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ORIGINAL RESEARCH

EFFECTIVENESS OF A STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING ALCOHOL DEPENDENCE SYNDROME AMONG NURSING STUDENTS IN NASHIK

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ABSTRACT

Background: Harmful alcohol use is a major preventable cause of disease, injury and premature death, and young adults are particularly affected. Nursing students, as future health professionals, need sound knowledge of alcohol dependence syndrome (ADS) to contribute to prevention, early identification, counselling and rehabilitation.

Objectives: To assess nursing students' knowledge of ADS, to evaluate the effectiveness of a structured teaching programme (STP) in improving that knowledge, and to examine the association between pre-test knowledge and selected demographic variables.

Methods: A quasi-experimental one-group pre-test–post-test design was used. Sixty undergraduate nursing students at a nursing college in Nashik, Maharashtra, were recruited by purposive sampling. Knowledge was measured with a validated 20-item structured questionnaire (test–retest r = 0.95) before and seven days after a single 45–60-minute STP. Pre-test and post-test scores were compared with the paired t-test, and associations with demographic variables were examined with the chi-square test and Fisher–Freeman–Halton exact test.

Results: Before the intervention, 38 students (63.3%) had average knowledge, 14 (23.3%) good knowledge and 8 (13.3%) poor knowledge. After the STP, 40 (66.7%) had good knowledge, 17 (28.3%) average knowledge and 3 (5.0%) poor knowledge. The mean score increased from 10.88 ± 4.11 to 15.32 ± 4.15 (mean difference 4.43; 95% CI 2.78–6.08; t = 5.37, df = 59, $p < 0.001$; Cohen's d = 0.69). Pre-test knowledge was associated with age (χ^2 = 7.15, exact p = 0.026) and course of study (χ^2 = 9.84, exact p = 0.008), but not with gender, year of study, residence, family type or previous exposure to education on ADS.

Conclusion: A single structured teaching session produced a substantial short-term improvement in nursing students' knowledge of ADS. Structured teaching on alcohol-related disorders merits a regular place in nursing curricula; controlled studies with longer follow-up are needed to confirm the effect and its retention.

Keywords: Alcoholism; Alcohol dependence syndrome; Students, Nursing; Health Knowledge; Curriculum; Quasi-experimental study

INTRODUCTION

Alcohol is one of the most widely used psychoactive substances in the world, and its harmful use is a leading, largely preventable cause of disease, injury and premature death. The World Health Organization (WHO) estimates that alcohol consumption caused 2.6 million deaths in 2019, 4.7% of all deaths worldwide, and that about 400 million people aged 15 years and over live with an alcohol use disorder [1,2]. The burden falls heavily on young people: the highest proportion of alcohol-attributable deaths in 2019 occurred among those aged 20–39 years [1]. Easier availability, peer influence, changing lifestyles and greater social acceptance of drinking have all contributed to alcohol misuse among adolescents and young adults.

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Alcohol dependence is a disorder of the regulation of alcohol use arising from repeated or continuous consumption. Its characteristic features are impaired control over drinking, an increasing priority given to alcohol over other activities and responsibilities, and persistence of use despite harm, often accompanied by tolerance and withdrawal [3]. People with alcohol dependence commonly experience poor academic or occupational performance, emotional disturbance, family conflict, financial difficulty and reduced quality of life, and the consequences extend to families, communities and health services [2].

Alcohol use in India and Maharashtra

Alcohol is the substance most commonly used by Indians after tobacco. The national survey on the extent and pattern of substance use found that 14.6% of people aged 10–75 years, about 16 crore individuals, were current users of alcohol, and that about 5.7 crore people were affected by harmful or dependent use and needed help. Only about one in 38 people with alcohol dependence reported ever receiving treatment [4]. In Maharashtra, the fifth National Family Health Survey found that 13.9% of men aged 15 years and above consumed alcohol (13.0% in urban and 14.7% in rural areas) [5]. Nashik is a growing educational and industrial centre that draws students from across the region; hostel living, academic pressure, peer influence and exposure to an urban environment may increase students' vulnerability to experimenting with alcohol.

Nursing students and alcohol dependence

Nurses are often the first health professionals to encounter people with harmful drinking, whether in hospitals, primary care or community settings, and they are well placed to provide health education, early identification, brief counselling, referral and support during treatment and rehabilitation. Despite the scale of alcohol-related morbidity, however, few nurses are adequately prepared to respond, and structured education during pre-registration training has been shown to improve students' knowledge of alcohol and drug problems [6]. Nursing students therefore need a sound understanding of alcohol dependence both for their own health decisions and for their future professional role.

