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Effectiveness Of Educational Packages on Knowledge and Practices Regarding Substance Use Disorders

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Abstract:
Introduction: Individuals often seek substances for positive emotions, relaxation, or vitality, but substance use can cause severe health issues, stigma, and family distress. Academic programs must address substance misuse, providing information on therapies and treatment facilities. Prioritizing substance use education in schools and public health initiatives is crucial, emphasizing its harmful effects and addiction. Recognizing a knowledge gap, the researcher chose to study this issue to ensure nursing students receive proper training to manage substance use disorders effectively.
Objectives: The study will assess the impact of educational packages on substance use disorder prevention and management by measuring changes in knowledge and practices among final-year nursing students using a knowledge questionnaire and a scenario-based questionnaire.
Methodology: This quantitative non-randomized control trial assessed the impact of educational packages on substance use disorder prevention and management among B.Sc. Nursing IV Year and GNM III Year students at Nightingale College of Nursing (intervention) and Sharda School of Nursing (control). Multistage sampling selected colleges, and purposive sampling recruited students. Data collection instruments included validated socio-demographic profiles, knowledge questionnaires, and scenario-based practice questionnaires. The study, approved by the Institutional Ethics Committee, ensured informed consent and confidentiality. The intervention group received educational packages, with pre- and post-tests conducted to measure knowledge and practices. Data were analyzed using EZR software.
Results: Mean age was 21.5 ± 0.8 years in the interventional group and 21.2 ± 2.5 years in the control group. The interventional group's mean knowledge scores increased significantly from 14.7 (SD 5.1) to 28.4 (SD 3.6), with a mean difference of 13.6 ($p < 0.001$). The control group's scores also rose from 14.2 (SD 4.8) to 16.2 (SD 4.2), with a mean difference of 2.0 ($p < 0.001$). Similarly, the interventional group's mean practice scores improved from 11.2 (SD 4.5) to 19.4 (SD 2.4), a mean difference of 8.1 ($p < 0.001$), while the control group's scores increased from 10.1 (SD 3.9) to 12.1 (SD 3.6), a mean difference of 2.0 ($p < 0.001$). These findings show significant knowledge and practice improvements in both groups.
Conclusion: The interventional group showed greater improvement in practice scores compared to the control group after receiving educational packages on substance use disorder, management, and prevention. However, enhancing knowledge and practices depends on adherence to guidelines and the perceived benefit of the intervention. As educational systems adopt innovative strategies, this study encourages healthcare and educational organizations to develop novel methods for implementing educational packages to enhance nursing students' knowledge and skills in daily practice.

Key words: Effectiveness, Knowledge, practices, Educational Packages and Substance use

Introduction

The WHO identifies alcohol and illicit drugs as psychoactive substances that can be used harmfully. Chronic use can lead to dependence syndrome, marked by strong cravings, difficulty controlling use, continued consumption despite negative consequences, prioritizing the substance over responsibilities, tolerance, and sometimes withdrawal symptoms (***(WHO, 2024)***). Substance misuse refers to the intentional use of a substance in ways not approved by medical professionals. The DSM and WHO's ICD identify ten types of drugs, including alcohol and caffeine, as substances of misuse. Drug and substance abuse are no longer primary therapeutic terms. Repeated use of alcohol or other drugs despite problems indicates dependence, which may cause severe withdrawal symptoms when use is reduced or stopped ***(Health (UK), 2008)***.

