

A Study to Assess Effect of Self Instructional Module on Knowledge and Attitude Regarding Early Identification and Referral of Neurodevelopmental Disorders among Nursery School Teachers of Selected Schools of Bikaner City

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Abstract:

The early years of childhood represent a crucial window of opportunity for investments in skills or capabilities that can place children on the path to well-being in adulthood. The developmental process, in a small group of children, may not be normal as their developmental process has not been completed in time. Childhood mental and developmental disorders encompass neuro developmental, emotional, and behavioral disorders that have broad and serious adverse impacts on psychological and social well-being. Children with these disorders require significant additional support from families and educational systems. Teachers, who are an essential link in the public health system for reaching out to primary school children, receive no formal training to identify these conditions. Their knowledge, attitudes, and practices regarding identifying children with Neuro developmental disorders need assessment.

Objectives: To assess the knowledge and attitude regarding early identification and referral of neurodevelopmental disorders among nursery school teachers and effectiveness of self instructional module.

Methods: Quasi experimental design with 40 sample in each group experimental and control group used. Inferential statistics on analysis revealed the SIM was effective in enhancing the knowledge and attitude of teachers regarding early identification of neurodevelopmental disorders.

Conclusion: The study concludes that education and awareness have fundamental role in bringing changes in knowledge and attitude of the nursery school teacher. Periodical and need based awareness and learning package to teachers can significantly increase their understanding and knowledge regarding neurodevelopmental disorders in children.

Introduction:

Today's children are tomorrow's citizens. They are in a continuous process of growth and development.

Any alteration in its course can lead to developmental disorders. It is estimated that 4-5% of students in school have a learning disability. Childhood mental and developmental disorders encompass neuro developmental, emotional, and behavioral disorders that have broad and serious adverse impacts on psychological and social well-being. Children with these disorders require significant additional support from families and educational systems¹.

The early years of childhood represent a crucial window of opportunity for investments in skills or capabilities that can place children on the path to well-being in adulthood. The developmental process, in a small group of children, may not be normal as their developmental process has not been completed in time. They may not be able to perform their daily routine or act independently in the surroundings like their peers.

According to CDC about 1 in 6 children in US, or 17%, aged 3-17 have a developmental disability. According to a 2018 study by the Narendra K Arora et al, nearly one in eight Indian children between ages of 2 and 9 may have a neuro developmental disorder. The study found that the prevalence of Neuro developmental disorders varied by location ranging from 2.9 % to almost 18%. The study also found that prevalence of Neuro developmental disorders are a significant cause of learning disabilities in primary school students².

India's reported prevalence of learning disability ranges from 1.6% to 15%, depending on the region, age group studied, and methodologies used. Studies conducted in South India revealed a frequency of 15.17%, including 12.5% with dysgraphia, 11.2% with dyslexia, and 10.5% with dyscalculia³. Low maternal education, very low birth weight, and poor APGAR score are associated with LD⁶. ADHD prevalence ranges from 1% to 20% worldwide⁷ and 1.6 % to 17.9% in India⁴.

Need for the study:

As there are no specific tests to identify children with a learning disability, health professionals have to rely mainly on teacher's report for its diagnosis. Studies have proven that teacher's attitude towards such children can have great influence towards their recovery. Making the child aware of a disability is a great service to the child. Unless such children are identified and properly treated, they may develop secondary emotional, social and family problems. It is in this context that the importance of a teacher becomes vital in safeguarding and promoting the mental health of children through the early identification of deviations from normal. Mental Health Services available to provide psychological care to emotionally disabled children in India is very meager. WHO recommended that mental health program should utilize trained teachers to improve the psycho-social aspect of the school children. Children under 15 years of age constitute 40% of the total population.

