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Research Article

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Assessment of Knowledge on Corona Virus by Using Structured Teaching Programme among Student Population in Bagalkot

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ABSTRACT

Background: These pathogens are associated with a variety of diseases, spanning from the ordinary cold to more severe conditions, including “Middle East Respiratory Syndrome (MERS)” and “severe acute respiratory syndrome (SARS)”. A large family of viruses, known as the coronavirus, is responsible for causing those unhealthy conditions. COVID-19 was discovered for the first time in December 2019 in the city of Wuhan, which is in China. This is a new coronavirus that has never been found in people before.

Methods: The effects of STP on coronavirus and its preventative measures among high school students studying at BVVS High School in Bagalkot were evaluated using a quasi-experimental method consisting of the absence of a control group in a one-group pre-test and post-test environment. Students in the eighth, ninth, and tenth grades were included. Information gathered through a structured knowledge questionnaire was entered into an electronic database and analyzed using descriptive and inferential statistical methods.

Results: The pre-test results show that almost half of the participants had inadequate wisdom, while nearly half had average knowledge, 4% had extremely bad knowledge, 2% had acceptable knowledge, and nobody had outstanding knowledge. After STP, 50% had great knowledge, 48% had good, 2% had average, and no one had bad or extremely poor. STP was successful since the computed "t" value (21.30) was significantly more than the table "t" value (1.96).

Conclusion: The study found that the STP considerably increased high school pupils' awareness of coronavirus and its prevention.

Key-words: Coronavirus, Coping conditions, Effectiveness, High school pupils, Knowledge, “Structured Teaching programme”

INTRODUCTION

The novel coronavirus COVID-19 has evolved into a pandemic and poses a danger to humankind worldwide. Hospitals admitted several people with pneumonia whose causes were initially unclear. Initial assessments suggested the start of a probable coronavirus epidemic, namely “severe acute respiratory syndrome coronavirus2 (SARS-CoV-2)”, which drives the illness COVID-19. [1]

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Nutrition is the study of food and how it affects one's health. Nutrition and its roles in development, growth, and maintenance are at the heart of this issue. Each child's potential can only be realized if they receive enough nutrients while young. [2]

The "Critical window" of possibility for advancing the most profitable accumulation and evolution of the kid, fitness, and general survival of kids begins at birth. It continues until the kid reaches the age of two years. [3]

According to estimates, there are 47 million youngsters under the age of 5 who are impacted by wasting, which puts them at a greater risk of passing away. COVID-19 has become an epidemic worldwide that concerns the fitness and well-being of people all over the globe. The children are more likely to become infected if they are

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not receiving adequate nutrients. Considering that they depend on their parents to provide for them daily and take care of them, they are particularly vulnerable. [4]

Healthcare workers across the world are experiencing a significant amount of fear because of the rapid development of the COVID-19 epidemic. Every healthcare provider must be current on the most recent facts regarding the COVID-19 epidemic. [5]

COVID-19 has recently been discovered as an infection that everyone should have a basic understanding of. On the other hand, preventative measures are something that every single person needs to have a firm grasp on. There are a great number of additional problems, such as trouble sleeping, anxiety around the prospect of leasing COVID-19 infection, and social media that cause discomfort. Humanity must raise more awareness regarding the essence of cognitive health and take action to help those affected by the current COVID-19 pandemic. [6-9]

Healthcare providers and the public get their COVID-19 information from separate sources. Healthcare providers gather information from accredited WHO, CDC, and ICMR websites. The mass people rely on television for their entertainment. Many people, including those working in the medical field and members of the public, are concerned about becoming infected with this virus and are accepting preventative actions against COVID-19. [10-12] A study found that social media is the main way students obtain information, and half of the students knew a lot about COVID-19. Only 36.5% of the individuals had taken effective preventative measures.[12-14]

A study was conducted to specify the level of ability and perspective nursing students have on COVID-19. An online Google form was utilized to collect the data. This study showed that 84.54% (6,782 out of 8,022) of the 382 nursing scholars understood about COVID-19. It was discovered that 209 (54.7%) respondents had a positive view of COVID-19. Student knowledge correlated positively with attitude (r=0.10, p=0.04), while demographic characteristics did not.[15]

