

The Effect of a Health Educational Program on Prevention of Substance Abuse among Adolescent Nursing Students

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Abstract

Substance abuse among adolescents is fast becoming a global public health concern. This study aims to examine the effect of a health educational program on prevention of substance abuse among adolescent nursing students. A quasi-experimental design (pre- and post- test) was used in this study. This study conducted in two institutions (Health Technical Institute and Nursing Technical Institute). Purposive sample was used (200 from Health Technical Institute and 120 from Nursing Technical Institute). A structured interviewing questionnaire, included three parts: Socio-demographic characteristics, adolescent nursing students' knowledge regarding substance abuse and its prevention, adolescent nursing students' attitude toward substance abuse. 7.8% of adolescent nursing students had unsatisfactory total knowledge post educational program while 92.2% of them had satisfactory total knowledge post educational program. 93.8% of adolescent nursing students had positive total attitude toward prevention of substance abuse post educational program. There was a marked improvement in adolescent nursing students' total knowledge about prevention of substance abuse post educational program with a highly statistically significant difference. In addition, there was a marked improvement in all items of adolescent nursing students' total attitude toward prevention of substance abuse post educational program with a highly statistically significant difference. Ongoing researches were required for enhancing students' awareness about substance abuse and its prevention & dissemination of health educational booklets and pamphlets about defensive ways against substance abuse.

Keywords: Adolescents Nursing Students, Health Educational Program, Substance Abuse.

Full length article *Corresponding Author, e-mail: zozotaha304@gmail.com

1. Introduction

Harmful use of both legal and illicit substances is referred to as substance abuse. It is a serious global public health issue that affects all social classes and regions of the world. It slows down socioeconomic development and is a key factor in many countries' increased rates of crime, traffic accidents, and acquired immunodeficiency syndrome (AIDS). Adolescent students in educational institutions who take drugs have grave consequences that have an adverse impact on their future professional behavior and productivity. These consequences extend to the community at large as well as to the individuals abusing drugs [1]. Worldwide, opioids (morphine and heroin), hallucinogens, central nervous system depressants (alcohol, barbiturates), central nervous system stimulants (amphetamines, cocaine), cannabis (marijuana), and nicotine (cigarettes, tobacco) are the most often abused substances. Substance abuse affects a person's ability to think clearly, communicate effectively, and recognize reality. It also carries serious health risks, such as central nervous system poisoning, traffic accidents, poor attendance in class and poor performance that resulted in dismissal from the

university. Additionally, it fuels criminal activity, destructive behavior, and violence [2]. Signs of substance misuse include having many different companions, spending a lot of time alone, losing interest in past hobbies, and not taking care of oneself, not taking a shower, changing clothes, or brushing one's teeth. They usually feel exhausted and depressed, eating more or less than usual, acting destructively, speaking rapidly, or conveying things that don't make sense. They also frequently have a sour mood and can go from an awful to a pleasant mood very quickly. They also frequently have problems at school, pay attention difficulties, speak unclearly, and have problems with their relationships with their relatives and friends [3]. Adolescence is a time of rapid biological, psychological, and social growth that marks the shift from childhood to adulthood. The riskiest time of life to start high-risk habits is during adolescence. They face a variety of challenges related to lifestyle patterns, such as the inevitable process of growing up and becoming independent, as well as the formation of a personal identity.

Adolescence may become a risky period for substance misuse as a result of these changes. A few factors that contribute to substance misuse are peer pressure, lack of self-assurance positive family attitudes about drug use, dysfunction within the family, and inadequate regulations to stop substance usage in schools [4]. A health education program is important to prevent substance abuse problems. Health education programs must include relevant information about substance abuse and appropriate treatment types and services. Health education programs should address the harmful effects of substance use and their addictive nature. Health education programs can modify adolescent students' attitudes and behaviors related to drug use by enhancing their life skills in coping with stressful environments and beliefs and environmental cues trigger intense drug cravings and prepare for another bout of compulsive consumption [5]. Community health nurses (CHNs) can help prevent substance use in adolescents. CHN can help public health practitioners, clinicians, and communities implement evidence-based prevention policies, programs, and practices that reduce risk factors and support prevention factors related to drug addiction. CHN teaches teens how to avoid the dangers of illegal drugs, violence and peer pressure. CHN provides knowledge, skills and opportunities to promote positive attitudes, helping them make informed decisions to lead safe and healthy lives. Collaboration with law enforcement, government agencies, guidance and counseling services has been effective in curbing substance abuse regardless of whether they experience actual harm or not [6-7].

1.1. Significance of the Study

Substance abuse is a global problem, with 269 million people suffering from a substance use disorder. Deaths related to tobacco 8.1 million and alcohol 2.8 million. More than 70,000 drug overdose deaths occur each year in the United States. In the United States, 47% of teenagers use illegal drugs. 47.1 million people over 18 use marijuana, 86.4% of teens drink alcohol, and 9.5 million people over 18 have both a substance uses disorder and mental illness [8]. Drug addiction is a serious problem in Egypt. Sporadic studies have been conducted and indicate a high rate of drug addiction among adolescents, study in Menoufia State that tobacco consumption rate of 15.3%, cannabis 2% and benzodiazepines 0.7%. Another study conducted among young university students in Fayoum province showed that cannabis was the most common drug addiction with 40%, tramadol 37%, benzodiazepines 23% and parkinol 9%, 62% of students were people who use multiple substances [9]. A national survey of 106,480 Egyptians from different regions found that 13.3% of them had used the substance at least once in their lives. Furthermore, a large cohort study in Egypt of 10,648 high school students concluded that cigarette smoking was the highest rate, including 9% stimulant users, 5.1% benzodiazepine users, 3.3% alcohol, 3.1% organic solvents and 2.6% cannabis [10]. Substance abuse in Egypt is becoming a serious threat that is increasing daily and there is not enough research on this issue among adolescent nursing students in Beni Suf Governorate. Therefore, we need to implement a health education program to increase awareness of adolescent nursing students about drug abuse prevention.

1.2. Aim of the study

The aim of this research is to investigate the effect of a health educational program on prevention of substance misuse among adolescent nursing students, this achieved through:

1. Assessing knowledge and attitude of adolescent nursing students regarding prevention of substance abuse.
2. Planning and implementing health educational program regarding prevention of substance abuse among adolescent nursing students.
3. Evaluating the effect of health educational program regarding prevention of substance abuse among adolescent nursing students.