The large treatment gap in India [4] underlines the need to strengthen awareness, prevention, early identification and appropriate referral, tasks in which nurses will play a central part. A structured teaching programme (STP) is a planned, systematically organised educational intervention with defined objectives, content and teaching methods. Indian studies have reported that STPs improve knowledge of alcohol-related problems among college students and adolescents [7,8], but evidence specific to nursing students in Maharashtra is limited. The present study was therefore undertaken to evaluate the effectiveness of an STP on knowledge regarding alcohol dependence syndrome (ADS) among nursing students in Nashik.

Objectives

The objectives of the study were: (i) to assess the level of knowledge regarding ADS among nursing students; (ii) to evaluate the effectiveness of an STP on the level of knowledge regarding ADS; and (iii) to determine the association between pre-test knowledge and selected demographic variables.

Hypotheses

The following hypotheses were tested at the 0.05 level of significance. H_1: the mean post-test knowledge score of nursing students regarding ADS will be significantly higher than the mean pre-test score. H_2: there will be a significant association between pre-test knowledge regarding ADS and selected demographic variables.

MATERIALS AND METHODS

Design

A quantitative evaluative approach with a quasi-experimental one-group pre-test–post-test design was used [9]. The study is reported in accordance with the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) statement [10].

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Setting and participants

The study was conducted at Ganpatrao Adke College of Nursing, Nashik, Maharashtra, between July 2025 and March 2026. Sixty undergraduate nursing students enrolled in the General Nursing and Midwifery (GNM) and B.Sc. Nursing programmes were selected by non-probability purposive sampling. With 60 participants, the study had 97% power to detect a medium within-subject effect (Cohen's d = 0.5) with the paired t-test at a two-sided α of 0.05 [11].

Instrument

Data were collected with a structured instrument in two sections. Section I recorded demographic variables: age, gender, course of study, year of study, place of residence, type of family and previous attendance at an educational programme on ADS. Section II was a 20-item multiple-choice knowledge questionnaire covering the meaning, causes, risk factors, clinical features, withdrawal, complications, prevention, treatment and rehabilitation of ADS. Each correct answer scored one mark and each incorrect or unanswered item scored zero, giving a total score of 0–20. Knowledge was classified as poor (0–6; ≤30%), average (7–14; 35–70%) or good (15–20; ≥75%).

Validity and reliability

Content validity of the demographic proforma, the knowledge questionnaire and the STP was established by a panel of 10 experts in nursing, psychiatry, education and statistics, and items were revised in line with their suggestions [12]. Reliability of the questionnaire was assessed by the test–retest method, which yielded a correlation coefficient of r = 0.95, indicating high temporal stability [9].

Pilot study

A pilot study was conducted over seven days with 10 nursing students at a different nursing college. It confirmed the clarity of the questionnaire and the feasibility of the intervention and data collection procedure. No changes to the instrument were required, and pilot participants were not included in the main study.

Intervention

The STP was developed from the literature and national guidance and was reviewed by the same expert panel. It covered the meaning of ADS, causes and risk factors, signs and symptoms, withdrawal symptoms, complications, screening, prevention, treatment, rehabilitation and nursing management. It was delivered in a single session of 45–60 minutes using a lecture with PowerPoint presentation, discussion, charts, flash cards and audiovisual aids, and ended with a question-and-answer session.

Data collection procedure

After ethical and administrative approval had been obtained and written informed consent had been given, the pre-test was administered with the structured questionnaire, and the STP was delivered immediately afterwards. The post-test was administered with the same questionnaire seven days later.

Ethical considerations

The study was approved by the Institutional Ethics Committee of [name of committee] (approval no. [number], dated [date]). Administrative permission was obtained from the head of the institution. Written informed consent was obtained from all participants after the purpose of the study had been explained. Participation was voluntary, participants could withdraw at any time without consequence, and confidentiality was maintained by coding questionnaires. The study followed the ICMR National Ethical Guidelines for Biomedical and Health Research Involving Human Participants and the Declaration of Helsinki [13,14].

