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A STUDY TO ASSESS THE EFFECTIVENESS OF VIDEO-ASSISTED TEACHING ON KNOWLEDGE REGARDING THE ADVERSE EFFECTS OF ELECTRONIC GADGET USAGE ON BIO-PSYCHO-SOCIAL PARAMETERS AMONG PRIMARY SCHOOL CHILDREN IN SAMBA DISTRICT.

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Abstract

Introduction:

Electronic gadgets have become an inseparable part of childhood, with widespread and early exposure among Indian children. While these devices support learning and recreation, excessive use can negatively affect biological, psychological, and social well-being. Limited awareness of these risks, particularly among primary school children in Samba District, necessitated this study to evaluate their knowledge and the effectiveness of a structured video-assisted teaching intervention.

Methodology:

A pre-experimental single-group pre- and post-test study was conducted among 350 students from 4th and 5th grades, selected through convenience sampling. Data were gathered using a self-designed questionnaire, and a 45-minute video-assisted teaching session was delivered, with a post-test administered after 7 days. Analysis was performed using descriptive statistics, paired t-test, and Chi-square test with a significance level p value at < 0.0001.

Results:

In the pre-test, 52.86% had inadequate knowledge, 37.71% moderate, and 9.43% adequate. Post-test scores showed 47.71% adequate knowledge and only 12.57% inadequate. The mean knowledge score improved significantly from 9.93 ± 3.24 to 14.15 ± 3.69 ($t = 16.09$, $p < 0.0001$).

Conclusion:

Video-assisted teaching effectively improved children's awareness of the bio-psycho-social effects of gadget use, emphasizing the need for school-based education and parental involvement.

Keywords: Bio-psycho-social effects, electronic gadgets, Knowledge, Primary school children, Screen time, Video-assisted teaching,

INTRODUCTION:

The contemporary era has witnessed rapid technological evolution, resulting in pervasive access to electronic devices such as smartphones, tablets, computers, and gaming consoles. These gadgets affordable, portable, and multi-functional have become integral to daily life, with children increasingly commencing device use at a very young age.[1] In urban Indian settings, nearly all children have screen exposure by 15–18 months, with a median initiation around 10 months. By 18 months, approximately 96 % of children have used smartphones and 89 % have viewed television.[2]

While digital media can support learning and recreation, excessive use raises significant bio-psycho-social concerns. Biologically, prolonged screen engagement has been linked to eye strain, headaches, musculoskeletal pain, obesity, postural issues, and sleep disruption.[3] Psychologically, high screen time is associated with impaired attention, hyperactivity, impulsivity, dependency behaviors, and symptoms analogous to addiction.[4] Socially, excessive gadget use can weaken family communication, reduce peer interaction, hinder academic outcomes, and diminish outdoor play and nature engagement.[5]

Global and national evidence underscores the magnitude of the issue. In the United States, over 90% of children engage in video gaming, while South Korea counts more than 600,000 children classified as gaming addicted.[6] In India, internet penetration among children aged 5–11 reaches tens of millions, with an increasing prevalence of mobile phone and internet addiction among school age groups.[7] Multiple studies report that early and prolonged screen exposure correlates with adverse developmental outcomes including language delay, learning disabilities, anxiety, and childhood depression.[8]

Despite the escalating prevalence, awareness among parents especially at the primary school age level remains low. Many caregivers do not perceive early screen exposure as harmful and region-specific data remain scarce.[9] While structured health education has been attempted, few studies have assessed its effectiveness in improving children's knowledge about the biological, psychological, and social effects of gadget use in specific Indian localities.[10]

This study was therefore conducted to evaluate the baseline awareness of primary school children in Samba District regarding the adverse bio-psycho-social consequences of electronic gadget usage, and to assess whether structured awareness-raising interventions can significantly enhance their understanding.

Methodology:

Study Design:

A pre-experimental one-group pre-test and post-test design was employed to assess the effectiveness of video-assisted teaching in enhancing knowledge about the adverse effects of electronic gadget usage on the bio-psycho-social well-being of primary school children in selected schools of Samba District.

