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Research Article

Effectiveness of Self-Directed Learning (SDL) on Knowledge and Attitude Regarding Gaming Disorders among Adolescents

Dr. Anilkumar Jarali

Associate Professor, Department of Mental Health Nursing, P P Savani School of Nursing, P P Savani University, Dhamdod, Kosamba, Surat, Gujarat
Email: ani.jarali@ppsu.ac.in

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Abstract

Background: Digital games have become more and more popular in recent years. Increasing use of digital games has raised concern about the possible negative consequences for gamers, especially among children and adolescents. A study was conducted to evaluate the effectiveness of self-directed learning (SDL) on knowledge and attitude regarding gaming disorder among adolescents.

Materials and Methods: An evaluative approach with pre-experimental design: One group pre-test post-test design without control group was used for this study. The data related to knowledge and attitude regarding gaming disorder was obtained from 500 adolescents at selected PU colleges of Hubli. Samples were selected through non-probability purposive sampling technique.

Results: There was a significant difference between pretest and posttest knowledge score. Overall pretest mean score is 11.80 score and posttest mean score is 19.22, Pretest and posttest difference of knowledge is 7.42 score. In regards to attitude there is a significant difference between pretest and posttest attitude score. Overall pretest mean attitude score is 62.33 score and posttest mean score is 98.12, Pretest and posttest difference of Attitude score is 35.79 score. There was not significant, poor, positive correlation between pretest knowledge score and pretest attitude score ($r=0.15$ $p=0.24$). In post-test it shows the significant, moderate, positive correlation between posttest knowledge score and posttest attitude score ($r=0.45$, $p=0.001$). There was a significant association between the pre-test level of knowledge score and adolescent's demographic variables such as habitant, monthly income, and source of information. There was a significant association between the pre-test attitude score and adolescent's demographic variables such as age, habitant and source of information.

Conclusion: Statistically significant differences show the effectiveness of self-directed learning on knowledge and attitude regarding gaming disorder. Hence, Self-directed learning was effective in gaining the knowledge and improving the attitude.

Keywords: Knowledge, Attitude, Gaming Disorder, Self-Directed Learning.

Introduction

Health and fitness are the key to a long, active and enjoyable life. Being healthy and fit in simple terms means taking good care of the body. A healthy mind resides only in a healthy body. Good health of both mind and body helps one to maintain the required energy level to achieve success in life.[1] Adolescents are individuals aged between 10 and 19 years. Adolescence is important phase in the life span of an individual, with long-term influence on his/her overall health.[2] It is a crucial period for

developing and maintaining social and emotional habits important for mental well-being. These include adopting healthy sleep patterns, taking regular exercise, problem-solving, interpersonal skills and learning to manage emotions. Supportive environments in the family, school and in the wider community are also important.[3] Digital games have become more and more popular in recent years. These games are part of everyday life for many people and offer a wide range of opportunities for user entertainment and experience. Despite their entertainment purpose, the increasing use of digital games has raised concern about the possible negative consequences for gamers, especially among children and adolescents.[4]

Gaming Disorder (GD) is a behavioral addiction characterized by persistent and recurrent maladaptive patterns of gambling behavior, leading to impaired functioning. Some patients with GD only gamble through online/offline platforms however, it is also common for online gamblers to engage in other offline gambling behaviors.[5] Digital game addiction is accompanied by some signs or symptoms such as concern with the game, social neglect, lies about what they have been doing, loss of interest in other leisure activities, social and psychological isolation, escape problems, defensive and anger responses, as well as social and psychological stress, reduced school performance, decreased sleep quality, and suicidal ideation. For all these reasons, this issue should not be neglected, especially in adolescents, as a way to address maladaptive behaviors in adults. Children and adolescents gaming have been identified as an important Self-directed health concern. A better understanding of the consequences of digital game play can be helpful in a variety of educational domains.[6] According to the World Health Organization (WHO), a person with gaming disorder will demonstrate the following characteristics for at least 12 months. Problems in controlling their gaming habits, seeing gaming as more important over other necessities and daily activities or work, continuing to engage in gaming even after its negative health and social problems has been identified.[7] India has a total population of over 1,387,641,848 (1.38 billion) As of January 25, 2021.28 The number of mobile phone users in the world is expected to pass the five billion marks in 2019. There are 253 million adolescents between the age group of 10-19 years in India. There are nearly 300 million gamers in India, 95% of them are below 30.30 India was estimated to have over 800 million mobile phone users in 2019 by e-Market survey.[8]