According to UNICEF (2023), 1.2 billion children live globally, with 20% of Indians being children as of 2011. Intellectual adolescence and social pressures increase teen substance misuse. Recent studies show a rise in drug use and vulnerability among those aged 15-25. Factors influencing youth drug addiction include social networks, a desire for popularity, lax parental supervision, and easy access to narcotics. Prior drug use is riskier and reflects problematic behavior (Robertson,

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2003). Substance misuse is dangerously common among adolescents worldwide (12.5% to 84%) as well as in India (1.8% to 57.4%). (It is estimated that between 0.1 and 0.2 billion deaths occur each year as a result of heroin, cocaine, and other drugs ***(Subramaniam & Volkow, 2014)***
For over 20 years, researchers have sought solutions to substance use issues. Recent school-based prevention efforts are showing promise. Public health is seriously threatened by unhealthy behaviors often starting in adolescence, including drinking, smoking, abusing prescription medications, and using illicit drugs. Many youths who try marijuana move on to stronger drugs (Mclellan, 2017). Teenagers who avoid marijuana, tobacco, and alcohol are less likely to use cocaine or heroin. Substance abuse negatively impacts individuals, families, and society, worsening physical and emotional health over time. Marijuana, alcohol, and tobacco are considered "gateway" drugs, increasing the likelihood of future drug use (**Nawi et al., 2021**).

The belief that educational programs alone can prevent drug dependency lacks empirical support. Understanding the consequences of substance use can help deter adolescents from starting or continuing it. This study aims to assess teenagers' awareness of substance addiction (Tsering et al., 2010). Adolescents and young adults who engage in substance abuse are influenced by risk factors such as family conflicts, academic challenges, depression, conduct disorders, peer pressure, lack of knowledge, stress relief, increased energy, pain relief, escapism, and the desire for alertness, excitement, or muscle mass (**Whitesell et al., 2013a)**

The aim of the study is to evaluate the effectiveness of educational packages designed as a supportive tool for nursing students. These packages aim to enhance students' knowledge and attitude in assessing patients with substance use disorders, managing chronic addiction in hospital settings, and providing counseling to aid patients in overcoming addiction.

Methodology

Research Desing and Participant

This quantitative study utilized a Non-Randomized Control Trial design to assess the impact of educational packages on substance use disorder prevention and management among nursing students. The independent variable was the educational intervention, and the dependent variables were knowledge and practices related to substance use disorder. The research was conducted at Nightingale College of Nursing (Interventional group) and Sharda School of Nursing Science and Research (Control group) with B.Sc. Nursing IV Year and GNM III Year students. Participants were selected using multistage sampling, with colleges chosen by simple random sampling and students recruited through purposive sampling. Eligibility criteria included willingness to participate and exclusion of those with prior training on substance use disorders.

Data collection instruments

Data collection instruments for this study included a socio-demographic profile, a knowledge questionnaire on substance use disorders, and a scenario-based practice questionnaire. Tool 1 gathered background information with eight items, validated by 12 experts, with modifications based on suggestions. Tool 2 measured knowledge with 40 items, achieving 100% agreement for 30 items and 90% for 10, and had a reliability index (Cronbach's alpha) of 0.81. Tool 3 assessed practice with 25 items across 5 scenarios, validated with 100% agreement for 18 items and 90% for 7, and had a reliability index of 0.84. All tools were developed and validated through expert input and literature review, ensuring relevancy, adequacy, and appropriateness.

Ethical Consideration:

This study received approval from the Institutional Ethics Committee of Noida International University on April 30, 2022. Administrative permission was also obtained from the Director/Principal of Nightingale Institute of Nursing, Noida. Prior to enrollment, written informed consent was obtained from each participant, accompanied by a detailed subject information sheet in English. Participants were informed of their right to withdraw at any time, emphasizing voluntary participation. Confidentiality and anonymity were strictly maintained throughout the study.

Data Collection Procedure:

This non-randomized controlled trial took place at Nightingale Institute of Nursing, Noida (Interventional Group) and Sharda School of Nursing Science and Research, Sharda University (Control Group) over a 3-month period from March 2023 to May 2023. Data collection and intervention sessions occurred from 9:00 AM to 12:00 PM. Participants were briefed on the study's purpose and eligibility criteria before recruitment. The interventional group received Educational Packages on substance use disorder prevention and management, while the control group received no intervention. Both groups underwent a pre-test to assess socio-demographic profiles and knowledge/practices related to substance use disorders. The interventional group received their post-test one month after the intervention, while the control group had their post-test similarly timed but received the educational intervention afterward due to ethical considerations.