Study Setting:

The study was carried out in selected private primary schools of Samba District, Jammu and Kashmir, chosen for their feasibility, accessibility, and the cooperation extended by the school authorities.

Study Population:

In the present study, the population is primary school children, with the target population being students from selected schools fulfilling the inclusion and exclusion criteria, and the accessible population being those students from schools in the Samba district who were present during the data collection period.

Sample Size.

A total of 350 children were enrolled in the study based on predefined inclusion and exclusion criteria. The sample size was determined using Cochran's formula to ensure adequate representation of the target population.

Inclusion Criteria:

- The study included primary school children enrolled in the 4th and 5th grades.
- Children who were present during both pre-test and post-test data collection.
- Children whose parents or guardians provided informed consent.

Exclusion Criteria:

- Children who were absent during either pre-test or post-test.
- Children with any diagnosed learning disabilities or cognitive impairments that might interfere with the intervention.

Data Collection and Analysis:

A pre-experimental one-group pre-test post-test study was conducted to evaluate the effectiveness of video-assisted teaching on knowledge regarding the adverse effects of electronic gadget use among primary school children in Samba District. Baseline knowledge was assessed using a structured questionnaire covering demographic variables and 20 items on bio-psycho-social parameters. Following this, a 45-minute video-assisted teaching session was delivered in small classroom groups, and knowledge was reassessed after seven days using the same tool. Data were analyzed with SPSS using descriptive statistics, paired t-test, and Chi-square test. Findings revealed a significant

improvement in post-test knowledge scores compared to pre-test (mean difference = 6.87, t = 21.46, p < 0.001), confirming the intervention's effectiveness.

Ethical Considerations:

The study was conducted following ethical approval from the Institutional Ethical Committee and permission from the respective school authorities. Informed consent was obtained from parents or guardians of all participating children. Participation was entirely voluntary, with the option to withdraw at any stage without penalty. Anonymity and confidentiality were strictly maintained throughout the research process.

Results:

This section summarizes the findings of a study conducted among primary school children in selected schools of Samba District, with data analyzed according to the study's objectives using both descriptive and inferential statistics. A total of 350 primary school children participated in the study.

Assessment of pre and post-test knowledge scores

The comparative assessment of respondents' knowledge before and after the educational intervention is shown in Table No. 1.

Table No. 1: Comparative assessment of Pre and Post-Test Knowledge Scores. n=350

Knowledge Score	**Pre-Test**		**Post Test**	
	Frequency	Percentage	Frequency	Percentage
Inadequate	185	52.86%	44	12.57%
Moderate	132	37.71%	139	39.71%
Adequate	33	9.43%	167	47.71%

