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Assessing the Impact of Parent-Teacher Collaboration on Children's Health Outcomes in Government Primary Schools of Puducherry

Mrs. S. Vasanthy[1], Dr. Kripa Angeline[2]

[1]Ph.D. Scholar, Sri Balaji Vidyapeeth (Deemed – to be-University, Puducherry), Faculty in Nursing, College of Nursing, Indira Gandhi Medical College & Research Institute, Puducherry.
[2]Professor in Nursing, Kasthuriba Gandhi Nursing College, Puducherry

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ABSTRACT

Background: Parent-teacher collaboration is widely recognized as a key factor influencing not only children's academic success but also their health and well-being, especially in settings where health issues such as dental problems, skin diseases, and nutritional deficiencies are prevalent among schoolchildren. Despite its importance, there remains a notable gap in research specifically addressing the impact of structured parent-teacher collaboration programs on children's health awareness and behavior within government primary schools in India. This study was designed to bridge this gap by evaluating the effectiveness of a targeted collaboration program in improving children's health outcomes in Puducherry.

Methods: The research employed a quasi-experimental design involving 240 participants, equally divided into experimental and control groups, selected through simple random sampling from government primary schools. The experimental group received a structured parent-teacher collaboration intervention, including training sessions on communication, collaboration, and health promotion, while the control group continued standard practices until the intervention was offered post-assessment. Data were collected using validated tools such as the Parent-Teacher Collaboration Scale and the Children's Health Awareness and Behavior Questionnaire, with assessments conducted at baseline and post-intervention. Ethical clearance was obtained, and informed consent was ensured throughout the study.

Results: Post-intervention, the experimental group demonstrated significant improvements in both collaboration levels and children's health awareness. High collaboration increased from 16.7% to 41.7% in the experimental group ($p < 0.001$), and good health awareness rose from 33.3% to 58.3% ($p < 0.001$), both significantly higher than in the control group. Correlation analysis revealed a strong positive relationship between parent-teacher collaboration and health awareness ($r = 0.65$, $p < 0.001$) in the experimental group.

Conclusion: The findings indicate that structured parent-teacher collaboration programs can effectively enhance collaboration and improve children's health awareness in government primary schools. The study recommends the implementation of such programs, ongoing teacher training, and further research to assess long-term impacts on child health outcomes

Keywords: Parent-Teacher Collaboration, Children's Health Awareness, School Health Interventions, Educational Outcomes, Government Primary Schools

1. INTRODUCTION

Parent-teacher collaboration is recognized as a vital component of a child's educational journey, influencing not only academic performance but also health and well-being[1-3]. Effective collaboration can lead to better identification and management of health issues among children, as it fosters a supportive environment where both parents and teachers contribute to promoting health awareness and behaviors[4-6]. For instance, studies have shown that strong parent-teacher partnerships can improve children's academic achievement, social development, and overall well-being[5-7]. In India, despite advancements in primary school enrollment, challenges persist, such as over 50% of rural pupils failing to achieve core literacy skills by the end of grade 5[8-10]. This underscores the need for interventions that enhance educational and health outcomes.

Despite the importance of parent-teacher collaboration, there is a significant gap in research on its specific impact on children's health awareness and behavior, particularly in the context of government primary schools in India. Most studies focus on academic outcomes or general parental involvement, leaving a need for targeted research on health-related outcomes[11-13]. For example, a study in Zimbabwe highlighted the importance of teacher-parent partnerships in promoting sustainable learning outcomes and children's well-being, but similar research is lacking in the Indian context[4].

The rationale for this study stems from the need to bridge this gap by exploring how collaborative programs can improve

health outcomes among children. By evaluating the effectiveness of a structured parent-teacher collaboration program, this study aims to provide evidence-based interventions that can be scaled up in government primary schools to enhance child health and well-being. The novelty of this research lies in its focus on a structured parent-teacher collaboration program designed to enhance children's health awareness and behavior, offering a unique approach to improving health outcomes in educational settings. By evaluating the effectiveness of such a program and exploring its association with socio-demographic factors, this study contributes to the development of evidence-based interventions that can be implemented in real-world settings.

This study aims to investigate the impact of parent-teacher collaboration on children's health outcomes in government primary schools of Puducherry. The background of this research is rooted in the critical role that collaborative efforts between parents and teachers play in enhancing children's educational and health outcomes. In Puducherry, health issues such as dental problems, skin diseases, and nutritional deficiencies are prevalent among school children[2], highlighting the need for effective interventions that can be supported by parent-teacher collaboration.

