

A Study to Evaluate the Effectiveness of Teaching Program on Knowledge Regarding Pediatric Orthopedic Disorders Among Mothers of Children Under Two Years Old at Selected Areas of Hubballi–Dharwad

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Abstract

Pediatric orthopedic health plays an important role in the proper growth and development of children. Any deficit in orthopedic function may lead to delayed growth and physical deformities. Mothers of children under two years of age are the primary caregivers, and their knowledge regarding pediatric orthopedic disorders is essential for early identification and timely referral for treatment. The present study was conducted to assess the effectiveness of a structured teaching program on mothers' knowledge regarding pediatric orthopedic disorders in children under two years of age. A one-group pretest–posttest research design was adopted for the study. A total of 100 mothers of children under two years of age were selected using a purposive sampling technique. Knowledge was assessed using a structured questionnaire before and after the administration of the structured teaching program. The findings revealed that the mothers had inadequate knowledge regarding pediatric orthopedic disorders during the pretest. Following the structured teaching program, the posttest scores showed a significant improvement in knowledge. The comparison of pretest and post-test scores demonstrated that the structured teaching program was effective in enhancing mothers' knowledge regarding pediatric orthopedic disorders. The study concludes that health education programs can play a significant role in improving awareness among mothers, thereby promoting the early detection and management of orthopedic disorders in children.

Keywords: Talipes equines, flat feet, pigeon toes, toe walking, mothers of under two years, knowledge, effectiveness, structured teaching program

INTRODUCTION

Children are the future of the nation; safeguarding their health is essential for any nation. Mothers

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are the primary caregivers of children, especially those under five years of age, who are the most vulnerable population for disease, disorder, deformity, and deficiency. Orthopedic disorders not only interfere with growth but also hamper the development of the child's learning skills, leaving the child disabled. Some of these disorders are congenital, acquired, caused by infection, or due to neurological dysfunction. No matter what the cause of the disorder is, early identification and prompt treatment will improve the lifestyle of the child in the early stages of life. Every parent wants their child to be fit and fine and free from disease and congenital deformities. Even minor health issues in their children will make the parents tense. The foot

is one of the most important sensory organs in the body. One can speak of the foot can be considered a postural receptor organ that offers the brain information about the body itself, such as its position in space, balance, and oscillation [1]. This is why pathologies involving the foot can be explained by the individual's posture or, in other cases, may be the direct cause of an altered posture [2]. In this condition, minor orthopedic problems put the parents under pressure. As healthy individuals, it is our responsibility to reduce our psychological burden by guiding them toward proper management available in the health sector [1].

Talipes equinus, flat feet, pigeon toes, toe walking, and cerebral palsy are common orthopedic problems in children. Cerebral palsy is a group of movement disorders resulting from damage to the developing brain that permanently affects muscle tone, coordination, and posture. These problems are caused by abnormal development or damage to the brain regions that control movement, balance, and posture. Most often, problems occur during pregnancy, may occur during childbirth, or shortly thereafter. Most children with this condition live into adulthood, and some can live for many decades [3]. These orthopedic problems do not require treatment but may need minor surgical correction in some cases [2–5].

Hence, the present study aimed to assess the knowledge of mothers of two-year-old children regarding pediatric orthopedic disorders (talipes equinus, flat feet, pigeon toes, toe walking, and cerebral palsy) and to improve their knowledge of pediatric orthopedic disorders through a planned teaching program so that mothers can better manage their children in a timely manner and monitor their progress in development and growth [6–10].

MATERIAL AND METHOD

An evaluative research approach with a one-group pretest–posttest design was adopted for the study. A total of 100 mothers of children under two years of age were selected using a purposive sampling technique from selected hospitals in Hubballi–Dharwad. Mothers attending the hospitals with children under two years of age were included in the study. The knowledge questionnaire was developed with a content validity index of 88% and a reliability coefficient of 0.85. Pretest knowledge regarding pediatric orthopedic disorders was assessed, following which a planned teaching program was conducted. After two weeks, the mothers were invited for a posttest, during which the structured questionnaire was administered again. Statistical analysis was performed using SPSS version 20.0 for both descriptive and inferential statistics. The results were computed and tabulated to evaluate the objectives of the study [11].