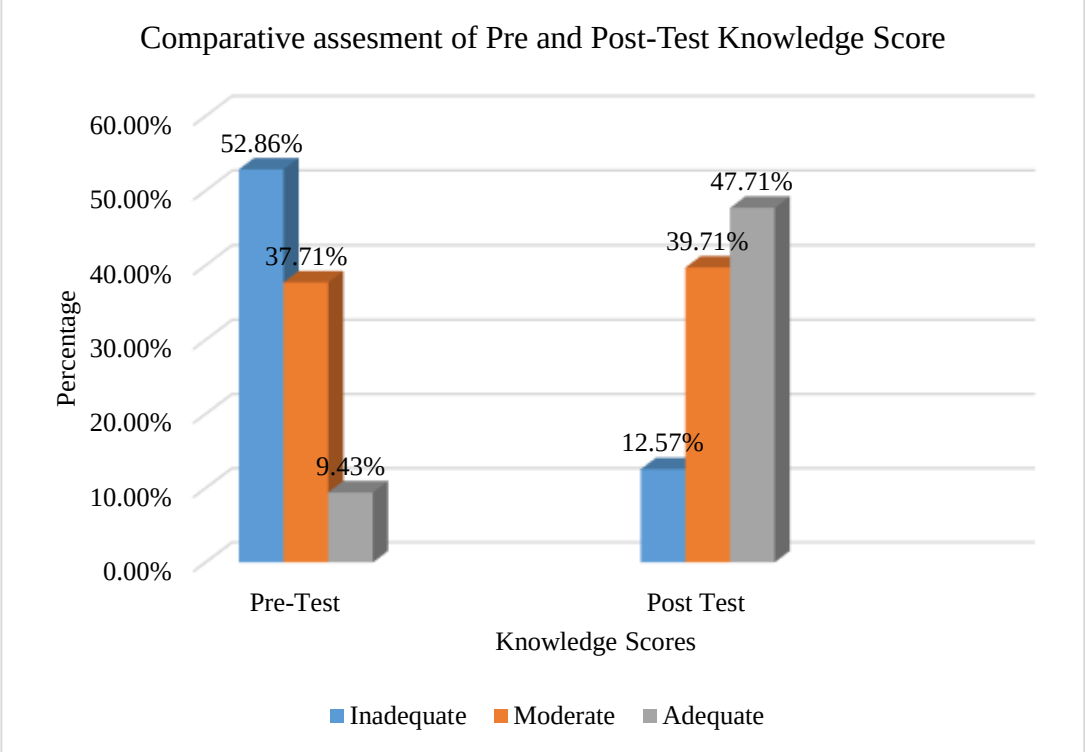

Figure No. 1: Comparative assessment of Pre and Post-Test Knowledge Scores. n=350

Table No. 1 and Figure No. 1 show that in the pre-test, a majority of respondents (52.86%) were found to have inadequate knowledge, indicating a considerable lack of awareness regarding the subject matter. Respondents with moderate knowledge constituted 37.71%, while only a small proportion (9.43%) exhibited adequate knowledge. These findings highlight a clear need for an educational intervention to enhance knowledge levels among the respondents. Following the intervention, a notable shift in knowledge scores was observed. The post-test results showed that 47.71% of respondents achieved adequate knowledge, indicating that nearly half of the participants had acquired a satisfactory understanding of the subject. Those with moderate knowledge accounted for 39.71%, while the proportion of respondents with inadequate knowledge reduced dramatically to 12.57%.

A comparative analysis of pre- and post-test scores shown in Table no. 1 and in Figure 1 which emphasizes the effectiveness of the educational program. The proportion of respondents with inadequate knowledge decreased significantly from 52.86% to 12.57%, reflecting the program's success in addressing knowledge deficiencies. Moderate knowledge scores increased slightly from 37.71% to 39.71%, suggesting that some respondents moved from inadequate to moderate knowledge levels. The most remarkable change was observed in the adequate knowledge category, which rise from 9.43% in the pre-test to 47.71% in the post-test, highlighting a substantial improvement in respondents' understanding.

Assessment of the Effectiveness of Intervention

Assessment of the effectiveness of video-assisted teaching intervention regarding adverse effects of electronic gadget usage on biopsychosocial parameters is evaluated using the t-test and described in Table No. 2.

Table No. 2: Effectiveness of Video-Assisted Teaching Regarding Adverse Effects of Electronic Gadget Usage

Test	Mean	SD	t-Test	dF	p Value	Result
Pre-test	9.93	3.24	16.091	698	<0.0001	S
Post-test	14.15	3.69				