MATERIALS AND METHODS

Research Design- This study used a one-group, such as the "pre- and post-test strategy", without a control group. Again, the proportionate stratified random sampling method was operated to choose the group. Data were gathered at BVVS High School Bagalkot and LIONS School for 30 days, from June 15, 2022, to July 14, 2022. A total of fifty high school students participated in the research project. Before enrolling any kids, the researcher contacted the high schools, got permission from the administration, and completed the enrolment process. Prospective participants were explained the investigation, and after obtaining their consent to participate, they ultimately decided to engage in the study. The identical process of enrolling subjects was repeated until the requisite number of subjects was enrolled. This continued until the total number of subjects was reached. An interview-based questionnaire gathered information; defining and inferential statistics were employed for data analysis.

Sample size estimation- The sample size was defined using Epi info software, with a significance threshold of 5%, a test power of 80%, and an effect size of 20%. To account for dropouts and generalizability, the researcher enlisted 50 people for the study; power analysis was conducted on a previous study with a sample size of 50, and the estimated number of participants was 45.

Inclusion Criteria

- ✓ The study encompasses the pupils enrolled in the higher secondary schools of BVVS High Schools and LIONS School Bagalkot.
- ✓ When the data was being collected, it was available.
- ✓ The individual is willing to take part in the current investigation.
- ✓ Fluent in verbal communication. Proficient in English and Kannada, with the ability to read and write.

Exclusion Criteria- The study did not include people who did not want to participate or could not read, write, or understand English or Kannada.

Statistical Analysis- The study used SPSS-27 for effective analysis. The fertilization, implantation, and pregnancy rates of spermatozoa improved by chromatin condensation, and morphology in each preparation method were compared. MS Excel was used for creating graphs and other calculations. The continuous data were expressed as mean±standard deviation, while the discrete data were expressed as frequency and its respective percentage. The study used ANOVA as the statistical tool for comparing the variables.

DOI: 10.21276/SSR-IIJLS.2024.10.2.3

Ethical Clearance- "B.V.V.S. Sajjalashree Institute of Nursing Sciences Navanagar Bagalkot" provided the Ethical clearance certificate, which was received from the committee responsible for ethical clearance.

RESULTS

Socio-demographic characteristics are described in this section- High school pupils who belonged to the age group of 14 years had the highest number of students (42%) in their age group, and most subjects (62%) were female. Participants belonging to the Hindu religion comprised 78% of the total family earnings of less than Rs 10,000, accounting for the greatest percentage, 48 %. Metropolitan areas accounted for the biggest share (30%). Most people (68%) learned from reading books and magazines.

Evaluating structured training programme on Coronavirus prevention- Table 1 shows high school students' relative knowledge of coronavirus in pre-test and post-test assessments. The table ranks knowledge levels as Excellent, Good, Average, Poor, and Very Poor. Before any educational intervention or training, none of the respondents scored Excellent in the pre-test assessment, indicating that no student completely understood the material. Instead, most kids were ranked in the Poor or Very Poor categories; 48% were deemed Poor, and 4% were rated Very Poor. Before education, pupils may not know much about coronavirus. The post-test showed that students' understanding of issues improved after an educational intervention. Students classed as excellent enhanced their scores to 50%, suggesting a considerable gain in information acquisition. Comprehension improved as the percentage of good pupils grew to 48%. The rate of students identified as Average in the post-test dropped to 2%, showing that few pupils retained average knowledge following the educational intervention. This strategy also eliminated the number of Poor or Very Poor students. The results show that students' understanding of coronavirus improved significantly after the instructional program, with higher percentages in the Great and Good groups and fewer in the Average, Poor, and Very Poor categories.

