suggestions the survey was altered and sent via WhatsApp links to the Occupational therapist. Data was collected from 26th May 2020 to 5th June 2020. The number of responses received was 54, no follow-up requests for survey completion were sent out. Once all data was collected and recorded it was analysed using Google Forms and displayed visually in tables and graphs.

RESULTS

Total 54 responses were received after sending questionnaire to various groups.

Maximum number of occupational therapists 29.6% (n= 16) had 2 years or less of experience of service in occupational therapy, whereas 16.7% (n= 9) of occupational therapists were with more than 15 years of professional experience.

The therapist practicing in Maharashtra responded more 68.5% (n= 37). The therapist working in Metropolitan city had responded more favourably 59.3% (n=32) followed by Urban areas 31.5% (n=17) and only 9.3% (n= 5) responded from rural. Only few have achieved the professional training in Sensory Integration (n=12), Neurodevelopmental Therapy (n= 10) or Massage Therapy (n= 2). Almost 50% (n=26) therapist had no exposure to the practice in NICU.

Analysis of the 54 responses showed that 50% (n=26) of therapist had no exposure working in NICU presently but had skills acquired for

NICU practise, only 11 out of 54 therapist are practicing full-fledged whereas 28.8% (n=15) are working part time in NICU .

Out of 54 respondent only 29 were aware of the different levels of care in NICU.

Almost all the therapists 90% were aware about the common diagnosis as low birth weight, Hyperbilirubinemia etc.

Table 1: Awareness About Assessments Used To Evaluate Infants In NICU

Assessments	Yes Count (Percentage)	No Count (Percentage)	Not aware Count (Percentage)
NBAS	40 (74.1)	6 (11.1)	8 (14.8)
INFANIB	34 (63.0)	8 (14.8)	12 (22.2)
AIMS	20 (37.0)	14 (25.9)	20 (37)
Feeding Readiness	33 (61.1)	9 (16.7)	12 (22.2)
Griffiths scale	20 (37.0)	19 (35.2)	5 (27.8)
NOMAS	42 (77.8)	5 (9.3)	7 (13.0)
Vineland's Social Maturity Scale	14 (25.9)	27 (50.0)	13 (24.1)

On analysing knowledge about various assessment tools used by occupational therapists to evaluate infants in NICU as seen in Table 1, out of 54 therapists 40 were using NBAS, 34 using INFANIB and only 20 therapists were aware of AIMS and Griffiths scale. Most of the therapists were familiar with NOMAS and Feeding Readiness scales. Very few had responded positively for VSMS (n=14).

Further the theoretical basis i.e. Frames of Reference (FORs) knowledge was assessed. Almost all the therapists were aware that Sensory Integration (n=49) and NDT (n= 49) are useful Intervention Frames of Reference for NICU, 64.8% (n=35) of the therapists were aware about importance of Synactive Theory. Most of the therapist 75% (n= 41) were more aware about State of Arousal and Preterm Neurobehavioral Approach and only 55.6% (n=30) has good knowledge about use of Person Environment Occupation Approach.

Table 2: Types of interventions used in NICU

Diagnosis	Frequency (Count/ Percentage)				
	Never	Rarely	Sometimes	Often	Always
Environmental modifications	4 (7.4)	5 (9.3)	10 (18.5)	19 (35.2)	16 (29.6)
Nesting	5 (9.3)	1 (1.9)	11 (20.4)	17 (31.5)	20 (37.0)
OMS	3 (5.6)	2 (3.7)	7 (13.9)	15 (27.8)	27 (50.0)
KMC	3 (5.6)	3 (5.6)	3 (5.6)	10 (18.5)	35 (64.8)
Swaddling	3 (5.6)	1 (1.9)	11 (20.4)	18 (33.3)	21 (38.9)
Positioning	2 (3.7)	1 (1.9)	3 (5.6)	10 (18.5)	38 (70.4)

Most of the therapists were well aware of KMC, benefits of Positioning and OMS.

Above Table 2, display interventions used in the NICU and their frequency. When techniques preferred for state regulation & neurobehavioural stability was asked it was, 68.5% Infant massage, 79.6% swaddling and 75.9% gentle handling 66.6% therapeutic positioning. While checking advanced knowledge in neonatology only 50% (n= 27) were aware about most recent techniques of NIDCAP, other therapist were unaware about Neurodevelopmental Integrated approaches

Only few were aware about benefits of therapeutic positioning, maximum preferred for prevention of contracture 66% & then 31% for neurobehavioural regulation.