At least 2 per cent of India's population is said to be suffering from some kind of mental disability. Studies from India have revealed the prevalence rates to be 12.5% in 0-16yrs community based from Bangalore, 9.4% in 8-12yrs old from a community sample in Kerala, 6.3% in 4-11yrs old school children in Chandigarh. Overall rates in India & other middle- & low-income countries range between 6%-15% which are on the lower sides as compared to reported rates from certain western countries such as Canada 8.1%, Germany 20.7%, Switzerland 22.5%, USA 21%. Teachers, who are an essential link in the public health system for reaching out to primary school children, receive no formal training to identify these conditions. Their knowledge, attitudes, and practices regarding identifying children with Neuro developmental disorders need assessment.

Problem Statement:

A study to assess effect of self instructional module on knowledge and attitude regarding early identification and referral of neurodevelopmental disorders among nursery school teachers of selected schools of Bikaner city.”

Objectives:

1. To assess the knowledge and attitude regarding early identification and referral of neurodevelopmental disorders among nursery school teachers in experimental and control group before intervention.
2. To develop Self Instructional Module on Knowledge regarding early identification and referral of neurodevelopmental disorders among nursery school teachers.
3. To assess the knowledge and attitude regarding early identification and referral of neurodevelopmental disorders among nursery school teachers in experimental group after intervention.
4. To compare the knowledge and attitude regarding early identification and referral of neurodevelopmental disorders among nursery school teachers between experimental and control group.
5. To find association between knowledge and attitude regarding early identification and referral of neurodevelopmental disorders among nursery school teachers and selected demographic variable of samples.

RESEARCH HYPOTHESIS:-

H1: Nursery school teachers received self instructional module will have more knowledge and positive attitude regarding early identification and referral of neuro developmental disorders as compared to those who not received at 0.05 level of significance.

H2 : There is association between knowledge and attitude regarding early identification and referral of neurodevelopmental disorders among nursery school teachers and selected demographic variable at 0.05 level of significance.

Research Methodology:

Research Design: Research design used for the proposed study was experimental approach with quasi-experimental design which includes manipulation, control and no randomization to assess the Knowledge and Attitude regarding early identification and referral of neuro-developmental disorder.

E	O1	X	O2
C	O1	--	O2

E - Experimental group, C - Control group.

O1- Assessment of level of knowledge and attitude regarding early identification of neurodevelopmental disorders before self instructional module.

O2- Assessment of level of knowledge and attitude regarding early identification of neurodevelopmental disorders after self instructional module.

X- Self Instructional Module on knowledge and early identification and referrals of neurodevelopmental disorders.

Variables:**Independent Variable:**

In this study, the independent variable refers to Self Instructional Module on knowledge and attitude regarding neurodevelopmental disorders, which is developed by investigator. SIM consists of information regarding neurodevelopmental disorders

Dependent variable:

The dependent Variable is the variable that the researcher is interested in understanding, explaining or predicting. In this study, dependent variable refer to Knowledge and attitude regarding early identification and referral of neurodevelopment disorders.

Population: population of the present study is teachers from selected nursery schools of Bikaner, Rajasthan state.

Sample Size: The sample of the study comprised of 80 nursery school teachers, 40 in each group, who are available at the time of data collection, working in selected nursery schools Bikaner, Rajasthan state.

Sampling technique:

The investigator will select 80 nursery school teachers from selected nursery school of Bikaner, Rajasthan state by convenient sampling technique.

Setting: Setting of present study was selected primary school of Bikaner city.

Tools:

The tool intended to be used for the study was structured questionnaire for assessing knowledge regarding neurodevelopmental disorders and likert scale to to measure attitude regarding early identification of neuro developmental disorder and its referral among teachers. Tool comprises of 3 section:

Section I – Socio-Demographic Data

Section II – Structured knowledge questionnaire to assess the knowledge regarding neurodevelopmental disorders.

Section III – A type Likert Attitude Scale

Validity of tool:

The Structured Questionnaire intend to assess the knowledge regarding neurodevelopmental disorders and attitude scale submitted to experts in the field of mental health nursing and neuro psychiatrist in medical discipline to find tools appropriateness, relevancy, objectivity of the content and for the expert opinion and suggestions for the tool. Based on experts guidance and suggestions modification and rearrangement of items had been done in the tool under the guidance of research guide and co-guide to make more clarity of items from the samples.