RESULTS

Findings Related to Sociodemographic Variables

Table 1 shows that most mothers (37%) were in the age group of 26–30 years. The majority of the participants had completed PUC education (60%), and 53% had an annual income of less than ₹2 lakhs. More than half (55%) were in consanguineous marriages. Regarding religion, Christians constituted 39% of the study participants, followed by Muslims (32%) and Hindus (29%).

Age

In the present study (Table 1), it was found that out of 100 mothers of children under two years old, 30 belonged to the age group of 20–25 years, 37 were 26–30 years of age, and 33 were 30–35 years of age.

Education

In the present study (Table 1), it was observed that out of 100 mothers of children under two years of age, 38 mothers of children under two years of age had a high school education, 60 mothers of children under two years of age were pre-university educated, and 2 mothers of children under two years of age were graduates.

Income

In the present study (Table 1), it was observed that out of 100 mothers of children under two years of age, 47 mothers had an income of more than two lakhs per annum, and 53 mothers had an income of more than two lakhs per annum.

Type of Marriage

In the present study (Table 1), out of 100 mothers of children under two years of age, 55 mothers of children under two years of age were married as consanguineous, and 45 mothers of children under two years of age were non-consanguineously married women.

Religion

In the present study (Table 1), out of 100 mothers of children under two years of age, 39 were Hindu, 32 were Christian, and 16 were Muslim.

Findings Related to Comparison of Pretest and Posttest Knowledge Mean% Scores

The present study (Figure 1), it shows the comparison of pretest and posttest mean% scores. The mean% of posttest in aspects such as (talipes equinus, flat feet, pigeon toes, toe walking, and cerebral palsy) are higher than the pretest mean% scores. This implies that the planned teaching program was significantly effective in enhancing the knowledge level of the mothers of children under two years of age.

Table 1. The sociodemographic distribution of mothers of children under two years old.

S.N.	Demographic variables	Response categories	Frequency	Percentage
1	Age (years)	20–25	33	33.00
		26–30	37	37.00
		31–35	30	30.00
2	Education qualification	Secondary school leaving certificate (SSLC)	2	2.00
		Pre-University course (PUC)	60	60.00
		Degree	38	38.00
3	Income	Less than two lakhs	53	53.00
		More than two lakhs	47	47.00
4	Type of marriage	Consanguineous	55	55.00
		Non-Consanguineous	45	45.00
5	Religion	Hindu	29	29.00
		Muslim	32	32.00
		Christian	39	39.00

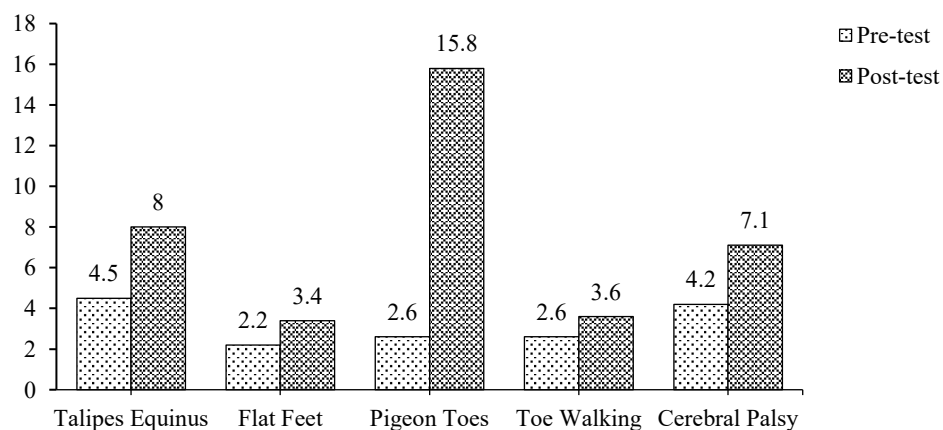


Figure 1. A bar diagram describes the comparison of the mean % scores of pretests and posttest knowledge scores.