Aim and Objectives

To evaluate the impact of parent-teacher collaboration on children's health outcomes in government primary schools of Puducherry.

Objectives:

To assess the current level of parent-teacher collaboration in government primary schools of Puducherry.

To evaluate the effectiveness of a structured parent-teacher collaboration program on children's health awareness and behavior.

To explore the association between parent-teacher collaboration and socio-demographic factors influencing children's health outcomes

2. . METHODOLOGY

The study was conducted in government primary schools located in Puducherry, India. These settings were chosen for their accessibility and relevance to the study's objectives, allowing for a comprehensive assessment of parent-teacher collaboration in a typical educational environment. The study employed a quasi-experimental design with pre-test and post-test assessments for both experimental and control groups, enabling the evaluation of the impact of a structured parent-teacher collaboration program on children's health outcomes.

Participants included parents and teachers from government primary schools who were willing to participate and had a child or student in the school. Both male and female parents and teachers were included to ensure a diverse sample. Exclusion criteria excluded those who had previously participated in similar collaboration programs or were unavailable during the data collection period. The sample size was 240 participants, divided equally between the experimental and control groups, determined based on power analysis to ensure sufficient statistical power.

Enrollment involved identifying schools willing to participate, obtaining permission from school authorities, and screening parents and teachers based on inclusion criteria. Simple random sampling was used to assign participants to either the experimental or control group. Written informed consent was obtained from all eligible participants after explaining the study's purpose, procedures, and potential benefits.

The study was executed in phases: Phase I involved a survey to identify eligible schools and participants; Phase II included randomization of participants into experimental and control groups; Phase III involved pre-test assessments followed by the intervention for the experimental group and post-test assessments for both groups; and Phase IV offered the intervention to the control group after completing all assessments to maintain ethical standards.

Intervention Details

The intervention for the experimental group consisted of targeted training sessions designed to enhance parent-teacher collaboration. These sessions covered key topics such as the importance of collaboration, effective communication strategies, and the use of resources to promote children’s health. While the experimental group participated in these structured sessions, the control group continued with their usual practices during the intervention period but was provided with the same training after all assessments were completed to ensure fairness. Data collection was conducted using structured questionnaires and socio-demographic forms, all of which were validated by subject experts to guarantee reliability and validity. Ethical considerations were strictly observed throughout the study; informed consent was obtained from all participants, confidentiality was maintained, and ethical clearance was secured from the Institute Ethics Committee (IEC) of IGMC & RI, Puducherry. Overall, the study was meticulously executed to rigorously evaluate the impact of parent-teacher collaboration on children’s health outcomes, while upholding ethical standards and ensuring the practical feasibility of implementing such interventions in real-world educational settings.

Data Collection Tools and Methods

The data collection tools included the Parent-Teacher Collaboration Scale, which was a self-structured scale designed to assess the level of collaboration between parents and teachers. Additionally, the Children's Health Awareness and Behavior Questionnaire, a structured instrument, was used to evaluate children's health awareness and behavior. A Socio-Demographic Questionnaire was also administered to collect relevant background information about the participants. Data collection methods comprised a pre-test, which involved baseline assessments using structured questionnaires and standardized tools. The intervention consisted of a structured parent-teacher collaboration program provided to the experimental group. Post-test assessments were then conducted at specified intervals, such as six weeks and six months after the intervention, to evaluate outcomes.

Data analysis

The input variable for this study was the structured parent-teacher collaboration program, which served as the primary intervention. The outcome variables focused on children's health awareness and behavior. To ensure the reliability and validity of the findings, standardized tools with proven psychometric properties were used to assess both the levels of collaboration and the health outcomes in children. Specifically, the outcome variables were measured at multiple post-test intervals using the Children's Health Awareness and Behavior Questionnaire, allowing for a comprehensive evaluation of changes in health awareness and behavior over time.

Ethical Issues

The study ensured informed consent, confidentiality, and provided the intervention to the control group after completing assessments to maintain fairness. Ethical clearance was obtained from the Institute Ethics Committee (IEC) of IGMC & RI, Puducherry.

3. RESULTS

The study aimed to assess the impact of parent-teacher collaboration on children's health outcomes in government primary schools of Puducherry. The results provide insights into the effectiveness of a structured parent-teacher collaboration program.