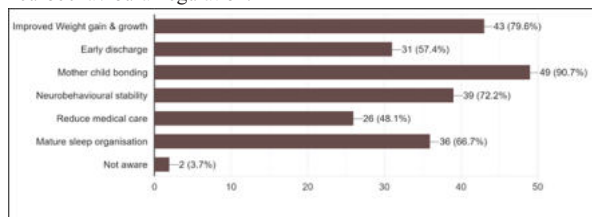


Figure 1: Show the attitude about benefits due to KMC (Kangaroo Mother Care)

As seen in Figure 1, Benefits of Kangaroo Mother Care were listed as

Mother child bond 90.7%, Weight gain 79.6% & Neurobehavioural regulation 72.2%.

Quite a few were aware about aspects of breast feeding as ideal positions 52%, importance of latching 41%, position of cheeks 25%, visibility of areola 33% & orientation of lips 39%. Importance of stimulation for nonnutritive sucking was agreed as benefits for faster transition by 40% of therapist, but only few 33% were aware about the psychological benefits such as self-soothing & 32% about bringing physiological stability.

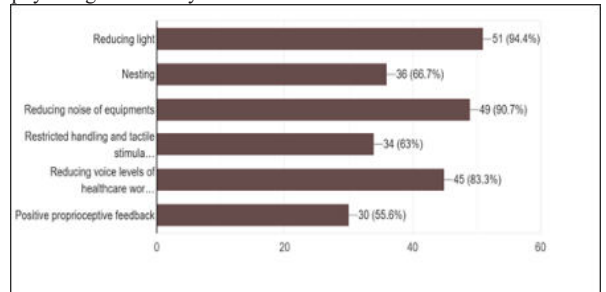


Figure 2: Shows the attitudes about the Environmental modifications required in NICU

As seen in figure 2, Majority of therapists were aware about Environmental modification. Almost 94% preferred reduction of light, 91% reducing sound levels & 63% on reducing frequent handling of infants.

Awareness about client centred approach (n=12) was limited. Many did not support the concept of reduce medical care. Further the therapists have given valuable suggestions about changing caring attitudes by the therapists in NICU. 40% therapists express that they should be made more aware about the Medical interventions & the precautions related to them.

DISCUSSION

The present survey was conducted to provide more information about the role of occupational therapy in the Neonatal Intensive Care Units throughout India as well as interventions used and the experience needed before working in the NICU. The literature regarding this role is scarce and calls for added research.

In this survey, therapists practicing in Maharashtra responded more. Demographically the therapist working in Metropolitan region had responded more favourably than therapist from urban area or rural region the reason may be that NICU facilities are mainly available in the Metropolitan cities than in urban or rural areas. The average amount of time that each therapist spent in the NICU varied greatly.

Specialized training such as continuing education on feeding and swallowing disorders, breastfeeding, and neonatal assessments as well as years of experience allow for better insight and consistency when performing interventions and providing information regarding fragile infants to caregivers (Limperopoulos & Majnemer, 2002).^[8] In this survey majority of the therapist, did not receive any special training to work in NICU except the regular curriculum. Some have updated their knowledge by doing certification for NDT, SI & Massage therapy. For this reason, the American Occupational Therapy Association (AOTA) has compiled and organized outline and definitions of pertinent information pertaining to the foundation of an occupational therapists' role within the NICU, to serve as a reference guide.

The levels of NICU care ranged from level I to level IV (Vergara & Bigsby, 2004)^[6] but only few were aware about it. In India most of the hospitals have limited scope to develop specialised unit at different level, so the therapist gets less exposure about it. The most common diagnosis that Occupational Therapists work with are preterm infants, low birth weight, oral motor feeding issues, cardiovascular disorders and CNS disorders.

Respondents were more aware of NBAS (Neonatal Behavioural Assessment Scale), NOMAS (Neonatal Oral Motor Assessment Scale), INFANIB (Infant Neurological International Battery) and Feeding Readiness Scale to be used in NICU but were less aware of use of other scales AIMS (Alberta Infant Motor Scale), Griffiths scale (Cognitive Developmental Scale) and VSMS (Vineland Social Maturity Scale). The above assessments are used by the occupational

therapist in neonatal services and early intervention, practice guide.^[7]

Primary reference book for Occupational Therapy for Children by Jane Case-Smith describes the importance of Synactive theory and NDT in managing neonatal conditions.^[2] The Als synactive theory takes into account the environment of the NICU and the interactions among caregivers and infants.^[8] Awareness about the approaches & its use in clinical reasoning is utmost important for ethical clinical practice.