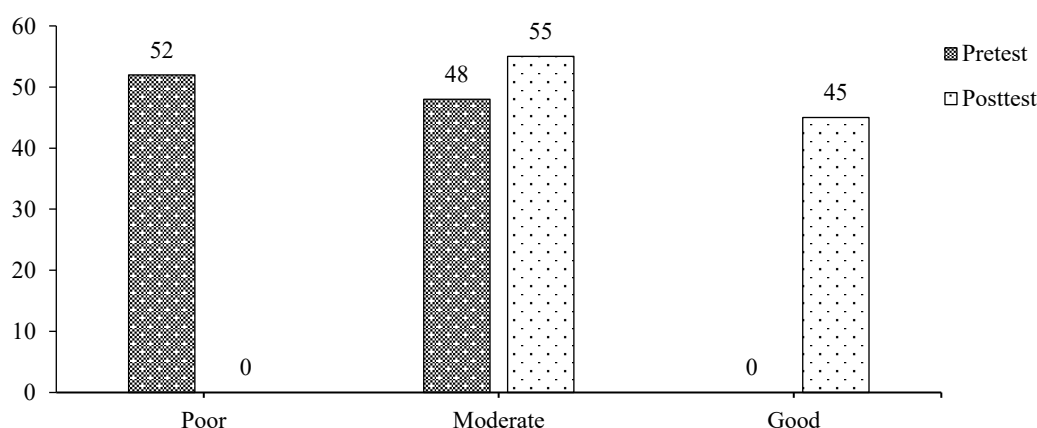


Figure 2. A bar diagram describes the level of knowledge of parents of children under two years old in the pretest and posttest.

Table 2. The association between pretest knowledge and sociodemographic variables.

Demographic variables	Response categories	Pretest knowledge scores		χ^2	df	p-value
		Below median	Above median			
Age (years)	20–25	5	25	0.62	6	4.37
	26–30	3	34			
	31–35	6	27			
Education qualification	SSLC	8	30	0.42	6	6.00
	PUC	6	54			
	Degree	0	2			
Income	Less than 2 lakhs	6	41	0.44	3	2.60
	More than 2 lakhs	8	45			
Type of marriage	Consanguineous	9	36	0.82	6	2.80
	Non-Consanguineous	7	48			
Religion	Hindu	5	34	0.27	6	7.50
	Muslim	5	27			
	Christian	4	25			

The mean % knowledge enhancement of talipes equinus, flat feet, pigeon toes, toe walking, and cerebral palsy ranged from 4.5 to 8.00%, 2.2 to 3.40%, 2.6 to 15.8%, 2.6 to 3.6%, and 4.2 to 7.1%, respectively.

Findings Related to the Level of Knowledge Score in Pretest and Posttest

In the present study (Figure 2), the pretest results showed that 52 (52.0%) mothers of children under two years of age had poor knowledge, while 48 (48.0%) had moderate knowledge of pediatric orthopedic disorders; none had good knowledge. Following the teaching program, 55 (55.0%) mothers demonstrated moderate knowledge, and 45 (45.0%) demonstrated good knowledge, while none had poor knowledge in the posttest. These findings indicate that the planned teaching program was effective in improving the knowledge level of mothers of children under two years of age regarding pediatric orthopedic disorders.

Findings Related to the Association Between Pretest Knowledge Scores and Sociodemographic Variables

In the present study (Table 2), it was observed that the selected sociodemographic variables showed no association of age, education qualification, income, type of marriage, and religion with the pretest knowledge score of mothers of children under two years of age.

Table 3. The effectiveness of the planned teaching program on knowledge scores.

	Sample size	Mean	Standard deviation	t-value	df	p-value	Interference
Knowledge scores	100	Pretest	16.39	116.09	99	<0.001	Significant
		Posttest	25.83				

Findings Related to the Effectiveness of the Planned Teaching Program on Knowledge

The present study (Table 3) showed that the mean difference in knowledge scores was significant at $t = 116.09$ for 99 degrees of freedom at $p < 0.001$, reflecting the significance of the planned teaching program that improved the knowledge of mothers of children under two years of age regarding pediatric orthopedic disorders.

