Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2016; 4(10A):3564-3568 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2016.v04i10.003

Original Research Article

Early Intervention Program Awareness among Novice Physiotherapists

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Abstract: Early intervention program is a system of services that helps infants and toddlers with developmental delays or disabilities. This program is known to start as early as in the neonatal intensive care unit. The team providing these services comprises of various different professionals of which physiotherapists are one of the key team members. This study aims at analyzing the level of knowledge the novice physiotherapists possess about early intervention program. The objectives are to determine their knowledge in various aspects of the program and to pick out the areas which are lesser known. These goals were accomplished by carrying out a cross sectional survey of the novice physiotherapists with the help of validated questionnaire. The study was divided into different domains which enables the researcher to find out the particular areas in each domain where the novice physiotherapists lack knowledge. The results showed that among the conditions treated under early intervention, conditions like cancers and osteogenesis imperfecta are not so popularly known whereas autism is well known. Similarly, among the techniques used in early intervention, strapping, splinting and stretching techniques are lesser known than other techniques like positioning and giving respiratory therapy. Likewise professionals like medical pharmacists and nurses are lesser known to be involved in the early intervention team. Moreover the majority of the study subjects gained knowledge about early intervention through their syllabus, therefore revision of the syllabus can be done in the future according to the information gained from this study.
Keywords: early intervention program, novice physiotherapists, neonatal intensive care unit, disabilities, infants, physiotherapeutic management.

INTRODUCTION

Early intervention program serves newborn babies and toddlers who have been diagnosed with a disability, who are not learning and growing at the same pace as other children of their age, or who are at risk of having developmental delays in their learning and growing [1-2]. The reason for these delays or disabilities could be diverse. As the name suggests early intervention starts early in time, i.e. as soon as the child is diagnosed with some abnormality. The program focuses on helping infants and toddlers to cope up with these delays and become equivalent to the normal healthy children in terms of development and independence. Research has shown that the initial 3 years after birth is a critical developmental period in a child's life [2]. These 36 months offer a window of opportunity that may not be available later [2]. It is also true that different children grow and develop at different rates, but when a child suffers from a condition such as cerebral palsy or brittle bone disease, parents have additional worries about their development [2]. Early intervention programs are available to identify and treat these infants at a very early stage so as to minimize the effects of the diseases on them and to ensure a long term impact of the treatment. It helps the infants learn the basic and new skills that typically develop during the first three years of life [2]. Physiotherapy plays an important role in this program and aims at reducing the level of dependency of the child and makes him/her independent in the activities of daily living [3].

This study was carried out to analyze the awareness of novice physiotherapists about Early Intervention Program (EIP) and its different aspects and to find out the areas under this program that are least known to these young professionals.

MATERIALS AND METHOD

Expert-validated questionnaire consisting of 25 questions was used for this cross sectional survey study. The data was collected by direct interview method. The study was performed on a sample size of 100 novice physiotherapists selected by convenient sampling. The

data was collected within a span of 1 month. A pilot study was done on 10 novice physiotherapists and depending on the replies modifications were made. The revised questionnaire was then distributed to 100 other novice physiotherapists. Analysis was done using descriptive statistics. For the purpose of analysis, the questionnaire was divided into 6 domains mentioned as follows:

- Domain 1: General knowledge of early intervention program
- Domain 2: Knowledge of conditions treated under early intervention program
- Domain 3: Knowledge of interdisciplinary team members involved in early intervention program
- Domain 4: Knowledge of role of the physiotherapist in early intervention program and the treatment given by them
- Domain 5: Source of information
- Domain 6: The usefulness of the questionnaire to gain knowledge about new aspects of early intervention program

RESULTS

Table 1: Conditions managed under Early Intervention Program

Condition	No. of novice physiotherapists
Autism	98
Cerebral palsy	96
Down syndrome	92
Osteogenesis imperfecta	47
Cancers	28
Congenital heart disease	50
Torticollis	72

Inference – 98 out of 100 novice physiotherapists know that autism is a condition managed under EIP while only 28 of them think that infants with cancers are also managed under EIP. Similarly, other conditions with their respective number of novice physiotherapist supporters out of 100 are shown in the above table.