1.3. Research Hypothesis

The health educational program will enhance adolescent nursing students' knowledge and attitude about prevention of substance abuse

2. Subjects and methods

2.1. Research design

A quasi-experimental design was applied to achieve the aim of the current study.

2.2. Research setting

The study was conducted in two institutions (Health Technical Institute which affiliated to Ministry of Health and Population and Nursing Technical Institute which affiliated to Faculty of Nursing of Beni-Suef University).

2.3. Sample

Purposive sample was used in this study.

2.4. Inclusion criteria

The inclusion criteria include:

- Male students.
- Students who enrolled to first year in the above-mentioned settings.
- Agree to participate in the study.

2.5. Sample size

The actual number of adolescent nursing students that included in the study were calculated by the following formula:

$$n = N / (1 + N(e)^2)$$

where: n= sample size, N= population size = 1624, e = 0,5 is the level of precision. Therefore, n= 1624 / (1+1624 (.0025)). When applied the above formula, the actual sample size were 320 students, 200 from Health Technical Institute and 120 from Nursing Technical Institute.

2.6. Tool for data collection

The data of this study were collected by using one tool which is an interviewing questionnaire: It was developed after reviewing related literature and it included 3 parts:

2.6.1. Part 1

Socio-demographic characteristics of adolescent nursing students: It includes 18 questions such as: Age, residence, number of house room, number of family members, crowding index, living with, relationship with the father etc.

2.6.2. Part 2

Adolescent nursing students' knowledge about substance abuse: It includes 13 items as: Meaning, reasons, signs and symptoms, types, complications, characteristics of substance abuser, age at which substance abuse occur, kind of youth does the problem spread, ways to prevent risk of substance abuse etc.

2.6.2.1. Scoring system for knowledge

The knowledge consisted of 13 items with a total 26 grades, each item was assigned as the following:

- 2 = Complete correct.
- 1 = Incomplete answer.
- 0 = Don't know.

The grades for each item were summed up and then converted into a percent score.

Total scores of knowledge = 13 questions = 26 grads = 100%.

- Satisfactory when total score was $\geq 60\%$ (≥ 16 grades).
- Unsatisfactory when total score $< 60\%$ (< 16 grades).

2.6.3. Part 3

Adolescent nursing students' attitude toward substance abuse which includes:

- Attitude toward substance abuse and leading causes which include 14 items such as: Substance abuse is harmful to health, substance abuse activates the body, substance abuse increase ability to study etc.
- Attitude toward substance abuser which include 10 items such as: Many substance abusers are unaware of their devastating effect; many adolescents start substance abuse with their friends etc.
- Attitude toward importance of preventing substance abuse which include 9 items such as: Normal person does not abuse substances, adolescents' participation in substance abuse prevention programs is essential etc.

2.6.3.1. Scoring system for attitude

The attitude consisted of 33 items with a total 66 grades. each item was assigned as the following:

- 2 for agree.
- 1 for neutral.
- zero for disagree.

The grades for each item were summed up and then converted into a percent score.

Total score of attitude = 33 questions = 66 grades = 100%.

- Positive when total score was $\geq 60\%$ (≥ 40 grades).

- Negative when total score was $< 60\%$ (< 40 grades).

2.7. Validity

The validity of the instruments was tested by five Faculty nursing experts in the field of Community Health Nursing, Faculty of Nursing, Helwan University and disciplines, who reviewed the clarity, suitability, completeness, applicability and reliability of these tools.

2.8. Reliability

To assess reliability, the study instruments were tested by pilot subjects in the first session and again after 2 weeks as test-retest reliability to calculate test coefficients. Cronbach's Alpha, which shows that the instrument is made up of relatively homogeneous factors, indicates high reliability of the instrument. The internal consistency of knowledge was 0.801 and attitude was 0.833.

2.9. Pilot study

A pilot study was conducted on 10% (32) of the sample to test the clarity of the questions and the time required to complete the research instruments, which took approximately 15 to 20 minutes. Based on the results of the pilot study, no changes were made. Therefore, the pilot study subjects were included in the main study sample.

2.10. Fieldwork

- Official permission was obtained from the Dean of Health Technical Institute and Director of Nursing Technical Institute to conduct this study and the researcher met with the adolescent nursing students.
- Data were collected within two semesters of (2022-2023) academic year and the researcher was attended two days (Sunday and Tuesday) each week from 10am-2pm in the study setting till completion of the questionnaire. The researcher introduced himself and explained the purpose of the study to the adolescent nursing students, after receiving their consent, the researcher conducted the study by distributing the tool for them as a pre-test.
- Educational program was developed based on the results obtained from the pre-test questionnaire.
- The effectiveness of the educational program is evaluated after the end of the program using the same instrument only once. Teaching methods are used in the form of presentations, group discussions, brainstorming, demonstrations and further demonstrations.

2.10.1. Health education program

Health educational program was conducting in four phases:

2.10.1.1. 1st preparatory phase

Tools of data collection was developed: After review of the current, past, local and international related literature. This helped the researcher to be familiar with the problem, and directed the researcher in the process of tools' designing.

2.10.1.2. 2nd assessment phase

By using pre-test questionnaire to assess adolescent nursing students' knowledge and attitude about substance abuse.

2.10.1.3. 3rd planning and implementation phase

Developing the health educational program contents. In this phase the researcher implemented educational program sessions, with the clearance of general and specific objectives as follow:

- By the end of the educational program, the adolescent nursing students was able to recognize knowledge, deal with substance abuse and improve attitude toward prevention of substance abuse.
- The program was done through three theoretical and two practical sessions, each session lasted 35-45 minutes and immediately did the post- test.
- Adolescent nursing students were divided into 3 groups, and each group consist of 100 students and the last group 120. Each group took two months separate (6-8 student per day). The program was implemented within six months.

2.10.1.4. Health Education Program Booklet

A booklet including all content of the program it was design and given to adolescent nursing students as an educational reference during and after the program implementation. Contents of booklet including theoretical part as (meaning of substance abuse, addiction, types of abused substance, causes and risk factors that leading to substance abuse, characteristic of substance abuser, symptoms of substance abuse, effect of substance abuse on adolescents, measures of prevention of substance abuse, treatment of substance abuse. Practical part includes: Deep breathing technique, meditation and relaxation technique, peer resistance training and problem-solving technique.

