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A Study to Assess the Effectiveness of Kinder Garten Method of Teaching on Knowledge and Practice Regarding Personal Hygiene Skills Among Primary School Children in Selected Rural Schools of Bagalkote District

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Abstract | **Original Research Article**

***Background*:** Personal hygiene is a fundamental component of child health and plays a crucial role in preventing communicable diseases among school-aged children. Primary school children are highly vulnerable to infections due to poor hygiene practices, lack of awareness, and inadequate supervision. Schools provide an ideal setting for inculcating healthy habits at an early age. Innovative and child-friendly teaching strategies such as the Kinder Garten method can enhance learning, retention, and practice of personal hygiene behaviors. ***Objectives*:** (1) To assess the level of knowledge and practice regarding personal hygiene among primary school children. (2) To evaluate the effectiveness of the Kinder Garten method on knowledge and practice regarding personal hygiene. (3) To determine the association between pre-test knowledge and practice scores with selected socio-demographic variables. ***Methods*:** A pre-experimental one-group pre-test post-test design was adopted. The study was conducted among primary school children in a selected school. A total of 50 children were selected using stratified random sampling. Data were collected using a structured questionnaire and non-observational practice checklist. The Kinder Garten method was implemented as an educational intervention. Data were analyzed using descriptive and inferential statistics. ***Results*:** Pre-test findings revealed inadequate knowledge and poor hygiene practices among the majority of children. Post-test results showed a marked improvement in both knowledge and practice scores. The difference between pre-test and post-test mean scores was statistically significant ($p < 0.05$), indicating the effectiveness of the Kinder Garten method. Significant association was found between pre-test knowledge and practice scores with selected socio-demographic variables such as age and class of the child. ***Conclusion*:** The Kinder Garten method was effective in improving knowledge and practice regarding personal hygiene among primary school children. Incorporation of child-centred teaching strategies in school health programs is strongly recommended.

Keywords: Kinder Garten method, Personal hygiene, Primary school children, Knowledge, Practice.

INTRODUCTION

Personal hygiene is a fundamental component of health promotion and disease prevention, particularly among children. Hygiene practices such as hand washing, oral care, bathing, nail care, and clean clothing are essential for preventing communicable diseases, parasitic infestations, skin infections, dental caries, and gastrointestinal illnesses [1-5]. Globally, poor hygiene and sanitation contribute significantly to morbidity and mortality among children, especially in low- and middle-income countries [6-8].

School-aged children represent a critical group for health education interventions because behaviours learned during childhood often persist into adulthood. However, studies have consistently shown that many primary school children, particularly in rural areas, have inadequate knowledge and improper practices related to personal hygiene [9-13]. Factors such as parental education, socio-economic status, cultural practices, and lack of structured health education contribute to this problem.

In India, despite various school health initiatives, hygiene-related illnesses continue to be prevalent among children. The School Water, Sanitation, and Hygiene Education (SSHE) program emphasizes hygiene education as a core component, yet innovative

teaching strategies are required to ensure effective learning and behavior change [14-16].

The Kindergarten method of teaching is an activity-oriented, play-based, and child-centered approach that uses visual aids, demonstrations, role-play, songs, and interactive activities. This method enhances attention, understanding, retention, and practical application of learned concepts among children [17-19]. Previous studies have demonstrated the effectiveness of planned teaching programs and interactive methods in improving hygiene knowledge and practices among school children [20-25].

Considering the vulnerability of rural primary school children to hygiene-related health problems and the potential effectiveness of child-friendly teaching approaches, the present study was undertaken to evaluate the effectiveness of the Kindergarten method of teaching on knowledge and practice regarding personal hygiene skills among primary school children in a selected rural school of Bagalkote district.

MATERIALS AND METHODS

A pre-experimental one-group pre-test post-test research design was adopted for the study. The study was conducted in a selected primary school. The population comprised primary school children studying in lower classes. A total of 50 children were selected using non-probability purposive sampling technique.

The tool used for data collection consisted of three parts: Part I included socio-demographic variables such as age, gender, class, and parental education. Part II consisted of a structured knowledge questionnaire on personal hygiene. Part III included an observational practice checklist to assess hygiene practices.

The content validity of the tool was established by experts in nursing and paediatrics. Reliability was ensured using appropriate statistical methods. After obtaining ethical clearance and permission from school authorities, pre-test data were collected. The Kinder Garten method was then implemented using demonstrations, songs, charts, and role play focusing on handwashing, oral hygiene, nail care, bathing, and toileting practices. Post-test data were collected after the intervention.

Data were analysed using descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (paired t-test and chi-square test).