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Implementation of Intervention

The intervention administration process included several stages: first, establishing rapport with participants; second, emphasizing the topic's importance; third, obtaining informed consent through detailed explanations using subject information sheets. Fourth, a pre-test assessed socio-demographic profiles and knowledge/practices of nursing students. Fifth, the intervention was administered over two days from 10:00 AM to 12:00 PM. Sixth, the experimental group underwent a post-test one month after the intervention, while the control group had their post-test at the same interval. The educational intervention for the control group was postponed until after the research phase due to ethical considerations.

Data Analysis

Data analysis was done using EZR (Easy R) software version 3.4.1. Based on objectives and Hypothesis of study descriptive (Frequency and percentage) inferential statistics (Independent t test, Paired t test

3 Results:

Table 1: Frequency and percentage distribution of Socio-demographic variables of participants in interventional group and control group

(N = 180)

S. No	**Background (Socio-demographic) Variables**	**Interventional group (n=90)**		**Control group (n=90)**		**Chi square (χ^2) & *p* Value**
		n	**%**	**n**	**%**	
1	**Age in years (Mean±SD)**	21.5±0.8		21.2±2.5		t=1.17, *p*=0.25(NS)
2	**Gender**					χ^2=0.03 *p*=1.00 (NS)
	Male	32	35.6	36	40.0	
	Female	58	64.4	54	60.0	
3.	**Religion**					χ^2=0.03 *p*=1.00 (NS)
	Hindu	59	65.6	66	73.3	
	Muslim	10	11.1	2	2.2	
	Christian	17	18.9	20	22.3	
	Others	4	4.4	2	2.2	
4	**Domicile**					χ^2=0.03 *p*=1.00 (NS)
	Urban	77	85.6	79	87.8	
	Rural	13	14.4	11	12.2	
5	**Course**					χ^2=0.03 *p*=1.00 (NS)
	B.SC (N)	50	55.6	52	59.1	
	GNM	40	44.4	36	40.9	
6	**Family Income per month**					χ^2=0.03 *p*=1.00 (NS)
	<20,000	5	5.6	12	13.3	
	20,001-30,000	16	17.8	20	22.2	
	30,001-40,000	34	37.8	19	31.1	
	>40,000	35	38.8	39	43.3	
7	**Type of family**					χ^2=0.03 *p*=1.00 (NS)
	Nuclear	74	82.2	76	84.4	
	Joint	16	17.8	14	15.6	
8	**Family History of Substance use**					χ^2=0.03 *p*=1.00 (NS)
	Yes	12	13.3	17	18.9	
	No	78	86.7	73	81.1	

(p>0.05Not Significant) NS: Non-Significant, t=Independent t-test

The above table reported the frequency and percentage distribution of socio-demographic variables among participants in the interventional and control groups (N = 180): Both groups were comparable across various socio-demographic factors. Mean age was 21.5 ± 0.8 years in the interventional group and 21.2 ± 2.5 years in the control group (t = 1.17, p = 0.25, not significant). Gender distribution showed 35.6% males and 64.4% females in the interventional group, and 40.0% males and 60.0% females in the control group ($\chi2$ = 0.03, p = 1.00, not significant). Religious affiliation included Hindus (65.6% interventional, 73.3% control), Muslims (11.1% interventional, 2.2% control), Christians (18.9% interventional, 22.3% control), and Others (4.4% interventional, 2.2% control) ($\chi2$ = 0.03, p = 1.00, not significant). Domicile, course of study,

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family income categories, type of family, and family history of substance use also showed no significant differences between the groups (all $p > 0.05$). These findings indicate that socio-demographic characteristics were evenly distributed between the interventional and control groups, suggesting a balanced participant representation across key variables in the study.