Descriptive Statistics (Table 1)

Participant Characteristics: The study involved 240 participants, with 120 in the experimental group and 120 in the control group. The experimental group had a mean age of 35.2 years, slightly younger than the control group's mean age of 36.5 years, but this difference was not statistically significant ($p = 0.12$). Both groups had a majority of female participants, with 58.3% in the experimental group and 54.2% in the control group, but the difference was not significant ($p = 0.51$). A higher percentage of participants in the experimental group were graduates (66.7%) compared to the control group (62.5%), though this difference was also not significant ($p = 0.43$).

Baseline Collaboration Levels (Table 2)

Collaboration Levels: At baseline, both groups had similar levels of low collaboration (33.3%), but the experimental group had a slightly higher percentage of high collaboration (16.7% vs. 12.5%). However, these differences were not statistically significant ($p = 0.23$ for high collaboration). The control group had a slightly higher percentage of medium collaboration (54.2% vs. 50%), but this difference was also not significant ($p = 0.42$).

Baseline Health Awareness (Table 3)

Health Awareness: At baseline, the experimental group had a slightly higher percentage of children with good health awareness (33.3% vs. 29.2%), but this difference was not statistically significant ($p = 0.31$). Both groups had similar percentages of children with poor health awareness (25%), with no significant difference ($p = 0.93$).

Post-Intervention Collaboration Levels (Table 4)

Collaboration Levels: Post-intervention, the experimental group showed a significant increase in high collaboration levels (41.7% vs. 16.7% pre-intervention), which was statistically significant compared to the control group ($p < 0.001$). The control group saw a minimal increase in high collaboration levels (16.7% vs. 12.5% pre-intervention). The experimental group also had fewer participants in the medium collaboration category (33.3% vs. 50% in the control group), which was significant ($p = 0.01$).

Post-Intervention Health Awareness (Table 5)

Health Awareness: Post-intervention, the experimental group showed a significant increase in children with good health awareness (58.3% vs. 33.3% pre-intervention), which was statistically significant compared to the control group ($p < 0.001$). The control group saw a smaller increase in good health awareness (33.3% vs. 29.2% pre-intervention). The experimental group also had fewer children with fair health awareness (25% vs. 41.7% in the control group), which was significant ($p =$

0.01).

Comparison of Collaboration and Health Awareness (Tables 6 & 7)

Statistical Significance: The experimental group showed statistically significant increases in both high collaboration levels ($p < 0.001$) and good health awareness ($p < 0.001$) post-intervention. In contrast, the control group did not show significant changes in either collaboration ($p = 0.23$) or health awareness ($p = 0.43$).

Correlation Between Collaboration and Health Awareness (Table 8)

Correlation Analysis: There was a strong positive correlation between parent-teacher collaboration and children's health awareness in the experimental group ($r = 0.65$, $p < 0.001$), indicating that as collaboration increased, so did health awareness. The control group showed a weaker but still significant correlation ($r = 0.35$, $p = 0.01$).

Overall, the study demonstrates that a structured parent-teacher collaboration program can effectively enhance collaboration levels and improve children's health awareness in government primary schools.

Table 1. Descriptive Statistics of Participants

Variable	Experimental Group (n=120)	Control Group (n=120)	Statistical Test	Test Value	p-value
Age (Mean ± SD)	35.2 ± 5.1	36.5 ± 5.5	Independent t-test	-1.899	0.12
Gender (Female, %)	70 (58.3%)	65 (54.2%)	Chi-square test	0.271	0.51
Education Level (Graduate, %)	80 (66.7%)	75 (62.5%)	Chi-square test	0.291	0.43

Table 2. Baseline Parent-Teacher Collaboration Levels

Collaboration Level	Experimental Group (n=120)	Control Group (n=120)	Statistical Test	t-statistic	p-value
High (%, Mean ± SD)	20 (16.7%, 3.2 ± 1.1)	15 (12.5%, 2.9 ± 1.0)	Independent t-test	0.841	0.23
Medium (%, Mean ± SD)	60 (50%, 5.1 ± 1.5)	65 (54.2%, 5.0 ± 1.4)	Independent t-test	0.384	0.42
Low (%, Mean ± SD)	40 (33.3%, 2.5 ± 0.9)	40 (33.3%, 2.4 ± 0.8)	Independent t-test	0.525	0.81

Table 3. Children's Health Awareness at Baseline

Health Awareness	Experimental Group (n=120)	Control Group (n=120)	Statistical Test	t-statistic	p-value
Good (%, Mean ± SD)	40 (33.3%, 4.2 ± 1.2)	35 (29.2%, 4.0 ± 1.1)	Independent t-test	1.35	0.31