RESULTS

The results of the study are presented according to the stated objectives using descriptive and inferential statistics. The findings are organized under socio-demographic characteristics, assessment of knowledge and practice regarding personal hygiene skills, effectiveness of the Kinder Garten method, and association between pre-test scores and selected socio-demographic variables. All statistics presented are exactly as obtained in the original analysis of data (N = 60).

Part I: Socio-Demographic Characteristics of the Students

Table 1 presents the socio-demographic profile of the 60 primary school children. Equal representation was observed across age groups, with 20 (33.33%) children each belonging to 9, 10, and 11 years of age. Female students constituted the majority of the sample (35, 58.33%), while males accounted for 25 (41.67%). Regarding class of study, an equal number of students were enrolled in 3rd, 4th, and 5th standards (20 each, 33.33%).

With respect to family type, the majority of children (35, 58.33%) belonged to nuclear families, while 25 (41.66%) were from joint families. Maternal education status showed that most mothers had education up to 10th standard (41, 68.33%), followed by no formal education (14, 23.33%), and pre-university education (5, 8.33%). In terms of maternal occupation, the majority of mothers were housewives (50, 81.4%), followed by government employees (6, 8.6%), business owners (3, 4.3%), and private employees (1, 1.4%).

Regarding paternal occupation, most fathers were coolie workers (47, 78.33%), followed by private employees (7, 11.66%), business owners (4, 6.66%), and government employees (2, 3.33%). This socio-demographic distribution reflects a predominantly rural and socioeconomically modest background, which may influence children's hygiene-related knowledge and practices.

Table 1: Frequency and Percentage Distribution of Socio-Demographic Characteristics (N = 60)

Variable	Category	Frequency	Percentage
Age (years)	9	20	33.33
	10	20	33.33
	11	20	33.33
Gender	Male	25	41.67
	Female	35	58.33
Class	3rd	20	33.33
	4th	20	33.33

Variable	Category	Frequency	Percentage
	5th	20	33.33
Type of family	Nuclear	35	58.33
	Joint	25	41.66
Mother's education	No formal education	14	23.33
	Up to 10th	41	68.33
	PUC	5	8.33
	Degree	0	0
Mother's occupation	Housewife	50	81.4
	Govt. employee	6	8.6
	Private employee	1	1.4
	Business	3	4.3
Father's occupation	Unemployed	0	0
	Coolie	47	78.33
	Govt. employee	2	3.33
	Private employee	7	11.66
	Business	4	6.66

Part II: Assessment of Knowledge and Practice Regarding Personal Hygiene Skills.

Section A: Knowledge Regarding Personal Hygiene Skills.

Table 2: Pre-Test and Post-Test Knowledge Levels (N = 60)

Level of Knowledge	Pre-test f (%)	Post-test f (%)
Poor	42 (70%)	0 (0%)
Moderate	18 (30%)	31 (51.66%)
Adequate	0 (0%)	29 (49.33%)

Table 2 shows the level of knowledge among students before and after the intervention. In the pre-test, the majority of students (42, 70%) had poor knowledge, while 18 (30%) had moderate knowledge and none had adequate knowledge. In contrast, the post-test revealed substantial improvement, with no students in the poor category, 31 (51.66%) having moderate knowledge, and 29 (49.33%) demonstrating adequate knowledge.

Table 3: Domain-wise Distribution of Knowledge Scores (N = 60)

Domain	Pre-test Mean ± SD	Pre-test %	Post-test Mean ± SD	Post-test %
General aspects	22.8 ± 20.36	7.6	45.6 ± 13.83	15.2
Oral hygiene	20.12 ± 26.91	4.2	41.62 ± 12.38	8.67
Hand hygiene	16.75 ± 20.48	6.98	54 ± 11.34	22.5
Skin hygiene	0.2 ± 0.45	0.06	20.2 ± 10.68	6.73
Total	59.87 ± 68.21	18.84	161.42 ± 48.23	53.1

Domain-wise analysis of knowledge (Table 3) revealed that in the pre-test, students had comparatively higher knowledge in general aspects (7.6%) and the least knowledge in skin hygiene (0.06%). The overall pre-test knowledge score was 18.84%. Following the intervention, improvement was observed across all domains, with the highest gain in hand hygiene (22.5%) and an overall post-test knowledge score of 53.1%.

Section B: Practice Regarding Personal Hygiene Skills

Table 4: Pre-Test and Post-Test Practice Levels (N = 60)

Level of Practice	Pre-test f (%)	Post-test f (%)
Poor	41 (68.33%)	1 (1.66%)
Average	19 (31.66%)	58 (96.68%)
Good	0 (0%)	1 (1.66%)

Table 4 depicts practice levels among students. In the pre-test, 41 (68.33%) students demonstrated poor practice, while 19 (31.66%) had average practice and none had good practice. Post-test findings showed remarkable improvement, with 58 (96.68%) students having average practice, and only 1 (1.66%) each in poor and good categories.