Table 2: Team members involved in an early intervention team

Team members	No. of novice physiotherapists
Vision services	87
Hearing services	88
Speech and language services	91
Counselors for family	93
Medical pharmacist	53
Nurses	56
Nutritionist	73
Occupational therapists	91
Physiotherapists	98
Psychologist	72

Inference – 98 out of 100 novice physiotherapists know about physiotherapy profession being involved in the EIP team while only 53 and 56 of them are aware about medical pharmacist and nurses also being a part of the team respectively. Similarly, other team members with their respective number of novice physiotherapist supporters out of 100 are shown in the above table.

Table 3: A physiotherapist's job in neonatal intensive care unit (NICU)

Physiotherapist's job in NICU	No. of novice physiotherapists
Positioning	96
Respiratory techniques	95
Prevent respiratory complications	96
Management of neurological and musculoskeletal conditions	89
Strapping & splinting techniques	65
Giving passive ROM movements	82
Stretching techniques	63

Inference – 96 out of 100 novice physiotherapists are aware about positioning and prevention of respiratory complications as a physiotherapist's job in NICU while only 63 and 65 of them are aware about stretching, strapping and splinting techniques performed in NICU by a physiotherapist respectively. Similarly, other tasks performed in NICU with their respective number of novice physiotherapist supporters out of 100 are shown in the above table.

Table 4: Targets of a Physiotherapy intervention

Physiotherapeutic intervention includes	No. of novice physiotherapists
Carry out assessment	95
Find diagnosis	88
Judge the prognosis	71
Make a treatment plan	81

Inference - 95 out of 100 novice physiotherapists know that carrying out an assessment in a standardized format is essential in a physiotherapeutic intervention while only 71 of them think that judging the prognosis also holds an equal importance. Likewise the number of novice physiotherapists, out of 100, who consider finding diagnosis and making a treatment plan as the other targets are shown in the above table.

Table 5: Objectives of Physiotherapy in EIP

Objectives of physiotherapy	No. of novice physiotherapists
Provide motor training	91
Enhance balance, facilitate locomotion	95
Enhance spatial orientation	85
Enhance coordination and motor planning	93
Enhance UL function and fine motor activity	95
Enhance independence in ADLs	83

Inference – This table shows various objectives of physiotherapeutic intervention with their

respective number of novice physiotherapist supporters out of 100. It is seen that all the mentioned objectives are known to a good number of them.

DISCUSSION

Domain 1

This domain presented a question about the services at early intervention program, whether they are tailor made according to the requirements of the child considering his age and his needs, for which 96 physiotherapists out of 100 agreed. Further93 of them believe that these programs prevent delays in development of infants and toddlers with disabilities and help them to reach their full potential. Most of these young professionals know what a developmental delay means as the study demonstrates 92 out of 100 of them think that such a delay means delay in any of the developmental milestones like physical, cognitive, communication, social or emotional and sense of self help in a child. Furthermore 89 of them could identify that sleeping is not a developmental milestone in a child. The same number of novice physiotherapists, i.e. 89 thinks that the main indication for early intervention program is developmental delays and disabilities (physical, intellectual, and multiple forms of disabilities). One of the questions in this domain enquires when do early intervention starts for which 87 of them think that it starts immediately after birth. 74 of these professionals think that a proper complete evaluation of the infants is required before they are admitted to be served under this program. 70 of them believe that services at EIP are available for all and hence there is no need for any prescription to avail them, any parent who is in doubt can get their child evaluated for these services. Moreover 84 of the novice physiotherapists are aware about the fact that special education schools are a medium for providing early intervention, these schools are like an extension to these services beyond the age of 3 to 4 years after which learning in a broader aspect starts. These results reveal that a good number of novice physiotherapists have basic knowledge of early intervention program.

Domain 2

The second domain checks the knowledge of the novice physiotherapists regarding the conditions treated under early intervention program. It is seen that autism is very popularly known out of all the conditions giving a count of 98 out of 100 physiotherapists who chose this condition the most. Whereas cancer is least known among this population as it by only 28 of the novice physiotherapists. The votes of the therapists for each condition are shown in table 1.