In a study of the University of Texas at Dallas notes that the video gaming addiction can lead to medical issues such as backaches, headaches, eyestrain, carpal tunnel syndrome and pain in shoulders & elbows. The same problems can be found in offline gaming which is a kind of gaming behavior that concerns mental health experts involves a prolonged or recurring habit that may damage close relationships or interfere with the pursuit of educational or career goals.[9] Most researchers have reported negative correlations based on time spent on gaming, game content and levels of player dependency. Clear and negative correlations have been found between the amounts of time that a student spends playing video games with their school marks. A study reports that 2 hours of gaming per day correlated with an overall Grade Point Average (GPA) of below 3.0 (85%). Violent video game content is a characteristic of massive 20 multiplayer online role-playing games which negatively correlates with academic performance. Most damaging of all is video game dependency which has also been described as pathological gaming and addiction.[10]

Materials and Methods

Research approach: Taking into consideration of the nature of the problem selected and the objectives to be accomplished, an evaluative approach was considered appropriate for the present research study.

Research design: The research design used for the present research study was Pre-Experimental Design: One group pre-test post-test design without control group was used for this study.

Setting of the study: Setting refers to the area or physical location where the research study was being conducted. The present research was conducted in selected PU Colleges of Hubballi.

Source of data: The data related to knowledge and attitude regarding gaming disorder was obtained from the adolescents.

Population: Population refers to set of people entities to which the research results can be generalized.

Universal Population: The universal population for the present research study were adolescents.

Accessible Population: The accessible population for the present research study were adolescents studying in selected PU College.

Sample: A subset of population chosen to take part as a participant in a research study is known as sample. In this present study, the sample consists of adolescents studying in selected PU colleges, who fulfils inclusion criteria and exclusion criteria.

Sample size: The sample size selected for the present research study was 500 adolescents.

Sampling technique: The researcher for the present research study selected samples through non-probability purposive sampling technique.

Description of the tool: The tool selected for the study was a structured knowledge questionnaire and structured attitude scale which comprised three sections. They were:

Section I:
Socio-demographic variables: This part consists of 14 items for obtaining information about socio-demographic variables such as Age, gender, course of study, type of family, habitat, education of father, education of mother, occupation of father, occupation of mother, family income, play a video game, duration of gaming per day, preferred device for gaming and source of information.

Section II:
Structured knowledge questionnaire on gaming disorder: This part consists of 24 items for obtaining level of knowledge regarding gaming disorder. Each correct answer carries 1 mark and incorrect answer carries 0 mark.

Section III:
Structured attitude questions on gaming disorder: This part consists of 24 items in that there were 13 Positive and11 Negative statements for obtaining level of attitude of adolescents.

Reliability of the tool: The tool was tested for reliability on 50 adolescents during pilot study by using Split Half Method and applying Karl Pearson's Correlation Coefficient formula. The reliability of Structured knowledge questionnaire was r =0.95 and attitude scale was r =0.87 Hence the tools were found to be reliable. Item analysis was done to test the internal consistency. This is done by critically evaluating questions based on difficulty index and discriminative index. These correlation coefficients were very high and it is good tool for assessing effectiveness of self-directed learning on knowledge & attitude regarding gaming disorder among adolescents.

Ethical consideration: Ethical clearance certificate was obtained from the research development committee (RDC). Formal permission was obtained from selected P U College, Hubballi and written informed consent was obtained from the study participants. The participants were assured of confidentiality and anonymity.

Data analysis plan: The data obtained were analyzed in terms of the objectives of the study using descriptive and inferential statistics. The plan of the data analysis was developed under the excellent direction of the experts in the field of nursing and statistics. The plan for the data analysis was as follows:
1) Organization of data on the master sheet.
2) Tabulation of data in terms of frequency, percentage, mean, median, mode, standard deviation and range to describe the data.