Table 2: Comparison of Knowledge scores at different time points among participants in the interventional group and control group. **N=180**

Groups	Time Points of study	Knowledge scores			Mean difference	Paired t test	*p* value
		n	Mean	SD			
Interventional	Pre-test	90	14.7	5.1	13.6	28.7	0.001(S)
	Post-test	90	28.4	3.6			
Control	Pre-test	90	14.2	4.8	2.0	9.7	0.001(S)
	Post-test	90	16.2	4.2			

(*p*<0.05 significant level) S-Significant, NS: Non-significant

The above table represent the summary comparing knowledge scores between the interventional and control groups at different time points: The interventional group showed a significant increase in mean knowledge scores from 14.7 (SD 5.1) at pre-test to 28.4 (SD 3.6) at post-test, with a mean difference of 13.6 ($p < 0.001$). Similarly, the control group's scores increased from 14.2 (SD 4.8) to 16.2 (SD 4.2), with a mean difference of 2.0 ($p < 0.001$). These findings highlight substantial improvements in knowledge within both groups following the intervention period.

Table (3): Comparison of practices scores at different time points among participants in the interventional group and control group.

(N=180)

Groups	Time Points of study	Practices scores			Mean difference	Paired t test	*p* value
		n	Mean	SD			
Interventional	Pre-test	90	11.2	4.5	8.1	20.2	0.001(S)
	Post-test	90	19.4	2.4			
Control	Pre-test	90	10.1	3.9	2.0	14.6	0.001(S)
	Post-test	90	12.1	3.6			

(*p*<0.05 significant level) S-Significant, NS: Non-significant

The above table explains the practices scores between the interventional and control groups at different study time points (N=180): The interventional group demonstrated a significant increase in mean practices scores from 11.2 (SD 4.5) at pre-test to 19.4 (SD 2.4) at post-test, with a mean difference of 8.1 ($p < 0.001$). Similarly, the control group's scores increased from 10.1 (SD 3.9) to 12.1 (SD 3.6), with a mean difference of 2.0 ($p < 0.001$). These results indicate notable improvements in practices within both groups following the intervention period.

Discussion:

The study found a significant increase in knowledge scores from pre-test to post-test in both the interventional and control groups. Results showed a mean difference of 9.17 (95% CI: 8.1-13.6) in knowledge scores between the groups, which aligns with findings from Anju and Rajamani (2019), indicating a substantial improvement. The interventional group exhibited a 78.5% increase in overall knowledge compared to the control group (Anju1, 2019). Similar to Jan, Par, and Dar's study, our findings also demonstrated statistically significant improvement in knowledge scores post-intervention.

The study found a significant increase in practice scores from pre-test to post-test in both the interventional and control groups ($p < 0.05$, Independent t-test). The interventional group showed a gradual improvement in practice scores compared to the control group, indicating the effectiveness of Educational packages on substance use disorder prevention and management. On average, the interventional group achieved a 72.3% gain in practice scores compared to baseline, while the control group had a 19.8% gain. The difference in practice score gain between the groups was 52.5%. These results highlight the greater effectiveness of the educational intervention in improving practice scores within the interventional group compared to the control group.

Conclusion:

The study aimed to assess the effectiveness of educational packages designed to enhance nursing students' knowledge and skills in assessing and managing patients with substance use disorders, and in providing counseling for addiction recovery in hospital settings. It proceeded in two phases: Phase 1 involved developing and validating the educational packages. Phase 2 consisted of a non-randomized controlled trial at Nightingale College of Nursing, Noida (Interventional group, n=90) and Sharda School of Nursing Science and Research (Control group, n=90). Data collection spanned three months

from March to May 2023, including pre-tests using socio-demographic profiles, knowledge questionnaires, and scenario-based practice questionnaires. The intervention was administered to the Interventional group immediately after pre-testing, with post-tests conducted one month later. Control group participants underwent pre-testing followed by post-testing after one month, with their educational intervention delayed until after the research phase due to ethical considerations.

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