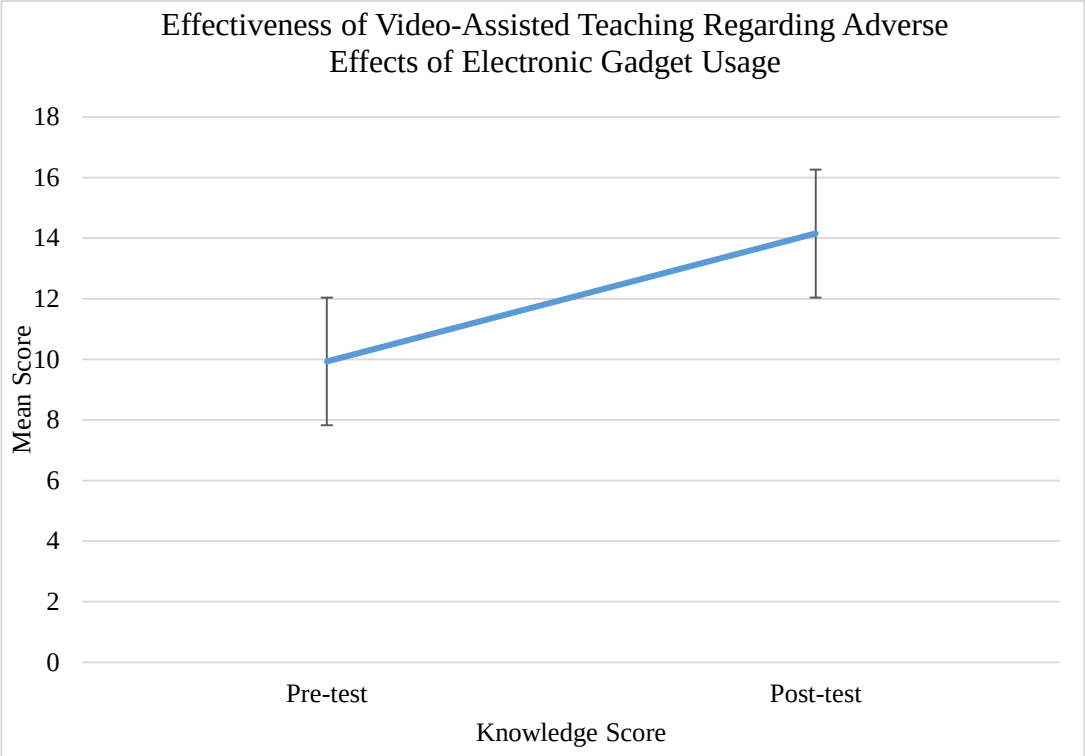

Figure No. 2: Effectiveness of Video-Assisted Teaching Regarding Adverse Effects of Electronic Gadget Usage

Table No. 2 and figure no. 2 present the comparison of mean knowledge scores between the pre-test and post-test. The mean score improved significantly from 9.93 (SD = 3.24) in the pre-test to 14.15 (SD = 3.69) in the post-test. The paired t-test yielded a value of 16.091 with 698 degrees of freedom, and the p-value was <0.0001, indicating a statistically significant improvement in knowledge levels after the intervention.

Discussion:

The present study assessed the effectiveness of a video-assisted teaching program on the knowledge of primary school children regarding the adverse effects of electronic gadget usage on bio-psycho-social parameters in selected schools of samba district. The findings indicate a significant improvement in knowledge following the intervention, demonstrating the efficacy of structured educational programs in addressing knowledge gaps among school-aged children.

The pre-test findings revealed that a majority of respondents (52.86%) had inadequate knowledge, 37.71% demonstrated moderate knowledge, and only 9.43% exhibited adequate knowledge, indicating a substantial knowledge deficit prior to the intervention. These results align with previous studies,[11] where 66% of adolescents had inadequate knowledge and none had adequate knowledge before a computer-assisted teaching program. Similarly, findings reported in another study indicate that 58.33% of respondents had inadequate knowledge regarding the health hazards of electronic devices.[12]

Following the intervention, a marked improvement was observed, with 47.71% of respondents demonstrating adequate knowledge, 39.71% showing moderate knowledge, and only 12.57% remaining in the inadequate category.

This indicates that the video-assisted teaching program was highly effective in enhancing knowledge levels. Comparable outcomes were observed in studies by Karthi R et al. (2018) and Sheeba V. (2017), where the proportion of participants with adequate knowledge increased substantially, and inadequate knowledge was markedly reduced or eliminated after multimedia-based interventions.

The comparative analysis of pre- and post-test scores further emphasizes the effectiveness of the intervention. The proportion of respondents with inadequate knowledge decreased from 52.86% to 12.57%, while those with adequate knowledge increased from 9.43% to 47.71%, and moderate knowledge showed a slight rise from 37.71% to 39.71%. These findings demonstrate a significant shift of participants from inadequate to higher levels of knowledge, consistent with the results of Sheeba V. (2017), where inadequate knowledge decreased from 58.33% to 0% and adequate knowledge increased from 0% to 56.67% following video teaching.