3) Classification of the knowledge scores (level of knowledge) were as follows: ➢ Good Knowledge = (X + SD) and above ➢ Average knowledge = (X - SD) to (X + SD) ➢ Poor knowledge = (X - SD) and below [Note: X=Mean, SD= Standard Deviation]
4) Classification of attitude scores (level of attitude) were as follows: ➢ Positive Attitude = (X + SD) and above ➢ Neutral Attitude ➢ Negative Attitude = (X - SD) to (X + SD) = (X - SD) and below [Note: X=Mean, SD= Standard Deviation]
5) Inferential statistics used to draw the following conclusions:
a) Paired 't' test for testing the effectiveness of Awareness Programme on knowledge and attitude regarding gaming disorder.
b) Karl Pearson's Correlation Coefficient formula to find correlation between knowledge and attitude regarding gaming disorder.
c) Chi-square test to find out an association between pre-test knowledge scores and socio-demographic variables.
d) Chi-square test to find out an association between pre-test attitude scores and socio-demographic variables.

Results and Discussion
Objective of the proposed research:
(i) General Objective
1. To evaluate the effectiveness of self-directed learning (SDL) on knowledge and attitude regarding gaming disorder among adolescents.

(ii) Specific Objectives:
1. To assess the knowledge regarding gaming disorder among adolescents.
2. To assess the attitude regarding gaming disorder among adolescents.
3. To evaluate the effectiveness of self-directed learning (SDL) on gaming disorder among the adolescents.
4. To find out a correlation between knowledge and attitude scores regarding gaming disorder among adolescents.
5. To find out an association between pre-test knowledge scores regarding gaming disorder with their selected socio-demographic variables.
6. To find out an association between pre-test attitude scores regarding gaming disorder with their socio demographic variables.

Section I: Distribution of sample characteristics according to socio demographic variables

Table 1. Demographic variables

Demographic variables	**Frequency (f)**	**Percentage (%)**
Age		
16 years	125	25.00%
17 years	125	25.00%
18 years	125	25.00%
19 years	125	25.00%
Gender		
Male	260	52.00%
Female	240	48.00%
Course of study		
11th std	221	44.20%
12th std	279	55.80%
Type of family		
Nuclear family	327	65.40%
Joint family	133	26.60%
Extended family	40	8.00%
Habitant		
Rural	241	48.20%

Urban	259	51.80%
Education of father		
No formal education	65	13.00%
Primary education	98	19.60%
Secondary education	257	51.40%
Graduation & above	80	16.00%
Education of mother		
No formal education	79	15.80%
Primary education	139	27.80%
Secondary education	237	47.40%
Graduation & above	45	9.00%
Occupation of father		
Daily wage labor	198	39.60%
Govt employee	47	9.40%
Private employee	185	37.00%
Self-employee	70	14.00%
Occupation of mother		
Housewife	243	48.60%
Daily wage labor	139	27.80%
Govt employee	56	11.20%
Private employee	45	9.00%
Self-employee	17	3.40%
Monthly income		
Rs.5,000 – 10,000	108	21.60%
Rs.10,000 – 15,000	177	35.40%
Rs.15,000 - 20,000	148	29.60%
Rs.20,000 & above	67	13.40%
Play a video game		
Yes	348	69.60%
No	152	30.40%
Preferred device to play a game		
Smart phones	292	58.40%
Computers	50	10.00%
Smart TV	6	1.20%
Not playing	152	30.40%
Duration of gaming per day		
Below one hour	332	66.40%
One-three hours	16	3.20%
Three six hours	0	0.00%
Six hours & above	0	0.00%
Not playing	152	30.40%
Source of information regarding gaming disorder		
Print media (newspapers, magazines, books and pamphlets)	124	24.80%
Electronic media (mobile phones, social media)	145	29.00%
Peer group and social circle / teachers/ parents	110	22.00%
Health professional	121	24.20%