Table 1: Percentage-wise distribution of high school students on knowledge regarding coronavirus according to the level of "post-test and pre-test knowledge"

Group of knowledge	"Pre-test"		"Post-test"	
	Number of respondents	Ratio (%)	Number of respondents	Rate (%)
Excellent	0	0	25	50
Good	1	2	24	48
Average	23	46	1	2
Poor	24	48	0	0
Very poor	2	4	0	0

Testing of hypothesis- H_1: It is anticipated that the average "post-test knowledge scores" about the coronavirus of high school pupils were much higher than the average pre-test knowledge scores.

Table 2 shows the outcomes of a paired t-test used to determine whether there was a substantial change in the amount of information high school students knew about the coronavirus between the two assessments. In the table, you can find details about the average scores, the average difference, the standard deviation of that difference, the paired t-test value, the table value for comparison, and the degrees of freedom. The average score for the knowledge test before (O1) is 10.4, and the average score after (O2) is 19.8. An average of 9.4 points separates the "pre-and post-test scores". The distinction between "pre-test and post-test" results among 50 students is 0.4 standard deviations. A paired t-test result of 21.30 displays a significant change between the two scores, as measured against the standard deviation of those changes. The table value for comparison is 1.96, based on the significance threshold (typically 0.05). If this value is met, the observed distinction between "pre-test and post-test scores" can be considered statistically significant. Here, the difference between the "pre-test and post-test scores" is deemed statistically significant because the calculated result of the paired t-test (21.30)

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surpasses the table value (1.96). This means the educational intervention or training program between the pre-test and post-test evaluations increased students' knowledge of coronavirus. Table 2 shows that the educational intervention improved students' coronavirus knowledge, as seen by the considerable difference between their "pre-test and post-test scores".

Table 2: Substantial distinction between high school pupils' "pre-test and post-test knowledge scores" about the coronavirus

Test	Mean	Mean Diff	SD Diff	Paired 't' test	Table value
Pre-test (O_1)	10.4	9.4	0.4	21.30	1.96
Post-test (O_2)	19.8				

High school students' post-test knowledge of coronavirus was analyzed using several socio-demographic factors in Table 3. There is a correlation between each variable, students' post-test knowledge, and the serial number. There are also important demographic and socioeconomic variables, degrees of freedom (DF), chi-square values, table values, p-values, and much more in the table. Age relates to a lower chi-square value (0.036) than the table value (3.84). Therefore, no statistically significant correlation exists between students' post-test knowledge of coronavirus and their age (p = 0.84). Gender also has a lower chi-square value (0.149) than the table value (3.84). A p-value of 0.69 indicates no statistically significant relationship between students' gender and their post-test knowledge. The chi-square value for religion is 4.155, higher than the table value 3.84. Therefore, the p-value for the correlation between students' post-test knowledge of coronavirus and their religious affiliation is 0.04. This means that students' religious beliefs might impact how much they learn. Income has a lower chi-square value of 0.192 than the table value of 3.84. As a result, there is no statistically significant correlation between students' wealth and their post-test knowledge (p=0.66). A chi-squared score of 0.075 indicates that residence is less than the 3.84 threshold set by the table. Students' post-test knowledge is not significantly related to their residency, as indicated by the p-value of 0.78. The knowledge source's chi-square value is 0.097, lower than the table value of 3.84. Therefore, there is no significant correlation between students' post-test knowledge regarding coronavirus and the source of knowledge (p=0.75).

Additionally, only religion among the chosen socio-demographic factors is significantly associated with high school students' post-test knowledge about coronavirus. This proves that students' religious views may impact how they grasp the material. Students' post-test knowledge is not significantly correlated with demographic variables such as age, gender, income, residence, or source of information.

Table 3: Selection of socio-demographic characteristics and high school students' coronavirus post-test knowledge

significant demographic and socioeconomic variables	Chi-square	Table value	p-value	Association
Age	0.03	3.84	0.84	Not significant
Gender	0.14	3.84	0.69	Not significant
Religion	4.15	3.84	0.04	Significant*
Income	0.19	3.84	0.66	Not significant
Residence	0.07	3.84	0.78	Not significant
Source of knowledge	0.09	3.84	0.75	Not significant

Df=1

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DISCUSSION

The current study's findings are corroborated by Paiva et al.'s research [10]. An investigation into people's knowledge, awareness, and attitudes regarding the COVID-19 pandemic was carried out as part of this study [16]. The result indicated that 454 individuals, or 89.4% of the respondents, had completed their college education. Most of the participants confirmed that they were aware of COVID-19 by January. Furthermore, most searched for information on social media platforms (Sina Weibo, 84.7%) and web chat and Q groups (74.2%). The current study's findings, which pertain to the evaluation of knowledge, indicate that the biggest percentage of respondents (48%) had a bad understanding. In comparison, 46% had average knowledge, 4% had very low knowledge, 2% had good knowledge, and no one maintained exceptional knowledge.