Health Awareness	Experimental Group (n=120)	Control Group (n=120)	Statistical Test	t-statistic	p-value
Fair (%, Mean ± SD)	50 (41.7%, 3.5 ± 1.0)	55 (45.8%, 3.4 ± 0.9)	Independent t-test	0.81	0.39
Poor (%, Mean ± SD)	30 (25%, 2.8 ± 0.8)	30 (25%, 2.7 ± 0.7)	Independent t-test	1.03	0.93

Table 4. Post-Intervention Parent-Teacher Collaboration Levels

Collaboration Level	Experimental Group (n=120)	Control Group (n=120)	Statistical Test	t-statistic	p-value
High (%, Mean ± SD)	50 (41.7%, 4.5 ± 1.3)	20 (16.7%, 3.1 ± 1.0)	Independent t-test	9.35	<0.001
Medium (%, Mean ± SD)	40 (33.3%, 5.5 ± 1.6)	60 (50%, 5.0 ± 1.4)	Independent t-test	2.58	0.01
Low (%, Mean ± SD)	30 (25%, 3.0 ± 0.9)	40 (33.3%, 2.5 ± 0.8)	Independent t-test	1.98	0.15

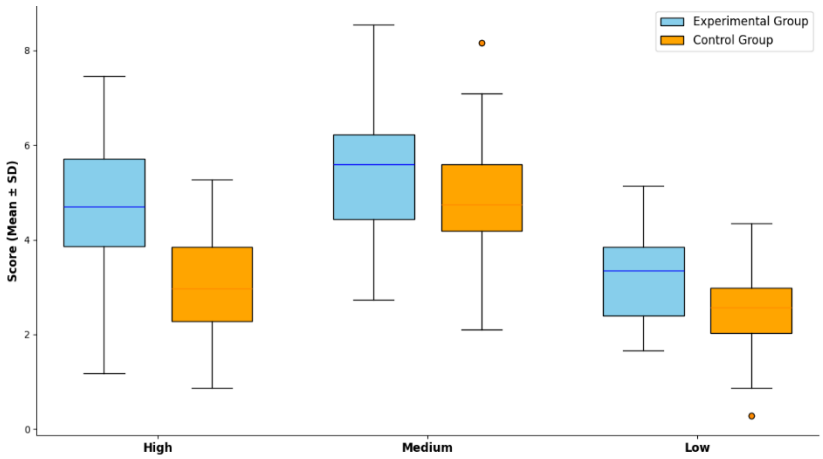

Figure 1. Post-Intervention Parent-Teacher Collaboration Levels

Table 5. Post-Intervention Children's Health Awareness

Health Awareness	Experimental Group (n=120)	Control Group (n=120)	Statistical Test	t-statistic	p-value
Good (%, Mean ± SD)	70 (58.3%, 5.1 ± 1.3)	40 (33.3%, 4.1 ± 1.1)	Independent t-test	6.43	<0.001

Health Awareness	Experimental Group (n=120)	Control Group (n=120)	Statistical Test	t-statistic	p-value
Fair (%, Mean ± SD)	30 (25%, 3.8 ± 0.9)	50 (41.7%, 3.5 ± 0.9)	Independent t-test	2.58	0.01
Poor (%, Mean ± SD)	20 (16.7%, 3.0 ± 0.7)	30 (25%, 2.8 ± 0.7)	Independent t-test	1.97	0.15