2.10.1.5. Teaching methods

- Lecture/ discussion.
- Demonstration and re demonstration.
- Brain storming.
- Role play.

2.10.1.6. Media

- Picture and data show.
- Handout prepared by researcher.
- Colored posters and videos

2.10.1.7. 4th evaluation phase

This phase aims to evaluate the effect of a health educational program to adolescent nursing students about improving knowledge and attitude regarding prevention of substance abuse by using the same questionnaire of pretest.

2.11. Ethical considerations

An official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee, Faculty of Nursing, Helwan University. Participation in the study was voluntary and subject was given complete full information about the study and their role before signing the informed consent. The ethical considerations were included explaining the purpose and nature of the study, stating the

possibility to withdraw at any time, confidentiality of the information where it was not be accessed by any other party without taking permission of the participants. Informed consent was taken from students to conduct the study. Objectives, tools and study technique were illustrated to gain their cooperation. Ethics, values, culture and beliefs were respected.

2.12. Statistical analysis

All data was arranged, recorded, and examined through the use of suitable statistical tests. The Statistical Package for Social Science (SPSS) version 25 and the Microsoft Excel Program were the computer programs used to analyze the data. For categorical data, frequencies and percentages were used in descriptive statistics; for quantitative data, the arithmetic mean (X) and standard deviation (SD) were used. The chi square test was used to compare qualitative variables (X²). A paired t test was used to evaluate the differences between the groups throughout the two visits. Furthermore, the correlation between the research variables for (p value) was determined using the r-test. Results are deemed very statistically significant at $p > 0.001$, statistically significant at $p > 0.05$, and not significant at $p > 0.05$, depending on the degree of significance.

3. Results

Table 1 shows that 72.8% of adolescent nursing students were aged 19 years old; the mean \pm SD age was 19.32 ± 0.85 years. Also, 55.0% of them reside in rural areas. Moreover, 68.1% of them had 1-2 rooms and 67.5% of them had 4-5 family members. Furthermore, 53.1% of them had a crowding index of 1-2. Also, 95.0% of adolescent nursing students live with their father and mother. Moreover, 70.3% and 91.3% of them had a good relationship with the father and easily deal with the mother, respectively. Furthermore, 91.3% of adolescent nursing students whose fathers were working. While, 73.1% of adolescent nursing students whose mothers didn't work. Figure 1 displays that, 47.2% of adolescent nursing students their source of information about substance abuse were from friends. Also, 25.0% of them had information from television. Table 2 clarifies that, there was a marked improvement in adolescent nursing students' knowledge about prevention of substance abuse post educational program with a highly statistically significant difference at ($P = < 0.001$). As evidence, only (23.4% and 16.3%, respectively) of adolescent nursing students had complete correct knowledge about the meaning of substance abuse and the characteristics of substance abuser pre-educational program. While changed to (96.9% and 96.3%, respectively) post educational program. Figure 2 presents that, 22.5% of adolescent nursing students had satisfactory level of total knowledge pre-educational program. While changed to 92.2% post educational program. Table 3 clarifies that, there was a marked improvement in adolescent nursing students' attitude towards substance abuse and leading causes post educational program with a highly statistically significant difference at ($P = < 0.001$). As evidence, pre-educational program only (19.7% and 25.6%, respectively) of the adolescent nursing students agreed that, substance abuse had a bad psychological effect and failure to satisfy the psychological and social needs of adolescents makes them abuse substance. While changed to (97.2% and 93.8%, respectively) post educational program.

Table 4 reveals that, there was a marked improvement in adolescent nursing students' attitude towards substance abuser post educational program with a highly statistically significant difference at ($P = < 0.001$). As evidence, pre-program only (40.0% and 40.9%, respectively) of adolescent nursing students agreed that, many adolescent nursing students start using substance abuse with friends and attempt to experiment with substance abuse drives them to addiction. While changed to (95.3% and 93.8%, respectively) post educational program. Table 5 illustrates that, there was a marked improvement in adolescent nursing students' attitude toward importance of preventing substance abuse post educational program with a highly statistically significant difference at ($P = < 0.001$). As evidence, pre-educational program only (31.2% and 34.4%, respectively) of adolescent nursing students agreed that, proper educational upbringing is necessary to prevent substance abuse and the need to implement severe punishment for substance users. While changed to (100.0% and 97.2%, respectively) post educational program. Figure 3 displays that, 39.4% of adolescent nursing students had positive total attitude toward prevention of substance abuse pre-educational program. While changed to 93.8% post educational program. Table 6 clarifies that, there was highly statistically significant positive correlation between students' knowledge and their attitude toward prevention of substance abuse pre and post educational program at $p < 0.001$.

4. Discussion

Substance abuse is a widespread issue that significantly affects individuals, families, and society as a whole. A person's social life, relationships, career, educational possibilities, social standing, and overall health are all impacted by the influence, which has led to issues like behavioral, mental, physical, and behavioral health issues. The term "substance abuse" describes the improper use of chemically active drugs that are hazardous to the body, such as heroin, cocaine, alcohol, opiates, and other addictive compounds, as well as the illegal use of psychoactive chemicals [11].

4.1. Part (I): Socio-demographic characteristic of the adolescent nursing students

According to socio-demographic characteristic of the adolescent nursing students, the present study revealed that, the mean age was 19.32 ± 0.85 (Table 1). This finding was in disagreement with Afify (2021) who studied "Effect of health educational program about substance abuse on knowledge and attitude of adolescent nursing students" in Egypt ($n = 82$) and found that the mean age of adolescent nursing students was 18.9 ± 0.7 [12]. This due to variation of sample selection of students enrolled in the academic year. Related to residence, the current study showed that more than half of them lived in rural areas. This result was in agreement with Marks et al., (2019) who conducted study entitled "Geographic differences in substance use screening for justice-involved youth" in Nigeria ($n = 2,735$) and showed that respondents representing that 64% of rural adolescents reported higher rate of substance abuse [13]. From the researcher point of view, this result may be due to rural students are at great risk for substance abuse due to curiosity and experimentation of new substance to compete with their