Statistical analysis

Data were analysed using IBM SPSS Statistics, Version 26.0. Demographic characteristics and knowledge levels were summarised as frequencies, percentages, means and standard deviations (SD). Pre-test and post-test mean knowledge scores were compared with the paired t-test; the mean difference is reported with its 95% confidence interval (CI), and the effect size is expressed as Cohen's d for paired data (mean difference divided by the SD of the differences) [11].

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Associations between pre-test knowledge level and demographic variables were examined with Pearson's chi-square test. Because more than 20% of cells in every contingency table had expected frequencies below five, significance was determined with the Fisher–Freeman–Halton exact test [15]. A p value below 0.05 was considered statistically significant.

RESULTS

Demographic characteristics

Most students (70.0%) were aged 20–23 years; 53.3% were female and 56.7% were enrolled in the B.Sc. Nursing programme. The largest group (38.3%) was in the third year of study. Just over half (53.3%) lived in rural areas, 63.3% belonged to nuclear families, and 70.0% had never attended an educational programme on ADS (Table 1).

Table 1. Demographic characteristics of the nursing students (N = 60)

Variable	Category	f	%
Age (years)	17–19	18	30.0
	20–23	42	70.0
Gender	Male	28	46.7
	Female	32	53.3
Course of study	GNM	26	43.3
	B.Sc. Nursing	34	56.7
Year of study	First	19	31.7
	Second	18	30.0
	Third	23	38.3
Place of residence	Urban	28	46.7
	Rural	32	53.3
Type of family	Nuclear	38	63.3
	Joint	22	36.7
Previous educational programme on ADS	Yes	18	30.0
	No	42	70.0

No participants were aged 24 years or above, enrolled in the ANM or P.B.B.Sc. Nursing programmes, in the fourth year of study, or from extended or single-parent families; these categories are omitted. ADS, alcohol dependence syndrome; GNM, General Nursing and Midwifery.

Knowledge before and after the structured teaching programme

Before the intervention, 38 students (63.3%) had average knowledge, 14 (23.3%) good knowledge and 8 (13.3%) poor knowledge of ADS. After the STP, 40 students (66.7%) had good knowledge, 17 (28.3%) average knowledge and only 3 (5.0%) remained in the poor category (Table 2).

Table 2. Level of knowledge regarding alcohol dependence syndrome before and after the structured teaching programme (N = 60)

Knowledge level	Score range	Pre-test, f (%)	Post-test, f (%)
Poor	0–6	8 (13.3)	3 (5.0)

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Knowledge level	Score range	Pre-test, f (%)	Post-test, f (%)
Average	7–14	38 (63.3)	17 (28.3)
Good	15–20	14 (23.3)	40 (66.7)
Total		60 (100)	60 (100)

Effectiveness of the structured teaching programme

The mean knowledge score increased from 10.88 ± 4.11 before the intervention to 15.32 ± 4.15 afterwards, a mean gain of 4.43 marks (95% CI 2.78–6.08). The difference was statistically significant ($t = 5.37$, $df = 59$, $p < 0.001$), and the effect size was moderate to large (Cohen's $d = 0.69$) (Table 3). Hypothesis H_1 was therefore accepted.

Table 3. Comparison of pre-test and post-test knowledge scores (N = 60)

Test	Mean ± SD	Mean difference (95% CI)	SD of difference	t (df)	p	Cohen's d
Pre-test	10.88 ± 4.11	4.43 (2.78–6.08)	6.40	5.37 (59)	<0.001	0.69
Post-test	15.32 ± 4.15					

Note: Paired t-test. Cohen's d calculated as the mean difference divided by the SD of the differences. CI, confidence interval; SD, standard deviation.

Association between pre-test knowledge and demographic variables

Pre-test knowledge was significantly associated with age ($\chi^2 = 7.15$, $df = 2$, exact $p = 0.026$) and course of study ($\chi^2 = 9.84$, $df = 2$, exact $p = 0.008$) (Table 4). Students aged 17–19 years were more often in both the poor (20.0%) and the good (40.0%) categories, whereas most students aged 20–23 years (75.0%) had average knowledge. Poor knowledge was more frequent among GNM than among B.Sc. Nursing students (28.0% vs 2.9%). No significant association was found with gender, year of study, place of residence, type of family or previous attendance at an educational programme on ADS (all $p > 0.05$). Hypothesis H_2 was therefore accepted only for age and course of study.