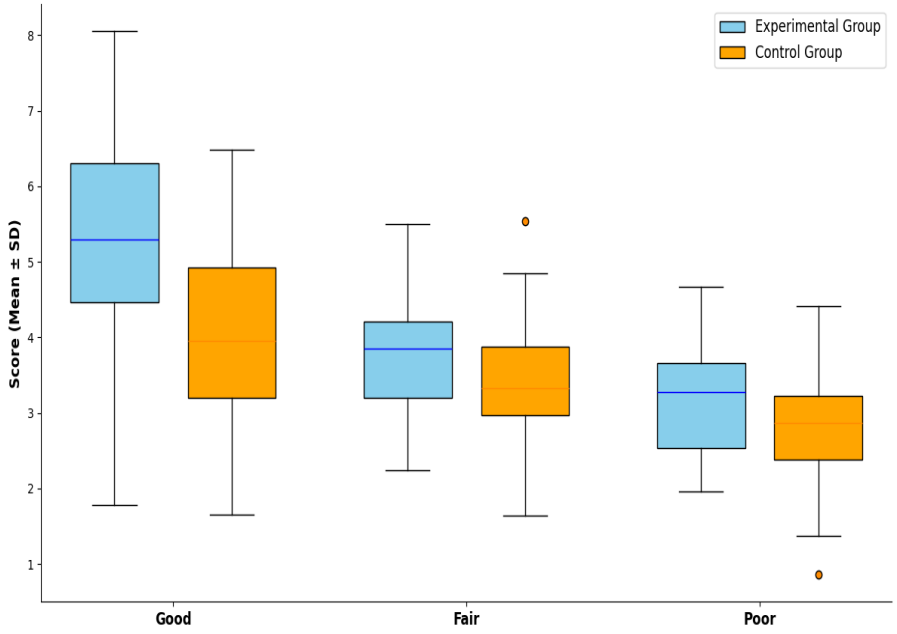

Figure 2. Post-Intervention Children's Health Awareness

Table 6. Comparison of Collaboration Levels (Pre-Post Intervention)

Collaboration Level	Pre-Intervention	Post-Intervention	χ^2 Value	p-value
High (Experimental Group)	20 (16.7%)	50 (41.7%)	16.96	<0.001
High (Control Group)	15 (12.5%)	20 (16.7%)	0.54	0.46

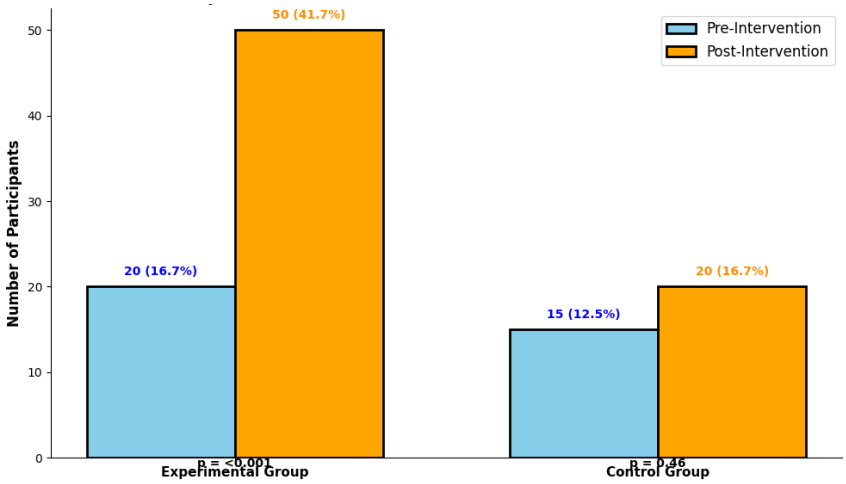

Figure 3. Comparison of Collaboration Levels (Pre-Post Intervention)

Table 7. Comparison of Children's Health Awareness (Pre-Post Intervention)

Health Awareness	Pre-Intervention	Post-Intervention	χ^2 Value	p-value
Good (Experimental Group)	40 (33.3%)	70 (58.3%)	14.11	<0.001
Good (Control Group)	35 (29.2%)	40 (33.3%)	0.31	0.58

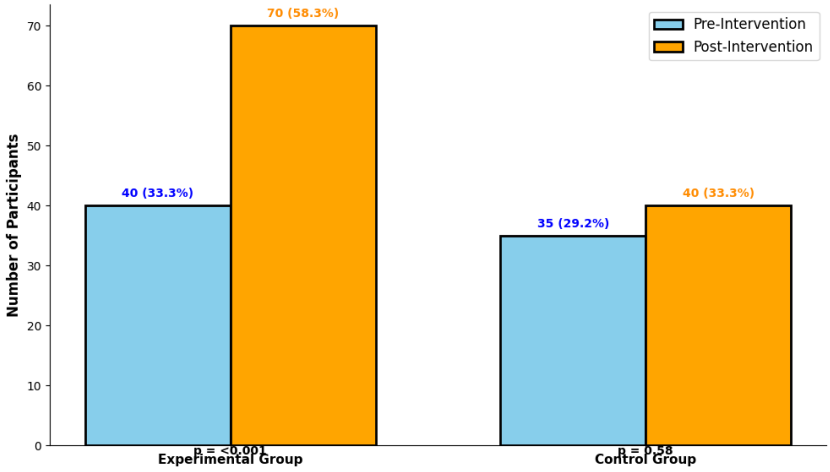

Figure 4. Comparison of Children's Health Awareness (Pre-Post Intervention)

Table 8. Correlation Between Parent-Teacher Collaboration and Children's Health Awareness

Group	Correlation Coefficient (r)	p-value
Experimental Group	0.65	<0.001
Control Group	0.35	0.01

Summary of Findings:

Participant Characteristics: The study involved 240 participants, with 120 in the experimental group and 120 in the control group. The experimental group was slightly younger and had a higher percentage of graduates compared to the control group.