urban colleges that indicate the imperative need of these students for health education to prevent substance abuse. Regarding numbers of family members, the present study clarified that, more than two thirds of adolescent nursing students had 4-5 family members. This result was in disagreement with Uhaa et al., (2019) who carried out study entitled "A study to assess the effectiveness of structured teaching program on prevention of substance abuse among adolescents at selected schools" in Tirupati ($n = 60$) and stated that 36.7% of students had more than three family members [14]. From the researcher point of view, this may be due to more than half of students live in rural area with extended family. Concerning crowding index, the present study showed that, more than half of students had a crowding index of 1-2. This study result was in agreement with Hozifa et al., (2018) who studied "Effect of educational program on the knowledge, attitude and practices of school students regarding drug addiction" in Tanta city, Egypt ($n = 300$) and found that 55.3% of students had crowding index level from $0 - < 2$ [15]. From the researcher point of view, this may be due to more than half of students live with their families. Regarding living with, the present study presented that, vast majority of adolescent nursing students live with their father and mother. This result was in disagreement with Dayana et., (2020) who studied "A study to assess the effectiveness of awareness program on knowledge on substance abuse and its consequences among adolescent boys in higher secondary school" in India ($n = 60$) and presented that 43.3% of adolescents were living with others [16]. Concerning relation with parents, the present study displayed that, vast majority of adolescent nursing students had good understanding with the father and easily deal with mother. Also, vast majority of adolescent nursing students reported that their parents love them a lot. This study result was supported by Yadav and Parajuli (2021), who conduct a study entitled "Knowledge regarding drug abuse among school students" in Nepal ($n = 106$) and found that 85.8% of students report very good relation with their parents [17]. From the researcher point of view, this may be due to good treating methods and creating dialogue with their adolescents is very important for having self-confidence and preventing them from substance abuse. Concerning parents' job, the present study revealed that vast majority of them their fathers were worked and nearly three quarters of their mothers didn't work. This result was in agreement with Buja et al., (2019) who conducted "Pathways connecting socioeconomic variables, substance abuse and gambling behavior: A cross-sectional study on a sample of Italian high-school students" in Italy ($n = 15602$) and stated that majority of mothers are not working [18]. From the researcher point of view, this may be due to lack of job opportunities and not working mothers help in parental monitoring and incorporate youth supervision, seems to be especially influential in its association with adolescent involvement in risky behavior. In relation to source of knowledge, the current study revealed that, less than half of adolescent nursing students their source of information about substance abuse were from friends and one quarter of them from television (Figure 2). This result was in disagreement with Kurui et al., (2020) who studied "Factors associated with substance abuse by students in medical training colleges" in Kenya ($n = 303$).

They found that 42.6% of students their sources of information contributing to substance abuse were from internet [1]. Additionally, this result disagreed with the findings of Idowu et al., (2018), who conducted a study in South-West Nigeria (n = 249) on "Substance abuse among students in selected secondary schools of an urban community of Oyo-state, South West Nigeria: Implication for policy action," and found that 48.0% of the students had heard about substance abuse from their teachers [19]. According to the researcher, this might be because the academic institution didn't provide the students with any information regarding substance usage. In relation to research hypothesis: The following results proved the research hypothesis which stated that a health educational program will improve adolescent nursing students' knowledge and attitude about substance abuse prevention.

4.2. Part (II): Students' knowledge regarding prevention of substance abuse

The current study clarified that, there was a marked improvement in adolescent nursing students' knowledge about prevention of substance abuse post educational program with a highly statistically significant difference. As evidence, less than one quarter of adolescent nursing students had completed correct answer about the meaning of substance abuse and the characteristics of substance abuser pre-educational program. While changed to majority of them post educational program (Table 2). This result was in agreement with Gilani et al., (2019), who studied "Effectiveness of structured teaching program regarding knowledge of drug abuse among students" in Pakistan (n = 100) and said that students' knowledge about substance abuse improved to 68.8% post educational program [5]. This may be due to adolescent nursing students weren't receive any health educational program about substance abuse. Regarding total adolescent nursing students' knowledge about prevention of substance abuse pre and post educational program, the current study presented that about one quarter of adolescent nursing students had satisfactory level of total knowledge pre-educational program. While changed to majority post educational program (Figure 2). This result was in agreement with Kulthe et al., (2021), who carried out study entitled "A study to assess the effectiveness of structured teaching program on knowledge of high school students regarding drug addiction in selected high schools at selected rural areas" in India (n = 60) and explained that 51.67% had unsatisfactory knowledge regarding drug addiction pre educational program, while improved to 81.6% had satisfactory total knowledge regarding substance abuse post educational program [20]. Also, this result was in disagreement with Dayana et al., (2020), who found that students' knowledge improved to 46.6% post educational program. From the researcher point of view, this result reflects effect of a health educational program that enhance knowledge about preventing.

4.3. Part (III): Adolescent nursing students' attitude toward prevention of substance abuse

The present study showed that, there was a marked improvement in adolescent nursing students' attitude towards substance abuse and leading causes post educational program with a highly statistically significant difference. As evidence, pre-educational program only one quarter of the adolescent

nursing students agreed that substance abuse had a bad psychological effect and failure to satisfy the psychological and social needs of adolescents makes them abuse substance. While changed to majority of them post educational program (Table 3). This result was in accordance with Afify (2021) who found that there was a marked improvement in adolescent nursing students' attitude towards substance abuse 100% post program [12]. Also, this result was supported by Saladino et al., (2021), who studied "The vicious cycle: Problematic family relations, substance abuse, narrative review" in Italy (n =150) and showed that 95% of the respondents agree that substance abuse had a bad psychological effect lead to involve in an organized crime, multifactorial interaction among the family system affect substance abuse and satisfy of psychological needs had a strong impact on substance abuse [21]. From the researcher point of view, this result may be due to the immaturity of the adolescent students in this age and lack of decision-making skills, which make them liable to had negative attitude easily from the surrounding environment. Regarding adolescent nursing students' attitude toward substance abuser pre and post educational program, the present study revealed that, there was a marked improvement in adolescent nursing students' attitude towards substance abuser post educational program with a highly statistically significant difference. As evidence, pre-program less than half of adolescent nursing students agreed that, many adolescent nursing' students start using substance abuse with friends and attempt to experiment with substance abuse drives them to addiction. While changed to majority post educational program (Table 4). This result was supported by Fred (2019), who studied "The effect of drug abuse on the behavior of students in selected secondary schools" in Uganda (n = 125) and stated that 87% of students report wide spread of substance abuse start from other students [22]. Also, this result was in agreement with EL Nagar and Hamed (2018) who conduct study entitled "Substance abuse as perceived by adolescents: a preventive approach for their safety" in Dakahlia governorate, Egypt (n=240) and found that there is statistically significant improvement in adolescents' attitude towards abuse and abusers post educational program [23]. Conversely, this result was in disagreement with Namada and Karimi (2021), who conducted study entitled "Drug and substance abuse among university students" in United States International University Africa, Kenya (n = 723) and presented that 51.3% of students had improved attitude toward substance abuser [2]. From the researcher point of view, this result may be due to a health educational program introduce effective information to adolescent nursing students that enhance their positive attitude. Regarding adolescent nursing students' attitude toward importance of preventing substance abuse pre and post educational program, the present study indicated that, there was a marked improvement in adolescent nursing students' attitude toward importance of preventing substance abuse post educational program with a highly statistically significant difference. As evidence, pre-educational program one third of adolescent nursing students agreed that, proper educational upbringing is necessary to prevent substance abuse and the need to implement severe punishment for substance users. While changed to majority post educational program (Table 5).