Reliability:

The reliability of tool was established by testing the internal consistency. The internal consistency for Structured Questionnaire was determined by Test-Retest method by using Karl Pearson method and it was 0.87. Hence the questionnaire was found to be reliable.

Ethical issues:

Permission was obtained from concerned authorities. Written confirmed consent was obtained from all participants of the study. After explaining the purpose and other details of the study. The subjects were assured with confidentiality of the data obtained and about the proceeding of the teaching

programme. The subjects were informed that their participation is voluntary based. They have right and freedom to drop out from the training programme whenever they liked to do so.

Pilot Study: Investigator conducted pilot study on 08 nursery school teachers of Bikaner, those were not selected in main study.

The objectives of the pilot study were to validate the consistency of the data collection instrument, adequacy of the contents, feasibility of the study and time duration required for responding the data collection instruments. Tool found to be feasible for administration.

Data Collection: Both experimental and control group administered pre test for assessment of knowledge and attitude regarding neurodevelopmental disorders. Experimental group received intervention STP and post test was conducted on both groups.

Data analysis Plan:

Descriptive Statistics:

1. To describe the demographic variables, knowledge and attitude regarding early identification of neurodevelopmental disorders by number, frequency, percentage, mean and standard deviation used.

Inferential Statistics:

1. To find the effectiveness of SIM on knowledge and attitude by comparing mean score of pretest and post test between experimental and control group independent 't' test and within group by paired 't' test used
2. To associate the knowledge with selected demographic variable chi square used.
3. Pearson "r" was used to find correlation between knowledge and attitude regarding early identification and referrals of neurodevelopmental disorders.

Results:

Table 1- Distribution of socio-demographic variables of respondents in experimental and control group.
N=40

S.NO.	DEMOGRAPHIC VARIABLE		CONTROL GROUP n =40		EXPERIMENTAL GROUP n =40	
			n	%	n	%
1	Age in years	21-30	05	12.5	08	20
		31-40	24	60	29	72.5
		41-50	11	37.5	03	7.5
		51-60	00	0	00	0
2	Gender	Male	00	0	00	0
		Female	40	100	40	100
3	Professional Qualification	Diploma	06	15	04	10
		UG	19	47.5	18	45
		PG	15	37.5	18	45
4	Working Experience (in years)	1-3	04	10	03	07.5
		3-5	19	47.5	19	47.5
		5-10	13	32.5	16	40

		Above 10	04	10	02	05
5	Residence	Urban	37	92.5	38	95
		Rural	03	07.5	02	05
6	Attendant Special training	Yes	00	00	00	00
		No	40	100	40	100
7	Source of Knowledge	Health Professional	02	05	03	7.5
		TV/Radio	29	72.5	18	45
		Book/Newspaper	04	10	17	42.5
		Social Media	05	12.5	02	05
8	Marital Status	Married	36	90	30	75
		Unmarried	03	7.5	09	22.5
		Widow/Divorced	01	2.5	01	2.5
9	Specialization of professional qualification	Science	25	62.5	17	42.5
		Arts	08	20	12	30
		Commerce	07	17.5	10	25
		Others	00	00	01	2.5

Table 2 Pre-Test level of knowledge in Experimental and Control Group.

S.NO.	Knowledge Level	EXPERIMENTAL GROUP n=40		CONTROL GROUP n=40	
		n	%	n	%
1	Poor (0-10)	21	52.5	23	57.5
2	Average (11-20)	19	47.5	17	42.5
3	Good(21-30)	0	0	0	0

Table 3: Post-Test level of knowledge in Experimental and Control Group.