It is also noted that out of 100 novice physiotherapists only 15 of them are aware about all the mentioned 7 conditions. Thus it can be inferred that quite a few number of physiotherapists have knowledge about all the conditions managed under EIP.

Moreover the other questions in this domain asks about the infants who are eligible for EIP due to other reasons like infants diagnosed with specific conditions at birth such as any neurological, metabolic or genetic conditions become susceptible to deceleration of overall development in later years. Likewise, premature babies and infants who had to undergo any surgery soon after birth also have high chances of delayed development. 85 of novice physiotherapists think that all such babies are eligible for EIP by default. Also 83 of them opine that babies with low birth weight and mild illness or fever at birth should be considered for evaluation under EIP. Additionally, one of the other predisposing factors of the newly born infants for the screening for EIP is the mother's health status during pregnancy [4]. 84 of novice physiotherapists believe that mothers having any addictions or any kind of drug abuse or physical trauma during pregnancy makes their unborn babies automatically subject to the screening for EIP.

Hence it can be deduced that a good number of novice physiotherapists have knowledge about the conditions treated under EIP. However only a few of them know about all the medical conditions included under EIP. Moreover it is also seen that autism is a well-known condition managed under EIP while there is little awareness of cancers, therefore further steps could be taken to enhance their knowledge about this condition.

Domain 3

The third domain checks the knowledge of the novice physiotherapists about the interdisciplinary team members in the early intervention program team. All 100 of the therapists feel that parents and family members or care givers should also be involved in the early intervention training program. 98 of them believe that it is necessary to educate and give home programs to the parents and the caregivers in order to ensure complete care of the child in the remaining hours of the day.

The EIP team is multidisciplinary in nature. 98 out of 100, i.e. most of novice physiotherapists are aware that their profession, physiotherapy is a part of the team while only 53 and 56 of them know that medical pharmacist and nurses are also an important part of the team respectively. The votes of these 100 professionals for each of the other team members in shown in table 2.

It is also seen that 47 of the 100 novice physiotherapists are aware about 9 to 10 interdisciplinary team members, 35 are aware about 7 to

8 members and 14 about 5 to 6 members. In addition to this, 97 of these novice physiotherapists think that it is beneficial if they themselves, being a part of the team, collaborate with the teachers and other professionals to maximize the child's development.

The domain 3 analysis thus projects that a good number of the novice physiotherapists know which other professionals are involved or should be involved in the multidisciplinary EIP team. It is noted that medical pharmacists and nurses are not widely known to be a part of this interdisciplinary team while physiotherapists are popularly known. Therefore future attempts could be made in order to spread awareness about these professionals and their role in EIP.

Domain 4

The fourth domain analyzes the knowledge of the novice physiotherapists about the role of the physiotherapy profession and the treatment given by these professionals in early intervention program. It is seen that 89 of the 100 novice physiotherapists are aware that physiotherapy management starts at a very early stage, which is as soon as the infant is admitted to a neonatal intensive care unit (NICU). The various different activities that a physiotherapist does in an NICU are:

1) Handles and positions the neonate to prevent deformities and to achieve optimal body functions
2) Carries out postural drainage using percussion, vibration and suctioning techniques
3) Maintains bronchial hygiene of the baby in order to prevent respiratory complications like atelectasis, pneumonia, infection of the respiratory tract, etc.
4) Carries out assessment and starts with the management of neonates with neurological or musculoskeletal conditions
5) Performs strapping and splinting techniques for specific conditions
6) Performs passive full range of motions at different points of the infant and keeps them mobile
7) Performs stretching techniques [5, 6]

Out of all these activities, handling and positioning of neonates and maintenance of bronchial hygiene have 96 supporters out of the 100 novice physiotherapists. However, stretching techniques being performed in NICU is known to only 63 of them, likewise only 65 of these professionals support strapping and splinting techniques. The other activities along with the number of physiotherapists who chose them are shown in table 3.

It is seen that 50 of the 100 novice physiotherapists know about all these 7 activities, while only 35 of them know about 5 to 6 activities and the rest are aware of only a few activities.