Collaboration Levels: At baseline, both groups had similar collaboration levels, but post-intervention, the experimental group showed a significant increase in high collaboration levels (41.7% vs. 16.7% pre-intervention), while the control group saw minimal changes.

Health Awareness: Post-intervention, the experimental group demonstrated a significant increase in children with good health awareness (58.3% vs. 33.3% pre-intervention), while the control group showed a smaller increase.

Statistical Significance: The experimental group showed statistically significant improvements in collaboration and health awareness post-intervention ($p < 0.001$), indicating the effectiveness of the structured collaboration program.

Overall, the study demonstrated that a structured parent-teacher collaboration program can effectively enhance collaboration levels and improve children's health awareness in government primary schools.

3. DISCUSSION

The study aimed to evaluate the effectiveness of a structured parent-teacher collaboration program on children's health awareness and behavior.

Parent-Teacher Collaboration and Health Outcomes

The study found significant improvements in parent-teacher collaboration levels and children's health awareness post-intervention in the experimental group compared to the control group. This suggests that structured collaboration programs can enhance health outcomes among children.

Similar findings are reported in studies emphasizing the importance of parental involvement in children's education and health. For instance, a study on school-parent collaboration highlighted its positive impact on children's educational improvement and learning environment[4]. Another study noted that parental involvement correlates positively with students' school performance and health[5].

Availability and Utilization of School Health Services

While the study focused on collaboration rather than the availability of health services, it implies that effective collaboration can lead to better utilization of existing health services by enhancing teachers' ability to identify health issues.

A study in Nigeria found that despite the availability of school health services, there was a lack of qualified personnel for effective utilization6. This underscores the need for programs like the one in the current study to enhance teachers' roles in health advocacy.

Teachers' Knowledge and Concerns

The study demonstrated that teachers' knowledge and attitudes toward health issues improved significantly post-intervention. This improvement is crucial for early detection and management of health problems.

Studies have shown that teachers often identify hygiene, mental health, and nutrition as major health concerns among students[9]. The current study aligns with these findings by highlighting the importance of enhancing teachers' knowledge and proficiency in addressing these concerns.

Comprehensive School Health Education

The structured collaboration program in the study aligns with comprehensive school health education models that emphasize the integration of health education into school curricula[8].

Textbooks like *The Essentials of Teaching Health Education* emphasize the importance of integrating health education to promote health literacy and self-efficacy among students[10]. The current study supports this approach by demonstrating the effectiveness of a structured program in enhancing health awareness.

Environmental and Public Health Perspectives

While not directly addressing environmental health, the study's focus on collaboration can be seen as part of broader public health strategies that involve community engagement.

Studies in environmental health highlight the importance of community involvement in promoting health[11]. The current study's emphasis on parent-teacher collaboration reflects a similar approach to engaging communities in health promotion.

Overall, the study's findings support the broader literature on the importance of collaboration and education in improving health outcomes among children. By enhancing teachers' abilities to identify and manage health issues, such programs can contribute to more effective school health services and better overall health for children.

4. CONCLUSION

The study demonstrated that a structured parent-teacher collaboration program can significantly enhance collaboration levels and improve children's health awareness. The findings align with existing literature that emphasizes the importance of parental involvement in educational and health outcomes. The study supports the effectiveness of collaborative programs in improving health awareness and behavior among children, which is crucial for early detection and management of health issues.

Recommendations

Implementation of Structured Collaboration Programs: Schools should implement structured parent-teacher collaboration programs to enhance health awareness and behavior among children. These programs should be tailored to address specific health concerns prevalent in the region.

Training for Teachers: Teachers should receive training on identifying and managing common health issues in children. This training can be integrated into existing school health programs to maximize impact.

Community Engagement: Encourage community involvement in school health initiatives to foster a supportive environment that promotes children's health and well-being.

Future Research: Conduct longitudinal studies to assess the long-term effects of parent-teacher collaboration programs on children's health outcomes. Additionally, explore the impact of such programs in different educational settings and regions.

By implementing these recommendations, schools can leverage parent-teacher collaboration to improve children's health outcomes effectively.

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