S.NO.	Knowledge Level	EXPERIMENTAL GROUP n=40		CONTROL GROUP n=40	
		n	%	n	%
1	Poor(0-10)	05	12.5	17	42.5
2	Average (11-20)	21	52.5	23	57.5
3	Good(21-30)	14	45.0	0	0

Table 4 : Pretest Post test comparison of number of respondents improved knowledge

		Pre test		Post test	
		n	%	n	%
Experimental Group	Poor	21	52.5	5	12.5
	Average	19	47.5	21	52.5
	Good	0	0	14	35
Total		40	100	40	100
Control Group	Poor	23	57.5	17	42.5

	Average	17	42.5	23	57.5
	Good	0	0	0	0
Total		40	100	40	100

Table: 5 Comparison of pre test and post test score on knowledge within group (experimental and control group).

	Experimental				Mea n diff.	t-test	Control				Mea n diff.	t-test
	Pretest		Post test				Pretest		Post test			
Knowledge score on neuro developmental disorders.	Mea n	SD	Mea n	SD	6.33	t=12.44 P=0.001 S*	Mea n	SD	Mea n	SD	0.32	t=1.70 p=0.09 NS*
	11.02	2.68	17.35	4.59		10.55	2.13	10.87	1.86			

In experimental group the pretest score mean knowledge score was 11.02 with SD 2.68 and post test mean knowledge score was 17.35 with SD 4.59. The mean difference was 6.33, this shows there was increase in knowledge score after intervention. Considering H1 there will be significant difference in pre test post test score in experimental group, the calculated value of t test was 12.44 which is greater than table value 2.021($p < 0.0001$) Statistically the calculated t value provide enough support to accept null hypothesis and thus it proves that self instructional module increase the knowledge of nursery school teachers regarding early identification and referrals.

Table 6: Pretest Post test comparison of number of respondents changed attitude towards neurodevelopmental disorders.

		Group			
		Pre test		Post test	
		n	%	n	%
Experimental Group	Favorable	6	15	20	50
	Unfavorable	34	85	20	50
Total		40	100	40	100
Control Group	Favorable	1	2.5	6	15
	Unfavorable	39	97.5	34	85
Total		40	100	40	100

Figure 1: Comparison of pre test and post test score on attitude between experimental and control group.

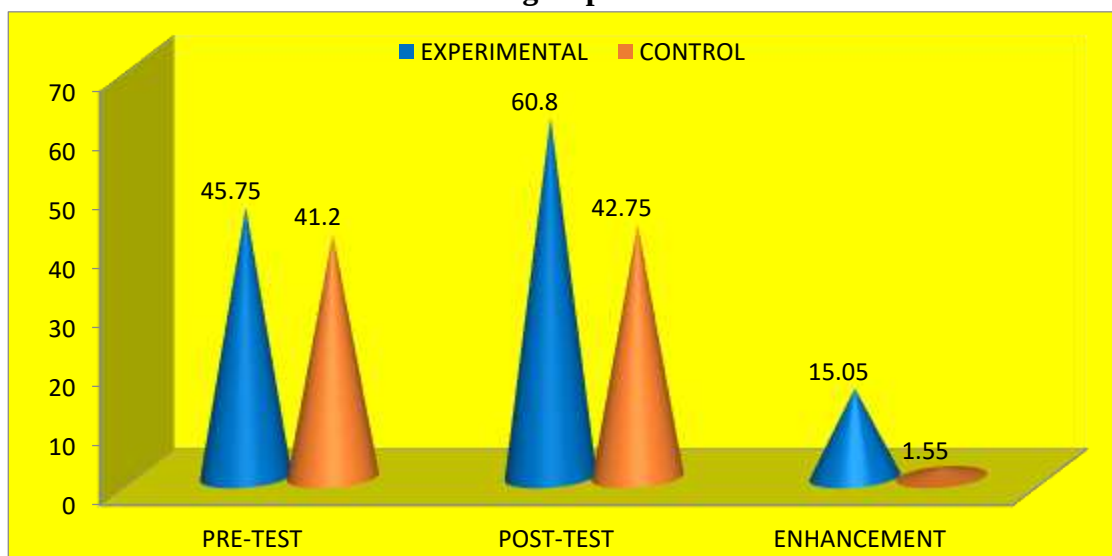


Table 7 Association of demographic variables with attitude in Experimental Group (Post-Test) N=40