This result was in agreement with Elsayed et al., (2019), who conducted study entitled “Psychosocial intervention program for school students for protection against substance abuse” in Egypt (n = 262) and stated that there was highly statistically significant improvement regarding attitude of students about preventing substance abuse to 64.4%. post educational program [24]. Also, this result was in agreement with Mohammed et al., (2022), who studied “Knowledge and attitude of substance abuse among the youths” in Tikrit, Iraq (n = 450) and mentioned that 78.5% of students agree that educational programs can aid in the prevention of substance abuse and having better education is a protective factor against substance abuse [25]. From the researcher point of view, this result reflects effect of a health educational program that enhance adolescent nursing students’ attitude about preventing substance abuse. Regarding total adolescent nursing students’ attitude toward prevention of substance abuse pre and post educational program, the current study clarified that, more than one-third of adolescent nursing students had positive attitude towards prevention of substance abuse pre-educational program. While changed to majority of them post educational program (Figure 3). This result was in agreement with Nurmala et al., (2021), who conducted a study entitled “The intention of Indonesian high school students to participate in drug abuse prevention through peer education activities” in Indonesia (n = 854) and stated that 88.2% of students had positive attitude toward prevention of substance abuse [26]. Also, this result was in agreement with Hozifa et al., (2015), who presented that 100% of students had positive attitude post program [15]. From the researcher point of view, these results may be due to the program sessions contributes to improve attitude related to substance abuse by altering the mistaken beliefs of substance abuse and replacing them with right beliefs.

Also, this result was in accordance with Al-Tameemi et al., (2021), who studied “Improving Iraqi high school students’ attitude toward drug addiction and substance abuse through online education program during Covid-19 pandemic” in Iraq (n = 70) and found that students’ attitude improved 100% post education program [27]. Also, this result was supported by Buyukozturk et al., (2019), who studied “The effectiveness of addiction prevention training program of turkey on improved acquisition of knowledge and emotional awareness about addiction” in Turkey (n = 5,192) and clarified that students’ attitude improved to better level post education program [28]. Regarding correlation between total students’ knowledge and their attitude toward prevention of substance abuse pre and post educational program, the present study revealed that, there was highly statistically significant positive correlation between students’ knowledge and their attitude toward prevention of substance abuse pre and post educational program (Table 6). This result was in agreement with Elsayed et al., (2019), who showed that there was highly statistically significant correlation between student total knowledge level and their total attitude pre and post educational program [24]. Also, this result was in agreement with Mohammed et al., (2021), who conducted study entitled “Assessment of knowledge and attitudes of secondary school students regarding drug abuse” in Minia city, Egypt (n = 400) and mentioned that there was highly significant positive correlation between students’ total knowledge and their attitude [29]. From the researcher point of view, these results may be due to, the more information about substance abuse can cause the better attitudes and beliefs toward substance abuse.

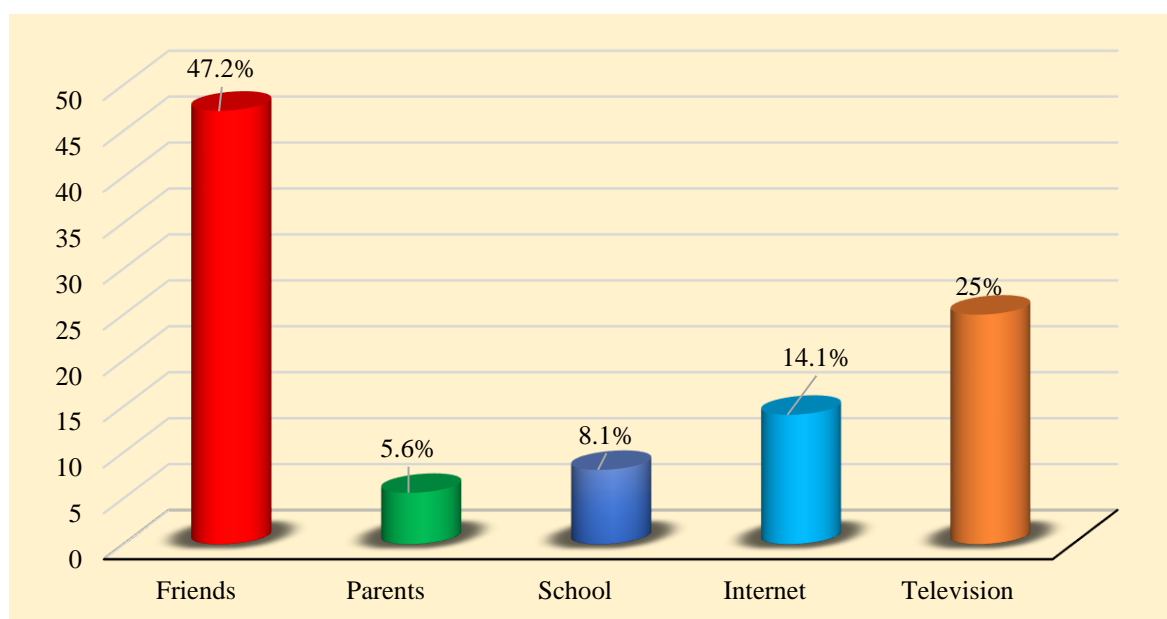


Figure 1: Percentage Distribution of Adolescent Nursing Students according to their Source of Information about Substance Abuse (n=320).