Neurodevelopmental Therapy (NDT) is acknowledged by all the therapist. It is the holistic approach based on both acquisition and recovery of skilled movement on developmental sequences of mastery over primitive reflexes (Bobath, & Bobath, 1984).^[9] Very few therapists were aware of PEO model. The PEO model (Law et al., 1996) is a well-known and newly established conceptual model of Practice within ecological models, based on environmental behavioural approach. It is used to modify maladaptive behaviours in clients. This can be used for effective alteration in environment as per client's occupational demands.^[10]

Synactive theory explains the hierarchical model for neurobehavioural regulation & forms foundation for decision making regarding the intervention.^[11] The therapists working in NICU were aware about the Synactive theory model, being used for behavioural assessment. Most of the therapists were well versed with Sensory integration (SI).^[12] Only few therapists were aware about sensory stimulations needed to preterm neonates, but were not aware about the graded stimulations given as per sensory system development as stated by Lisa Bader. The article by Lisa Bader has mentioned about the various interventions followed in NICU practice by Occupational therapist.^[13]

Almost all the therapists had preferred nesting & positioning as essential intervention in NICU. The study conducted by Nahed Saied Mohamed El-Nagger et.al (2016) found that applying nesting technique as a developmental care had a positive effect on physiological functioning, and neurobehavioral organization of premature infants, and also mentioned its importance for fragile infant & for Neuromuscular development.^[14]

Tactile stimulation is another intervention preferred by the therapist's participants. The effect of Tactile-kinesthetic stimulation on preterm infants—demonstrated beneficial effect on growth and behavioral development with no adverse effects on physiologic parameters.^[15]

Therapists were also aware of other interventions such as KMC, Oral motor stimulations, Environmental adaptations. Therapists have noted KMC as important for early weight gain & mother child bonding. The RCTs have also listed these benefits with early discharge, early initiation of breastfeeding, and autonomic maturation.^[16]

Almost all therapists agreed Oral stimulation for developing nonnutritive sucking as intervention & they had knowledge about its benefits as weight gain & early transition to oral feeds. Fucile et al. (2002) found that a pre-feeding oral stimulation program was beneficial to preterm infants because they transitioned to an all oral feeding schedule (eight times a day) sooner than infants that did not receive the oral stimulation program.^[17] Foster J P et.al also found that nonnutritive sucking reduces hospital stay due to early weight gain.^[18] Many therapists have identified therapeutic positioning as intervention in occupational therapy Lekskulchai et.al. suggested that placing the infant in a supine flexed position while feeding reduces the stress response of the infant, encourages head to midline, and maintains chin tuck which is a desired position for feeding.^[19]

Therapists were aware of environmental modifications required in NICU.^[20] Many study findings indicated that the decrease in noise level within incubators due to the acoustical foam resulted in a change in the preterm infants response behaviours.^[21] Adjustable ambient lighting, at least one source of natural light along with shading/dimming capabilities, no glare from NICU equipment are recommended for better neurobehavioural outcome (Vergara & Bigsby, 2004).^[6]

Very few therapists were aware about using client centered approach with preterm infant along with the family centered approach. “[T]he most stressful aspect of having an infant in the NICU is an altered parent role and relationship with their baby” (Dudek-Shriber, 2004).^[22] Part of an occupational therapists role is to diminish that stress through support and parent education or family centered approach.

All above approaches can be integrated using the principles of Newborn Individualized Developmental Care Assessment Program (NIDCAP). The NIDCAP^[23] is derived from Synactive theory^[24] as well as the family centered care.^[25]

Another approach based on systematic development of sensory neural system is Ladder approach. Almost no therapists responding the questionnaire were aware of advanced approach. Ladder Approach is an innovative and structured way to deliver therapy services in the Neonatal Intensive Care Unit based on the concept of NIDCAP. Studies have suggested that the infants receiving ladder approach have shown more mature responses resulting into well-organized neurobehavioral status.^[26]

When the suggestions from the therapists were invited they were as follows. More systematic exposure to working in NICU, special setups in speciality hospitals, specialised certification courses & recruitment of trained therapists in NICU, more training in feeding intervention, increasing awareness of Occupational Therapy profession among medical fraternity etc.

CONCLUSION

The occupational therapist are employed in some NICU settings throughout India and serve a multifaceted role, such as providing parental education, stress signal education, positioning, feeding/ pre-feeding, infant massage, kangaroo care, and environmental modifications. The advocacy & propagation of Occupational Therapy role among other medical professional is recommended, to increase awareness among them. Occupational therapists need to be more aware about this new field of development. This survey may guide and facilitate further research of this important speciality area of occupational therapy practice.

Limitations

This study is done on limited population. Targeting the therapists from various areas across India and correlating the knowledge of therapists with NICU facilities in their working area may help us in recommending further needs in training for neonatal therapy.

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