Table 5: Domain-wise Distribution of Practice Scores (N = 60)

Domain	Pre-test Mean ± SD	Pre-test %	Post-test Mean ± SD	Post-test %
General aspects	21.2 ± 29.44	7.06	27.6 ± 27.07	9.02
Oral hygiene	12 ± 26.83	4	22.6 ± 22.96	7.53
Hand hygiene	27.4 ± 28.74	9.13	35.6 ± 24.05	8.01
Skin hygiene	14.4 ± 26.01	4.8	23.8 ± 21.61	7.93
Total	75 ± 111.03	24.99	109.6 ± 95.69	32.49

Domain-wise practice scores (Table 5) showed that in the pre-test, students practiced hand hygiene better (9.13%) compared to other domains, while oral hygiene practice was lowest. The overall pre-test practice score was 24.99%. Post-test results showed improvement across all domains, with an overall practice score of 32.49%.

Part III: Effectiveness of the Kinder Garten Method

Table 6: Effectiveness of Kinder Garten Method on Knowledge (N = 60)

Test	Mean ± SD	Mean Difference	t-value
Pre-test	5.72 ± 2.28	8.8	3.99*
Post-test	14.63 ± 2.48		

Paired t-test analysis demonstrated a statistically significant improvement in knowledge scores (Table 6). The mean pre-test knowledge score was 5.72 ± 2.28, which increased to 14.63 ± 2.48 in the post-test. The calculated t-value (3.99) exceeded the table value (2.00), indicating significance at $p < 0.05$.

Table 7: Effectiveness of Kinder Garten Method on Practice (N = 60)

Test	Mean ± SD	Mean Difference	t-value
Pre-test	6.25 ± 0.894	2.88	5.29*
Post-test	9.13 ± 1.57		

Similarly, practice scores showed significant improvement (Table 7). The mean pre-test practice score was 6.25± 0.894, which increased to 9.13 ± 1.57 in the post-test. The calculated t-value (5.29) was significant at $p < 0.05$.

Part IV: Association Between Pre-Test Scores and Socio-Demographic Variables

Table 8: Association Between Pre-Test Knowledge Scores and Socio-Demographic Variables (N = 60)

Variable	χ^2	p-value	Result
Age	30	0.001	Significant
Gender	0.08	0.77	Not significant
Class	30	0.001	Significant
Type of family	0.73	0.39	Not significant
Mother's education	3.84	0.049	Not significant
Mother's occupation	1.42	0.23	Not significant
Father's occupation	2.18	0.139	Not significant

Chi-square analysis revealed significant association between pre-test knowledge scores and age ($\chi^2 = 30$, $p = 0.001$) and class ($\chi^2 = 30$, $p = 0.001$). No significant association was found with gender, type of family, mother's education, mother's occupation, and father's occupation (Table 8).

Table 9: Association Between Pre-Test Practice Scores and Socio-Demographic Variables (N = 60)

Variable	χ^2	p-value	Result
Age	4.78	0.029	Significant
Gender	0.266	0.605	Not significant
Class	4.78	0.029	Significant
Type of family	0.266	0.605	Not significant
Mother's education	2.02	0.15	Not significant
Mother's occupation	2.23	0.135	Not significant
Father's occupation	3.25	0.071	Not significant

Similarly, pre-test practice scores showed significant association with age ($\chi^2 = 4.78$, $p = 0.0289$) and class ($\chi^2 = 4.78$, $p = 0.0289$), while no association was observed with other variables (Table 9).

DISCUSSION

The present study revealed inadequate baseline knowledge and poor hygiene practices among primary school children, which is consistent with findings from similar studies. The significant improvement observed in post-test scores highlights the effectiveness of the Kinder Garten method. Interactive and child-friendly teaching approaches enhance comprehension and retention among young learners. The significant association between age, class, and knowledge suggests that cognitive maturity influences learning outcomes.

CONCLUSION

The study concluded that the Kinder Garten method is an effective teaching strategy for improving knowledge and practice regarding personal hygiene among primary school children. Early introduction of structured health education programs in schools can contribute significantly to disease prevention and health promotion.

Implications for Nursing Practice

Community health nurses can effectively use child-centred teaching methods during school health programs.

Nurses play a key role in promoting hygiene education and monitoring hygiene practices among children.

Limitations

The study was limited to a single school and a small sample size, which limits generalization.

Recommendations

Similar studies can be conducted with larger samples and experimental designs. Integration of hygiene education into school curriculum is recommended.

Conflict of interest: None

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