S. N	Demographic variable		Attitude		Total	d F	Chi-Square	Tabl e Value	P value	Level of significance
			Favorabl e	Unfavorabl e						
1	Age	21-30	4	4	8	3	0.36	7.84	0.83	NS
		31-40	14	15	29					
		41-50	2	1	3					
		51-60	0	0	0					
2	Gender	Male	0	0	0	1	0	3.84	--	NS
		Female	20	20	40					
3	Professional Qualification	Diplom a	2	2	4	2	7.11	5.99	0.0077	S
		UG	5	13	18					
		PG	13	5	18					
4	Working Experience(in years)	1-3	1	2	3	3	0.63	7.84	0.88	NS
		3-5	9	10	19					
		5-10	9	7	16					
		Above 10	1	1	2					
5	Residence	Urban	18	20	38	1	2.1	3.84	0.14	NS
		Rural	2	0	2					
6	Attendant	Yes	0	0	0	1	0	3.84	--	NS

	Special training	No	20	20	40					
7	Source of Knowledge	Health	1	2	3	3	4.69	7.84	0.19	NS
		TV	11	7	18					
		Book	6	11	17					
		Social Media	2	0	2					
8	Marital Status	Married	18	12	30	2	4.97	5.99	0.08	NS
		UnMa	2	7	9					
		Widow	0	1	1					
9	Specialization of professional qualification	Science	7	10	17	3	6.46	7.84	0.09	NS
		Arts	4	8	12					
		Comm.	8	2	10					
		Others	1	0	1					

Table 8: Relationship between Post Test Level of Knowledge and Attitude among Experimental group regarding neuro developmental disorders.

N = 40

Pearson's Correlation	Knowledge Score	Attitude Score
Mean	17.35	60.80
SD	4.59	10.57
N	40	
Correlation	0.608	
Table Value	0.304	
P Value	0.000032, $p < 0.05$	
Result	Significant	

table reveals the obtained knowledge mean score was 17.35 with a standard deviation of 4.59 and obtained attitude knowledge mean score was 60.80 with a standard deviation of 10.57. The 'r' value was 0.608 was positive and significant at 0.05 significant level. It is inferred that there is a significant relationship between post-test knowledge and attitude of neurodevelopmental disorder among nursery school teachers.

Discussion:

The present study undertaken with aim to assess the effectiveness of self-instructional module on knowledge and attitude towards early identification of neurodevelopmental disorders among nursery school teachers. Results of study showed that there was a significant difference in pretest and post test score of nursery school teachers regarding knowledge on early referrals of neuro developmental disorders. Pretest score of experimental group was 11.02 and post test score was 17.35 with mean difference of 6.33. This difference was significant with t value 12.44 ($p < 0.0001$). it clearly indicates that

the difference in knowledge was increased because to intervention, which is not evident in comparison group which have pre test score of 10.55 and post test score of 10.87 with t value of 1.70. The findings of this study is supported and consistent with similar study conducted by Kavitha S. et al who reported that training package to teachers regarding conduct disorders increased the knowledge of teachers, the post test mean score of knowledge was 20.03 with an S.D of 2.18 and post test attitude was 60.26 with an S.D of 5.36; whereas in the control group, the post test mean score of knowledge was 10.90 with an S.D of 3.88 and post test attitude was 46.36 with an S.D of 7.97. The calculated 't' value for knowledge was 11.209. In present study attitude to teachers towards early referral of neuro developmental disorders also has been assessed which was favorable 20 and unfavorable 20 in post test compared favorable 6 and unfavorable 34 in pre test. This change in attitude raised because of intervention received by the experimental group. The finding supported by same study which identified the positive attitude towards conduct disorders with pre test attitude of 46.36 and post test score of 60.26. The study concluded that awareness about conduct disorder in school teachers will help to identify conduct disorder in its earliest stage, prevent the negative consequences of behavioral problems and encourage the seeking of help from mental health professionals. Similar findings quoted by Firoozeh Derakshanpour et al who conducted study to find effectiveness of educating programme on knowledge, attitude and performance of primary school teachers towards ADHD.