Statistical analysis supported these observations, with mean knowledge scores increasing significantly from 9.93 (SD = 3.24) in the pre-test to 14.15 (SD = 3.69) in the post-test, and a paired t-test value of 16.091 (df = 698, $p < 0.0001$), indicating a statistically significant improvement in knowledge. Similar findings were reported by Karthi R et al. (2018), where mean scores increased from 11.28 (SD = 2.44) to 21.18 (SD = 2.30) following a computer-assisted teaching program, confirming the effectiveness of structured educational interventions.

These results underscore the importance of video-assisted teaching as an effective, engaging, and feasible strategy to enhance knowledge among school-aged children. The study highlights the potential of multimedia-based educational programs to bridge knowledge gaps, promote awareness, and encourage safe practices related to electronic gadget usage. Although the study was limited to selected primary school children, the findings suggest that integrating video-assisted health education into school curricula can have a significant impact on knowledge and awareness regarding the bio-psycho-social effects of

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Conflict of Interest: The author declares that there is no conflict of interest associated with this study.

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References

1. [1] Dubois, L., Farmer, A., Girard, M., & Peterson, K. (2008). Social factors and television use during meals and snacks is associated with higher BMI among pre-school children. *Public health nutrition*, *11*(12), 1267-1279.
2. [2] Gangadharan, N., Borle, A. L., Basu, S., & Borle, A. L. (2022). Mobile phone addiction as an emerging behavioral form of addiction among adolescents in India. *Cureus*, *14*(4).
3. [3] Dresp-Langley, B. (2020). Children's health in the digital age. *International journal of environmental research and public health*, *17*(9), 3240.
4. [4] Moshel, M. L., Warburton, W. A., Batchelor, J., Bennett, J. M., & Ko, K. Y. (2024). Neuropsychological deficits in disordered screen use Behaviours: a systematic review and Meta-analysis. *Neuropsychology Review*, *34*(3), 791-822.
5. [5] Przybylski, A. K., & Weinstein, N. (2019). Digital screen time limits and young children's psychological well-being: Evidence from a population-based study. *Child development*, *90*(1), e56-e65.

6. [6] Hale, L., & Guan, S. (2015). Screen time and sleep among school-aged children and adolescents: a systematic literature review. *Sleep medicine reviews*, *21*, 50-58.
7. [7] Jamir, L., Duggal, M., Nehra, R., Singh, P., & Grover, S. (2019). Epidemiology of technology addiction among school students in rural India. *Asian journal of psychiatry*, *40*, 30-38.
8. [8] Gnanasambandam, C., Madgavkar, A., Kaka, N., Manyika, J., Chui, M., Bughin, J., & Gomes, M. (2012). Online and upcoming: The Internet's impact on India. *Technology, Media and Telecom Practice, Mc Kinsey and Company*.
9. [9] Domoff, S. E., Radesky, J. S., Harrison, K., Riley, H., Lumeng, J. C., & Miller, A. L. (2020). A naturalistic study of child and family screen media and mobile device use. *Journal of Child and Family Studies, 29*(1), 220–233
10. [10] Rani, E., Clement, I., & Clement, N. (2023). Assessment of the effectiveness of video assisted teaching program on knowledge and practice regarding oral hygiene among preschool children at a selected primary school in Vellore. *RGUHS Journal of Nursing Sciences*, *13*(2).
11. [11] Karthi R, Porselvi M, Gandhi M, Tamilvanan K and Thiruvengadam P. A study to assess the effectiveness of computer assisted teaching programme on knowledge regarding adverse effects of electronic gadgets among adolescents in E.S. College of nursing, Villupuram, Tamil Nadu. International Journal of Applied Research 2018; 4(7): 290-292
12. [12] Sheeba V. Effectiveness of Video Teaching on Knowledge Regarding Health Hazards of Electronic Devices. International Journal of Nursing Education. 2017;9(1):130-2.
13. 12 https://www.researchgate.net/publication/384374814_Association_between_duration_of_gadget_use_and_social_development_in_school-age_children