Section II: Assessment of knowledge regarding gaming disorder

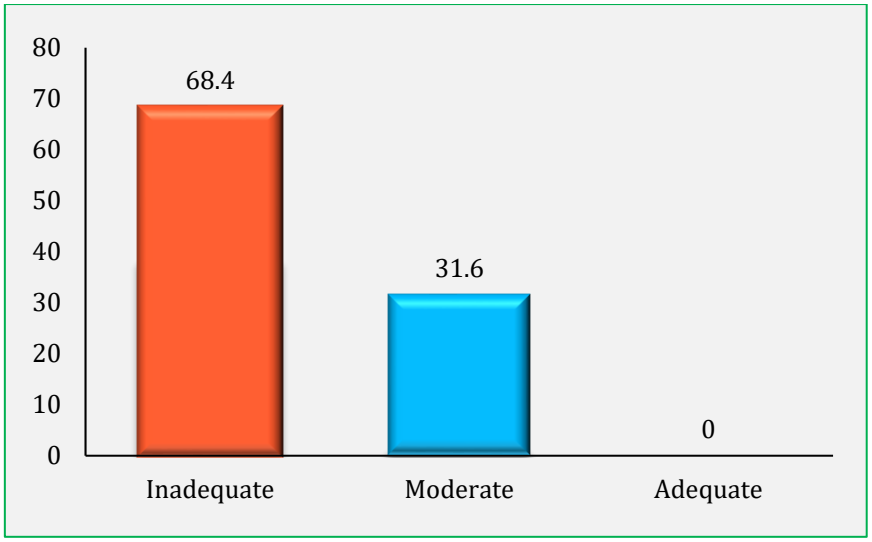

Figure 1. Level of knowledge regarding gaming disorder.

Figure 1 shows the level of knowledge score among adolescents. In general, 68.40% of them are having inadequate knowledge score, 31.60% of them moderate level of knowledge score and none of them having adequate level of knowledge score.

Section III: Assessment of attitude regarding gaming disorder

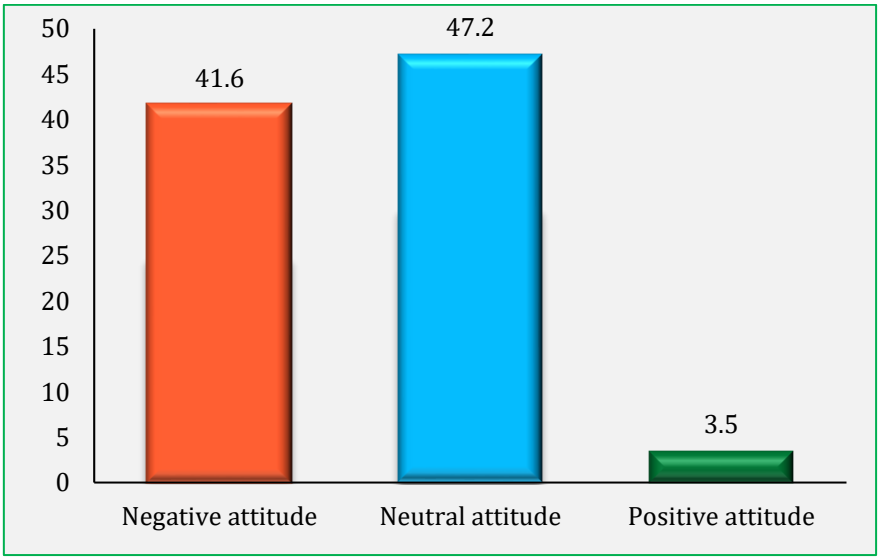

Figure 2. Level of attitude regarding gaming disorder.

Figure 2 shows the level of attitude score among adolescents. In general, 41.60% of them are having Negative attitude score, 47.20% of them Neutral level of attitude score and 11.20% of them having Positive attitude level of score

Section IV: Effectiveness of self-directed learning on knowledge regarding gaming disorder

Table 2. Comparison of pretest and post-test knowledge score.

	Knowledge score				Mean difference	Student paired t-test
	Pretest		Posttest			
	Mean	SD	Mean	SD		
Total	11.80	1.48	19.22	1.40	7.42	t=121.35p=0.001*** (s) DF=499

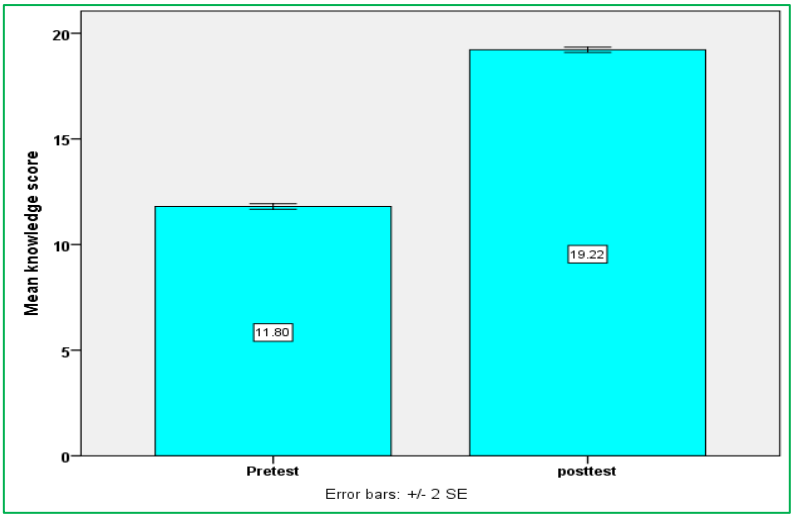

Figure 3. Comparison of pretest and post-test knowledge score.