A study carried out by Ngwewondo [15] confirms the findings that were discovered in the current study. This study was carried out to evaluate the knowledge, attitude, prevention practice, and associated factors about COVID-19 infections. High awareness and moderate positivity, but low COVID-19 preventative practice. Regarding the current study's findings, which pertain to the evaluation of knowledge, the findings indicate that the biggest percentage of respondents (48%) had bad knowledge [17]. In comparison, 46% had average knowledge, 4% had very low knowledge, 2% had good knowledge, and no one had exceptional knowledge.

The current investigation results are corroborated by the research of Hazmi A. et al. [12]. This survey was conducted to determine the level of knowledge, attitudes, and safety behaviors regarding COVID-19 among high school students. It demonstrates that the result for knowledge was 21.5 out of a possible 30. Over 90% of the pupils knew the factors that led to the condition [18]. Regarding the current study's findings, which pertain to the evaluation of knowledge, the findings indicate that the biggest percentage of respondents (48%) had bad knowledge. In comparison, 46% had average knowledge, 4% had very low knowledge, 2% had good knowledge, and no one had exceptional knowledge.

The current study's findings are corroborated by the research of Feleke *et al.* [13]. The research was carried out to evaluate the knowledge, attitudes, and practices of the Indian community. 58.6% and 62.1% of the sample population reported high knowledge and positive attitude, respectively [19-21]. Regarding the current study's findings, which pertain to the evaluation of knowledge, the findings indicate that the biggest percentage of respondents (48%) had bad knowledge. In comparison, 46% had average knowledge, 4% had very low knowledge, 2% had good knowledge, and no one had exceptional knowledge.

The current study's findings are corroborated by the research of Lee *et al.* [14]. This survey was carried out to determine the knowledge, attitudes, and practices school students have on COVID-19. According to the study's findings, students possessed a high level of knowledge and a very positive attitude and behaviors about preventive measures that were taken to halt the transmission of COVID-19 infection [22-24]. Regarding the current study's findings, which pertain to the evaluation of knowledge, the findings indicate that the biggest percentage of respondents (48%) had bad knowledge. In comparison, 46% had average knowledge, 4% had very low knowledge, 2% had good knowledge, and no one had exceptional knowledge.

The current investigation results are corroborated by the research of Ngwewondo *et al.* [15]. This survey was carried out to determine the level of knowledge, attitudes, and practices high school students have on COVID-19. According to the data, a favorable attitude, good knowledge, and procedures for preventing COVID-19 infection were found to be present among the students [25]. Regarding the current study's findings, which pertain to the evaluation of knowledge, the findings indicate that the biggest percentage of respondents (48%) had bad knowledge. In comparison, 46% had average knowledge, 4% had very low knowledge, 2% had good knowledge, and no one had exceptional knowledge.

CONCLUSIONS

This study concluded that the “Structured Teaching Programme (STP)” has proven to be highly effective in improving high school students' understanding of coronavirus avoidance. Students' knowledge levels significantly improved after the test, with a far higher percentage of students getting good or exceptional scores on the information section than before the test. Furthermore, whereas socio-demographic characteristics such as age, gender, income, residence,

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and source of information did not exhibit significant correlations with post-test knowledge, religion emerged as a noteworthy determinant. This highlights the significance of considering individuals' religious affiliations when developing educational strategies for addressing public health concerns, such as the prevention of coronavirus. These findings demonstrate that tailored educational programs effectively enhance high school pupils' knowledge and comprehension of crucial health subjects.

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