In proposed study demographic variables level of professional qualification of nursery school teachers is significantly associated with knowledge and attitude towards early referrals of neuro developmental disorders ($p < 0.0001$). Similar findings quoted by Maryam Azarakhsh et al who found older ($P < 0.05$) and more experienced teachers ($P < 0.05$), those working at public schools ($P < 0.001$), and teachers without higher education ($P < 0.05$) had significantly lower levels of knowledge and less positive attitude toward children with ADHD. In addition, differences between the mean scores before and after the intervention for knowledge ($P < 0.001$) and attitude ($P < 0.001$) were statistically significant.

Finding of study revealed knowledge and attitude towards early referrals of neuro developmental disorders was significantly correlated $r=0.608$, $p<0.01$. Similar results reported in study conducted by Maryam Azarakhsh et al that the teachers' knowledge was significantly associated with the attitude ($r = 0.24$; $P < 0.001$) and function ($r = 0.45$; $P < 0.001$). There was also a significant positive correlation between attitude and function ($r=0.21$; $P < 0.05$).

CONCLUSION:

The study revealed that the most of the teachers had poor knowledge and unfavorable attitude towards early referrals of neurodevelopmental disorders in pre test. Based on the assessment, the researcher prepared a Self-Instructional Module, which explains the meaning, types, causes, early sign, management and role of nursery school teachers in case if they encounter children with neuro developmental disorders. The module was distributed to teachers those were in experimental group and post test was conducted to assess the change in knowledge and attitude of teachers towards early identification and referrals of neurodevelopmental disorders. Data analysis revealed significant increase in knowledge and change in attitude of nursery school teachers as favourable. Study also found association of certain demographic variable with knowledge and attitude of respondents towards neurodevelopmental disorders. Professional qualification was significantly associated with knowledge and attitude. There was significant positive correlation between knowledge and attitude. ($p<0.001$)

The study concludes that education and awareness have fundamental role in bringing changes in knowledge and attitude of the nursery school teacher. Periodical and need based awareness and learning package to teachers can significantly increase their understanding and knowledge regarding neurodevelopmental disorders in children.

IMPLICATIONS:

NURSING PRACTICE: The study findings will help the mental health nurse to create an awareness program to the school teachers regarding the early identification of neuro-developmental disorders with the help of effective audio-visual aids. The findings emphasize the need for early detection regarding neuro-developmental disorders through the medical and nursing professionals. Special training sessions should be given to the teachers about the neuro-developmental disorders in all school levels.

NURSING ADMINISTRATION: The present study will help the nursing administrative authority to recognize the need for developing appropriate education program on neuro-developmental disorders for school teachers. Nursing administration should provide necessary facilities to conduct awareness program on neuro-developmental disorders with nearby child specialty hospitals. The administration should allocate budgets for developing educational materials like pamphlets, posters, slides, cassettes, etc. which contain information about neuro-developmental disorders.

NURSING EDUCATION: The study emphasizes the need for educating the nursing personnel through in-service or continuing education program to update their knowledge regarding neuro-developmental disorders. The nursing education should prepare the nurses to practice as 'Nurse Counselor, "Nurse Educator" and "Nurse Communicator to assist in early identification of neuro-developmental disorders through mental status examination and physical examination. Nursing student must improve their level of knowledge for diagnosing neuro-developmental disorders through history and signs and symptoms.

NURSING RESEARCH: The findings of the study help to expand the scientific body of professional knowledge upon which further research can be conducted. Based upon this study, in-depth research studies on various factors contributing to knowledge and attitude towards neuro developmental disorders among school teachers can be conducted. Large scale studies can be conducted in consideration of other contributing variables.

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