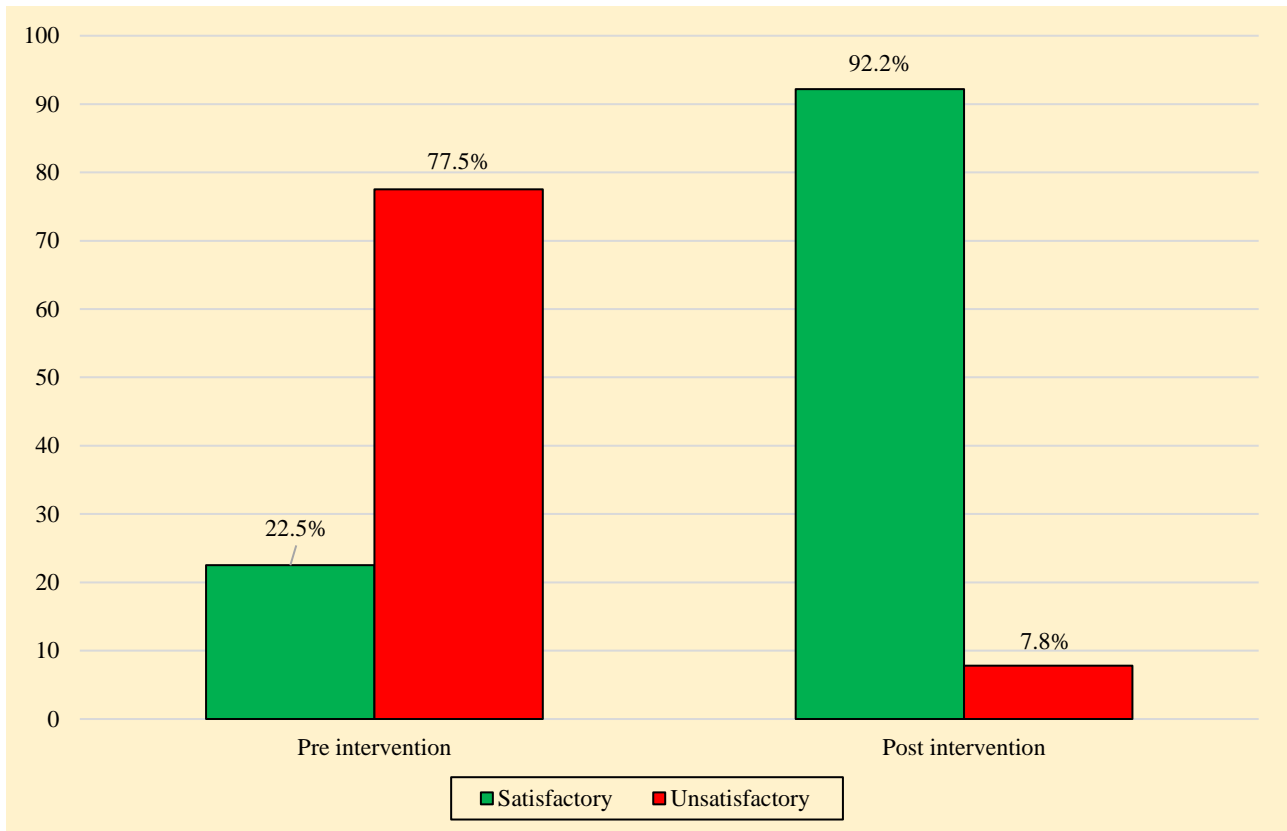


Figure 2: Percentage Distribution of Total Adolescent Nursing Students' knowledge about Prevention of Substance Abuse Pre and Post Educational Program (n=320).