Figure 3 shows that there is a significant difference between pretest and posttest knowledge score. Overall Pretest mean score is 11.80 score and posttest mean score is 19.22, Pretest and posttest difference of knowledge is 7.42 score. This difference is large and statistically significant difference. It was tested using student paired t- test.

Section V: Effectiveness of self-directed learning on attitude regarding gaming disorder

Table 3. Comparison of pretest and post-test attitude score.

	Attitude score				Mean difference	Student paired t-test
	Pretest		Posttest			
	Mean	SD	Mean	SD		
Total	62.33	4.92	98.12	4.14	35.79	t=58.65 p=0.001***(s)

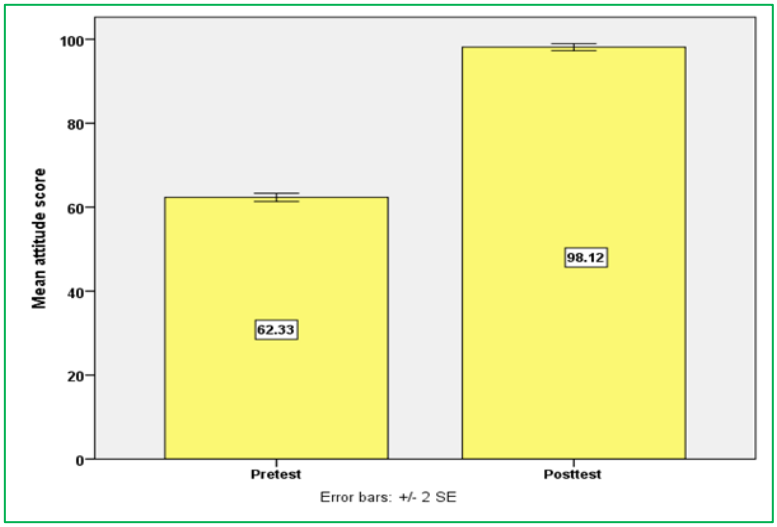

Figure 4. Comparison of pretest and post-test attitude score.

Figure 4 shows that there is a significant difference between pretest and posttest Attitude score. Overall Pretest mean attitude score is 62.33 score and posttest mean score is 98.12, Pretest and posttest difference of Attitude score is 35.79 score. This difference is large and statistically significant difference. It was tested using student paired t-test.

Section VI: Correlation between Knowledge and attitude

Table 4. Correlation between pretest knowledge and pretest attitude score.

Correlation between	Mean gain score Mean ± SD	Karl pearson correlation coefficients	Interpretation
Knowledge score vs Attitude score	11.80±1.48 62.33±4.14	**r=0.46 p=0.001***(S)**	There is a significant, positive correlation between knowledge score and attitude score. It means knowledge increases their attitude score also increases moderately.

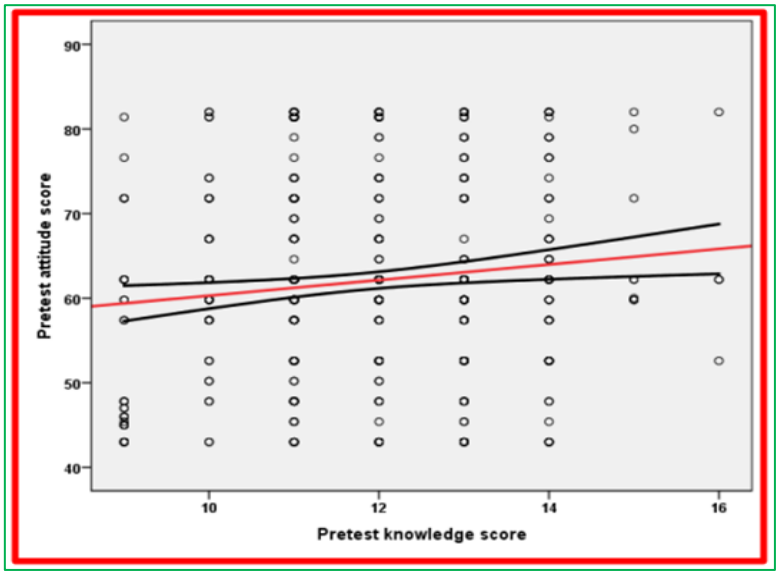

Figure 5. Correlation between pretest knowledge and pretest attitude score

Figure 5: Scatter diagram with 95% confidence interval regression estimate shows the not significant, poor, positive correlation between pretest knowledge score and pretest attitude score (r=0.15 p=0.24).