DISCUSSION

Findings Relating to the Demographic Characteristics of Mothers of Children Under Two Years Old

The age distribution in the present study showed that, among 100 mothers of children under two years of age, 30 (30.0%) were aged 20–25 years, 37 (37.0%) were aged 26–30 years, and 33 (33.0%) were aged 31–36 years. These findings were similar to those reported by Scheibner et al. [4].

The educational qualifications of the mothers of children under two years of age in the present study showed that 38 (38.0%) had completed SSLC, 60 (60.0%) were PUC-qualified, and 2 (2.0%) were graduates. These findings were similar to those reported by Naeem Akhtar and Tahir Naseem [5].

The annual income of the mothers in the present study showed that 47 (47.0%) mothers of children under two years of age had an annual income of less than ₹2 lakhs, whereas 53 (53.0%) had an annual income of more than ₹2 lakhs.

The type of marriage in the present study showed that 45 (45.0%) mothers of children under two years of age had a consanguineous marriage, while 55 (55.0%) had a non-consanguineous marriage.

The religious distribution of the mothers of children under two years of age showed that 39 (39.0%) were Hindus, 32 (32.0%) were Muslims, and 29 (29.0%) were Christians.

Findings Relating to the Knowledge of Mothers of Children Under Two Years Regarding Pediatric Orthopedic Disorder

In the present study, the knowledge score in the pretest had a range of 3, with a minimum score of 14 and a maximum score of 17. The mean $\pm$ standard deviation was 16.39 ± 0.875 . These findings are similar to those reported by Sandeep KR, Divya Shettigar, and Suma Jayappa, who assessed parents' knowledge regarding dengue and its prevention and identified a deficiency in knowledge. In the posttest, the knowledge score showed improvement. The scores ranged from 17 to 21, with a mean $\pm$ standard deviation of 17.94 ± 2.61 . This indicates a significant improvement in knowledge following the intervention [6]. Similar findings were observed in other studies [12–15], further supporting the effectiveness of the planned teaching program.

Finding Related to the Effectiveness of the Planned Teaching Program on Knowledge Regarding Pediatric Orthopedic Disorders

The present study revealed a significant improvement in parents' knowledge regarding talipes equinus, flat feet, pigeon toes, toe walking, and cerebral palsy following the planned teaching program. The difference was statistically significant ($t = 116.09$, $df = 99$, $p \leq 0.001$), indicating the effectiveness of the intervention in improving the knowledge of parents of children under two years of age. These findings are consistent with those reported by Sallah et al. [7], who identified insufficient parental knowledge regarding orthopedic problems in children, and by Archana Peter et al. [10] and Amira H. et al., who reported significant improvements in mothers' knowledge following a teaching program.

CONCLUSION

The present study was conducted to assess the effectiveness of a planned teaching program on knowledge regarding pediatric orthopedic disorders among mothers of children under two years of age in selected areas of Hubballi–Dharwad. A one-group pretest–posttest design was adopted. The study included 100 mothers of children under two years of age selected through a purposive sampling technique. Data was collected using a structured knowledge questionnaire. A pretest was conducted to assess the participants' baseline knowledge regarding pediatric orthopedic disorders, followed by the implementation of the planned teaching program. A posttest was conducted two weeks later. The collected data were tabulated, computed, and analyzed using SPSS version 20.0. The results revealed a significant increase in the mean posttest knowledge score compared with the mean pretest knowledge score, indicating the effectiveness of the planned teaching program. The study also examined the association between pretest knowledge scores and selected demographic variables and found no significant association between knowledge scores and the sociodemographic variables studied. Furthermore, the assessment of knowledge levels showed that the proportion of participants with higher knowledge levels increased in the posttest compared with the pretest. Overall, the findings demonstrated the statistical effectiveness of the planned teaching program in improving mothers' knowledge regarding pediatric orthopedic disorders among children under two years of age.

Recommendations

Common orthopedic problems among children under two years of age, their causes, and their management can be taught to the community to promote awareness and facilitate the monitoring of children's growth and development.

A self-instructional module was prepared and distributed to generate awareness regarding common orthopedic problems among parents of children under two years of age.

The present study was conducted in a limited geographical area with a small sample size. Similar studies involving larger geographical areas and larger sample sizes may be undertaken to enhance the generalizability of the findings and to reach a broader population of parents of children under two years of age.

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