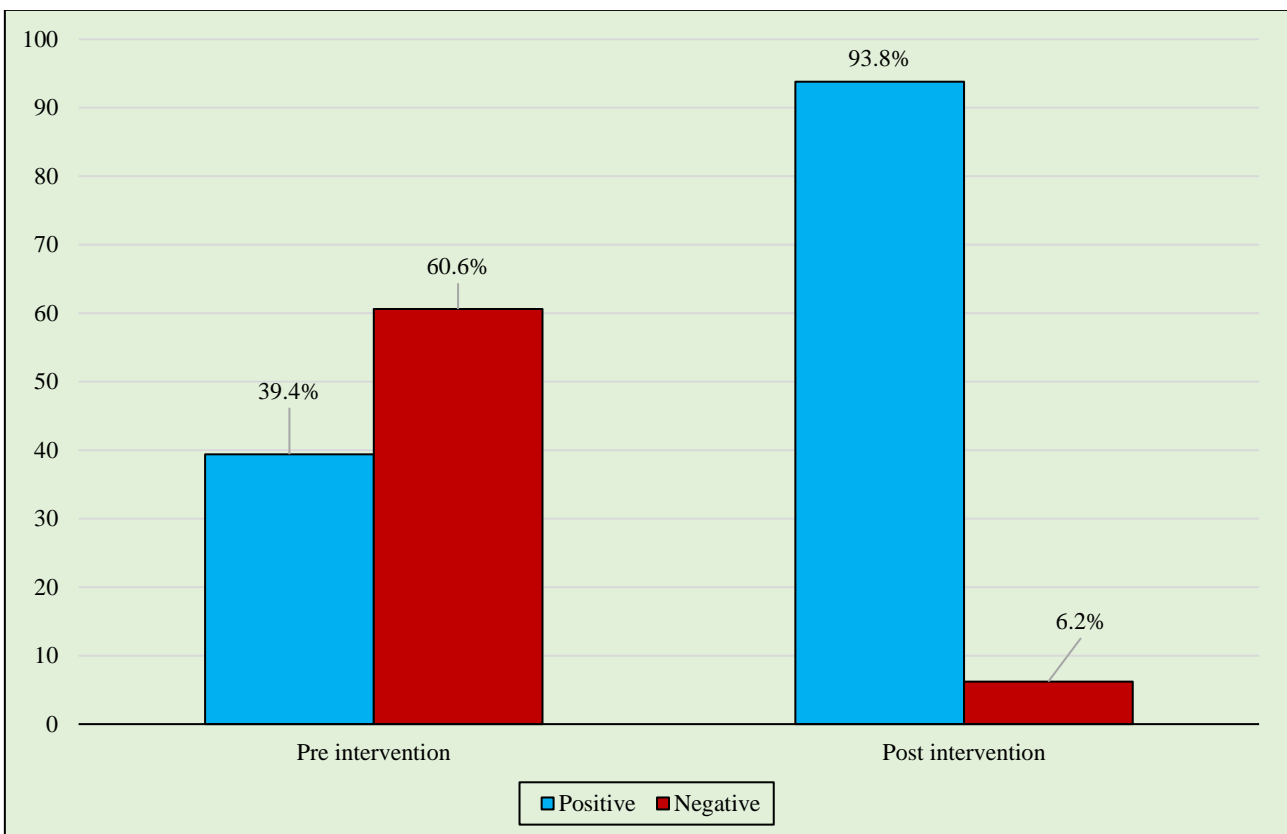


Figure 3: Percentage Distribution of Total Adolescent Nursing Students' Attitude toward Prevention of Substance Abuse Pre and Post Educational Program (n=320).

Table 1: Frequency Distribution of Adolescent Nursing Students according to their Socio-demographic Characteristics (n=320).

Socio-demographic characteristics	No.	%
Age (years)		
18	45	14.1
19	233	72.8
20	42	13.1
Mean ± SD	19.32 ± 0.85	
Residence		
Rural	176	55.0
Urban	102	31.9
Slum areas	42	13.1
Number of rooms		
1-2	218	68.1
3-5	102	31.9
Number of family members		
2-3	40	12.5
4-5	216	67.5
≥ 6	64	20.0
Crowding index		
<1	46	14.4
1-2	170	53.1
>2	104	32.5
Living with		
Father and mother	304	95.0
Father	8	2.5
Mother	5	1.6
Grandfather or grandmother	3	0.9
Relationship with the father		
Good understanding	225	70.3
To some extent understanding	52	16.3
Not understanding each other	43	13.4
Relationship with the mother		
Easy dealing	292	91.3
Firm dealing	18	5.6
Easy dealing with the lack of understanding of each other	10	3.1
Father's job		
Working	292	91.3
Not working	28	8.7
Mother's job		
Working	86	26.9
Not working	234	73.1

Table 2: Statistical Difference between Adolescent Nursing Students' Knowledge about Prevention of Substance Abuse Pre and Post Educational Program (n=320).

Knowledge items	Pre program						Post program						Chi Square	
	Complete correct		Incomplete correct		Don't know		Complete correct		Incomplete correct		Don't know			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	X ²	p-value
Meaning of substance abuse	75	23.4	184	57.5	61	19.1	310	96.9	10	3.1	0	0.0	21.25	0.000**
The reasons that drive adolescents to substance abuse	42	13.1	177	55.3	101	31.6	305	95.3	12	3.8	3	0.9	19.14	0.000**
Signs and symptoms of substance abuse that appear on substance abuser	46	14.4	158	49.4	116	36.2	307	96.0	10	3.1	3	0.9	14.37	0.000**
Types of abused substance most prevalent among adolescents	62	19.4	170	53.1	88	27.5	295	92.2	20	6.2	5	1.6	20.33	0.009**
Complications and consequences of substance abuse	57	17.8	171	53.4	92	28.8	305	95.3	10	3.1	5	1.6	25.17	0.000**
Characteristics of substance abuser	52	16.3	171	53.4	97	30.3	308	96.3	10	3.1	2	0.6	21.40	0.000**
At what age does substance abuse occur?	49	15.3	0	0.0	271	84.7	274	85.6	0	0.0	46	14.4	19.49	0.000**
In what kind of youth is the problem of substance abuse spread?	62	19.4	0	0.0	258	80.6	297	92.8	0	0.0	23	7.2	15.11	0.000**
Ways to prevent the risk of substance abuse	59	18.4	110	34.4	151	47.2	308	96.3	10	3.1	2	0.6	21.11	0.000**
Authorities concerned with substance abuse control	54	16.9	120	37.5	146	45.6	295	92.2	19	5.9	6	1.9	18.15	0.000**
The importance of health education programs toward substance abuse	56	17.5	114	35.6	150	46.9	311	97.2	7	2.2	2	0.6	17.87	0.000**
Important ways in combating the spread of substance abuse	60	18.8	131	40.9	129	40.3	308	96.3	9	2.8	3	0.9	22.25	0.000**
The role of educational institutions to prevent substance abuse	58	18.1	119	37.2	143	44.7	306	95.6	10	3.1	4	1.3	19.14	0.000**

X²: Chi Square Test. (***) Highly statistically significant at p<0.001.

Table 3: Statistical Difference between Adolescent Nursing Students' Attitude toward Substance Abuse and Leading Causes Pre and Post Educational Program (n=320).

Attitude items	Pre program						Post program						Chi Square	
	Agree		Neutral		Disagree		Agree		Neutral		Disagree			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	X ²	p-value
Substance abuse is harmful to health	75	23.4	45	14.1	200	62.5	320	100	0	0.0	0	0.0	19.67	0.000**
Substance abuse activate the body	201	62.8	84	26.3	35	10.9	10	3.1	22	6.9	288	90.0	17.44	0.000**
Substance abuse increase the ability to study	187	58.4	62	19.4	71	22.2	8	2.5	22	6.9	290	90.6	15.01	0.000**
Substance abuse have a bad psychological effect	63	19.7	50	15.6	207	64.7	311	97.2	9	2.8	0	0.0	17.43	0.000**
Substance abuse and cigarettes do not lead to addiction	241	75.3	60	18.8	19	5.9	10	3.1	18	5.6	292	91.3	16.07	0.000**
I think that poor religious upbringing leads to substance abuse	90	28.1	128	40.0	102	31.9	305	95.3	15	4.7	0	0.0	20.31	0.000**
Failure to satisfy the psychological and social needs of adolescents makes them to abuse substance	82	25.6	115	36.0	123	38.4	300	93.8	12	3.7	8	2.5	18.74	0.000**
Poor awareness of the negative effects of substances abuse makes adolescents vulnerable to abuse	100	31.3	120	37.5	100	31.3	292	91.3	20	6.2	8	2.5	20.11	0.000**
The feeling of emptiness pushes adolescents to substances abuse	89	27.8	113	35.3	118	36.9	291	90.9	20	6.3	9	2.8	19.20	0.000**
I think that substance abuse causes violence and terrorism	117	36.6	184	57.5	19	5.9	292	91.2	22	6.9	6	1.9	20.40	0.000**
Family breakdown and family problems push adolescents to substances abuse	114	35.6	180	56.3	26	8.1	298	93.1	15	4.7	7	2.2	14.35	0.000**
Poor family supervision pushes adolescents to substances abuse	105	32.8	147	45.9	68	21.3	290	90.6	20	6.3	10	3.1	15.30	0.000**
Too much money and excessive pampering push adolescents to substances abuse	122	38.1	150	46.9	48	15.0	287	89.7	22	6.9	11	3.4	16.32	0.000**
Strict family control leads adolescents to substances abuse	100	31.2	110	34.4	110	34.4	82	25.6	13 2	41. 3	106	33.1	19.22	0.000**

(**) Highly statistically significant at p<0.001.