Table 5. Correlation between post-test knowledge score and post-test attitude score.

Correlation between	Mean gain score Mean ± SD	Karl pearson correlation coefficients	Interpretation
Knowledge score vs Attitude score	19.22±1.40 98.12±3.29	**r=0.46 p=0.001***(S)**	There is a significant, positive correlation between knowledge score and attitude score. It means knowledge increases their attitude score also increases moderately.

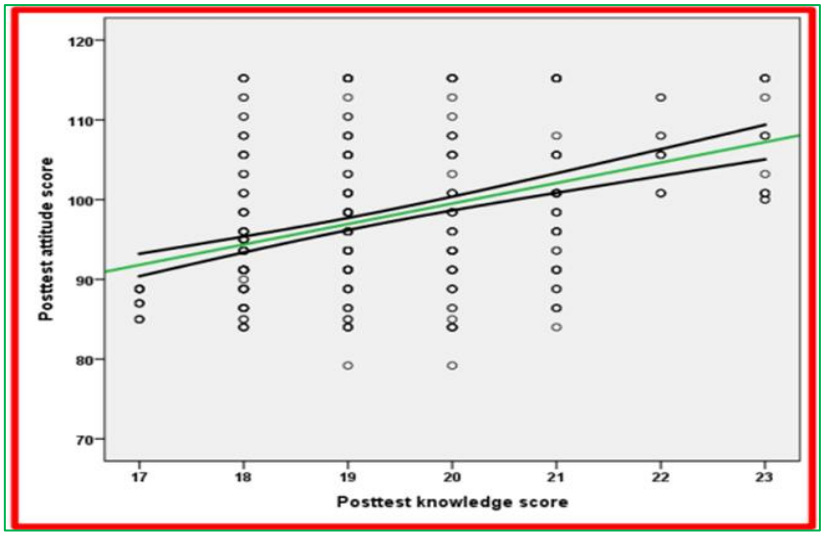

Figure 6. Correlation between post-test knowledge and pretest attitude score.

Figure 6. Scatter diagram with 95% confidence interval regression estimate shows the significant, moderate, positive correlation between posttest knowledge score and posttest attitude score (r=0.45, p=0.001).

Section VII: Association between knowledge and attitude with socio demographic variables

Association between pre-test knowledge scores and socio-demographic variables
There was a significant association between the pre-test level of knowledge score and adolescent's demographic variables such as habitant, monthly income, and source of information. Urban area adolescents, more income family adolescents and electronic media source of information adolescents are having more moderate knowledge score than others. It was tested using chi square test.

Association between post-test knowledge scores and socio-demographic variables
There was a significant association between the post-test level of knowledge score and adolescent's demographic variables such as age. >17 years adolescents are having more adequate knowledge score than others. It was tested using chi square test.

Association between pre-test attitude scores and socio-demographic variables
There was a significant association between the pre-test attitude score and adolescent's demographic variables such as age, habitant and source of information. > 17 years adolescents, Urban area adolescents and electronic media source of information adolescents are having more positive attitude score than others. It was tested using chi square test.

Association between post-test attitude scores and socio-demographic variables
There was a significant association between the post-test attitude score and adolescent's demographic variables such as habitant. Urban adolescents are having more positive attitude score than others. It was tested using chi square test.

Conclusion:

- In Pre-test, 68.40% of them have inadequate knowledge scores and 31.60% of them have moderate levels of knowledge scores. Regarding attitude, 41.60% of them have having Negative attitude score, 47.20% of them Neutral level of attitude score, and 11.20% of them have a Positive attitude level score.
- In Post-test, 4.40% of them have having inadequate level of knowledge score, 32.80% of them have a moderate level of knowledge score, and 62.80% of them have an adequate level of

knowledge score.

- There was a positive correlation between knowledge score and attitude score
- Statistically significant differences show the effectiveness of self-directed learning on knowledge and attitude regarding gaming disorder. Hence, Self-directed learning was effective in gaining the knowledge and improving the attitude.

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