Besides these activities the overall target of a physiotherapy intervention is to carry out an assessment in a standardized format, to come to a final most probable diagnosis, to judge the prognosis of the condition and finally make a treatment plan suitable for the infant's condition [3]. 95 of the 100 novice physiotherapists think that carrying out an assessment is the chief target of the physiotherapy intervention while only 71 of them believe that judging the prognosis is also one of the targets. Table 4 throws some more light on this subject.

Furthermore, 98 of the 100 novice physiotherapists think that these findings and the treatment plan of the therapist should be shared with other professionals and caregivers.

It is seen that the novice physiotherapists are well versed with all of their objectives for EIP. Some of the objectives of physiotherapy that are mentioned for EIP are:

1) To provide motor training to infants and young children with developmental disabilities
2) To enhance balance, postural control and facilitate movement and locomotion
3) To enhance special orientation during interaction with the environment
4) To enhance coordination, timing and sequencing of the responses and motor planning
5) To enhance upper limb function and fine motor activity
6) To reduce dependency and enhance independence in activities of daily living [3].

A good number of novice physiotherapists, i.e. 87 out of 100, recognize all of the mentioned objectives. If numbers are to be noted then it is observed that enhancing balance, postural control and facilitating movement and locomotion, and enhancing upper limb function and fine motor activity have attracted the maximum number of the therapists, i.e. 95 out of 100. However enhancing independence in activities of daily living has attracted a relatively less number of physiotherapists, i.e. 83 out of 100. The other objectives along with their votes are presented in table 5.

Moreover, physiotherapy intervention provides various other treatment benefits like a supervised intervention, modifications in the treatment protocol according to the child's current status, providing treatment in an individualized as well as in a group setting as per the requirement and providing a multidisciplinary approach [3]. 76 out of the 100 novice

physiotherapists could figure out the exception given among the mentioned facilities that the groups formed for group treatment cannot consist of children with random different conditions requiring different interventions and having different needs. The reason for which is that the treatment protocol changes according to every child's needs and conditions and hence they cannot be grouped together.

From the analysis of domain 4 it can be inferred that a good number of novice physiotherapists have knowledge of their role and the treatment given by them in EIP. In spite of this there are certain aspects in which they lack complete knowledge like the stretching, strapping and splinting techniques performed in NICU and the importance of judging the prognosis. Therefore a point could be made to enhance their knowledge in these aspects.

Domain 5

The fifth domain checks the source from where the novice physiotherapists have gained knowledge about Early Intervention Program. It is observed that maximum number of the novice physiotherapists got to know about early intervention program primarily through their academic syllabus, followed by social media and newspapers. Therefore revision of the syllabus could be done in the future accordingly.

Domain 6

The sixth domain checks the usefulness of the questionnaire to gain knowledge about new aspects of early intervention program. 95 of the 100 physiotherapists found it useful and affirmed gaining new information about this program by participating in this study.

The study conducted thus gives us clear information about the level of knowledge the novice physiotherapists have in various domains of Early Intervention Program.

CONCLUSION

It's seen that novice physiotherapists have good knowledge about general early intervention program. They have a good idea of the infants eligible for EIP. Out of the 7 mentioned conditions managed under EIP, autism is very well known while a cancer is known only to a few of them. They also have good knowledge about the parental and care taker's involvement in the program. Out of all the professional members it is seen that physiotherapists are popularly known to be involved in the EIP team while medical pharmacists and nurses are little known. The novice physiotherapists have good knowledge about physiotherapy's objectives and roles in EIP and in neonatal intensive care unit. It is found that physiotherapist's role in positioning the infant and giving respiratory therapy in NICU is well known while strapping, splinting and stretching techniques are lesser known. The novice physiotherapists have gained knowledge about EIP more from their syllabus than from social media and newspapers.

ACKNOWLEDGEMENT

The authors thank D.Y.Patil Hospital and Research center, Navi Mumbai for giving permission to carry out the study and to the students for giving their consent to participate in the study. Special thanks to Dr. Unnati Pandit, Director, School Of Physiotherapy, D.Y.Patil University, Nerul, Navi Mumbai, to give cooperation for this study. Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

ETHICAL CLEARANCE

The study was approved by ethical committee, in D.Y.Patil University, Navi Mumbai.

Source of funding -Self-funded by authors.

Conflict of Interest- Nill

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