Table 4: Statistical Difference between Adolescent Nursing Students' Attitude toward Substance Abuser Pre and Post Educational Program (n=320).

Attitude items	Pre program						Post program						Chi Square	
	Agree		Neutral		Disagree		Agree		Neutral		Disagree			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	X ²	p-value
Many substance users are unaware of its devastating effect	67	20.9	151	47.2	102	31.9	200	62.5	89	27.8	31	9.7	18.55	0.000**
Many adolescents start substance abuse with friends	128	40.0	95	29.7	97	30.3	305	95.3	10	3.1	5	1.6	15.94	0.000**
Substance abuse affects academic achievement	158	49.4	112	35.0	50	15.6	292	91.3	20	6.2	8	2.5	18.03	0.000**
Substance abuser cannot succeed in his work	160	50.0	115	35.9	45	14.1	290	90.6	19	5.9	11	3.5	22.36	0.000**
Substance abuse causes problems with family and university	175	54.7	125	39.1	20	6.2	295	92.2	20	6.2	5	1.6	12.10	0.000**
Substance abuse destroys friendships	168	52.5	115	35.9	37	11.6	296	92.5	18	5.6	6	1.9	12.99	0.000**
Substance abuser has an effect on his friends	168	52.5	115	35.9	37	11.6	296	92.5	18	5.6	6	1.9	15.01	0.000**
Poverty and financial difficulties push adolescents to substance abuse	157	49.1	113	35.3	50	15.6	289	90.3	24	7.5	7	2.2	15.53	0.000**
Adolescents attempt to experiment with substance abuse leads them to addiction	131	40.9	140	43.8	49	15.3	300	93.8	15	4.7	5	1.6	18.50	0.000**
Substance abuser can quit without the need for treatment	150	46.9	92	28.7	78	24.4	22	6.9	45	14.1	253	79.1	15.57	0.000**

(**) Highly statistically significant at p<0.001.

Table 5: Statistical Difference between Adolescent Nursing Students' Attitude toward Importance of Preventing Substance Abuse Pre and Post Educational Program (n=320).

Attitude items	Pre program						Post program						Chi Square	
	Agree		Neutral		Disagree		Agree		Neutral		Disagree			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	X ²	p-value
A normal person does not abuse substances	298	93.1	22	6.9	0	0.0	320	100	0	0.0	0	0.0	22.62	0.000**
Adolescents' participation in substance abuse prevention programs is essential	151	47.2	89	27.8	80	25.0	286	89.4	24	7.5	10	3.1	16.96	0.000**
Can protect yourself from substance abuse	180	56.3	100	31.3	40	12.5	296	92.5	20	6.2	4	1.3	17.77	0.000**
Exercising helps adolescents avoid drugs	169	52.8	111	34.7	40	12.5	300	93.8	20	6.2	0	0.0	26.25	0.000**
Artistic activities and listening to music reduce free time and thus prevent substance abuse	143	44.7	98	30.6	79	24.7	287	89.7	21	6.6	12	3.7	17.20	0.000**
Provide supervision over adolescents within institutions prevent them from substance abuse	150	46.9	98	30.6	72	22.5	275	86.0	35	10.9	10	3.1	21.13	0.000**
Proper educational upbringing is necessary to prevent substance abuse	100	31.2	110	34.4	110	34.4	320	100	0	0.0	0	0.0	25.14	0.000**
Staying away from places that make adolescents vulnerable to substance abuse is essential	144	45.0	99	30.9	77	24.1	279	87.2	31	9.7	10	3.1	15.57	0.000**
The need to implement severe punishment for substance abusers	110	34.4	125	39.1	85	26.5	311	97.2	9	2.8	0	0.0	28.63	0.000**

Table 6: Correlation between Total Students' Knowledge and their Attitude toward Prevention of Substance Abuse Pre and Post Educational Program (n=320).

Variables	Total students' attitude			
	Pre program		Post program	
	r	p-value	r	p-value
Total students' knowledge	0.546	0.000**	0.508	0.000**

R= correlation coefficient test. **Highly significant at $p < 0.001$.

5. Conclusion

By drawing conclusions from the current study's findings and research hypothesis, it can be said that there was a marked improvement in adolescent nursing students' total knowledge about prevention of substance abuse post a health educational program with a highly statistically significant difference. In addition, there was a marked improvement in all items of adolescent nursing students' total attitude toward prevention of substance abuse post a health educational program with a highly statistically significant difference. There was highly statistically significant positive correlation between students' knowledge and their attitude toward prevention of substance abuse pre and post educational program.

Recommendations

Based on the results of the present study, the recommendations have been considered the following:

- Health educational campaign should be hold for improving positive attitude of adolescent nursing students toward prevention of substance abuse.
- Guidelines for adolescent nursing students to avoid risk factor of substance abuse as peer pressure, availability and ease of access of these drugs and dissemination of health educational booklet and pamphlets about defensive ways against substance abuse.

For further research:

- Further researches in large sample of adolescent nursing students should be available about substance abuse and in different settings.
- Ongoing researches were required for enhancing students' knowledge and attitude about substance abuse

Conflict of interest

The author doesn't have conflict of interest to declare

Acknowledgement

The author was grateful to all students that volunteered to participate in this work. Also, the author appreciated the management of Health Technical Institute and Nursing Technical Institute, Faculty of Nursing of Beni-Suef University that permitted performing the program.

Availability of data and materials

We declare that the submitted manuscript is our work, which has not been published before and is not currently being considered for publication elsewhere.

Consent to participate

All authors participated in this research study.

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