Table 4. Association between pre-test level of knowledge and demographic variables (N = 60)

Variable	Category	Poor	Average	Good	χ^2 (df)	Exact p*
Age (years)	17–19	4	8	8	7.15 (2)	0.026†
	20–23	4	30	6		
Gender	Male	5	20	5	1.75 (2)	0.449
	Female	3	18	9		
Course of study	GNM	7	11	7	9.84 (2)	0.008†
	B.Sc. Nursing	1	27	7		
Year of study	First	2	13	5	2.05 (4)	0.778
	Second	2	12	6		
	Third	4	13	3		
Place of residence	Urban	4	15	5	0.44 (2)	0.859
	Rural	4	23	9		
Type of family	Nuclear	4	25	11	1.91 (2)	0.408

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Variable	Category	Poor	Average	Good	χ^2 (df)	Exact p*
	Joint	4	13	3		
Previous educational programme on ADS	Yes	1	10	4	0.80 (2)	0.824
	No	7	28	10		

*Note: Values are frequencies. χ^2, Pearson chi-square statistic. *Fisher–Freeman–Halton exact test, used because more than 20% of cells had expected frequencies below five. †Significant at $p < 0.05$.*

DISCUSSION

This study evaluated a structured teaching programme on alcohol dependence syndrome for undergraduate nursing students in Nashik. A single session was followed by a clear improvement in knowledge: the proportion of students with good knowledge almost tripled, and the mean score rose by more than four marks on a 20-point scale, a moderate-to-large effect.

At baseline, nearly two- thirds of the students had only average knowledge, and 70% had never attended any educational programme on the subject. Most students therefore had some general awareness of the harmful effects of alcohol but an incomplete understanding of its risk factors, clinical features, complications, treatment and rehabilitation, which are the areas most relevant to their future role in health education, early identification, counselling and referral. Similar gaps have been reported in Indian studies of adolescents and college students before structured teaching [7,8]: Sain and colleagues found a mean pre- test knowledge score of 10.14 ± 2.09 among undergraduate college students [7], close to the baseline score in the present study.

The improvement after the STP is consistent with previous work. Sain and colleagues reported that the mean knowledge score of undergraduate students rose from 10.14 to 19.71 after a structured teaching programme on the prevention and control of alcohol use [7], and Pushpam reported a significant gain in knowledge of alcohol abuse among adolescents in a nursing college in Jammu [8]. Evidence from nursing students elsewhere points in the same direction. In a quasi-experimental study with a control group, Lee and colleagues found that alcohol harm-prevention education produced significantly higher alcohol-related knowledge among Korean nursing students than in controls who received no education [16], and Rassool and Rawaf showed that a short, intensive educational programme significantly improved the knowledge, attitudes and intervention confidence of undergraduate nursing students in England [6]. The agreement between studies conducted in different countries and with different designs strengthens the case for structured education on alcohol in nursing programmes.

Age and course of study were associated with baseline knowledge. The pattern for age was not a simple gradient: younger students were more polarised, while older students clustered in the average category. GNM students were considerably more likely than B.Sc. Nursing students to have poor knowledge, which may reflect differences in curriculum content, entry qualifications or prior exposure to mental health and community health teaching. Because age and course of study are likely to be related, and because several cells had small expected counts, these associations should be interpreted cautiously and regarded as exploratory. The absence of an association with gender, residence or family type is broadly in line with Pushpam, who found no significant association between knowledge of alcohol abuse and sociodemographic variables among adolescents [8], and with Rassool and Rawaf, who found that most demographic characteristics did not predict educational outcomes in alcohol and drug education [6]. It is notable that previous attendance at an educational programme on ADS was not associated with better baseline knowledge, which suggests that earlier exposure may have been brief or not retained.

Implications for nursing education and practice

The findings support the inclusion of focused, structured teaching on alcohol dependence and other substance use disorders in both GNM and B.Sc. Nursing curricula, with particular attention to programmes in which baseline knowledge is weaker. Teaching should go beyond the harmful effects of alcohol to cover screening, brief intervention,

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referral pathways and support during treatment and rehabilitation, so that students can apply their knowledge in clinical and community settings. Periodic refresher sessions may help sustain knowledge over time.

Limitations

The one-group pre-test–post-test design has no control group and no random allocation, so testing effects (the same questionnaire was used twice within a week), maturation, history and other extraneous influences cannot be excluded as explanations for part of the improvement [17]. Purposive sampling of 60 students from a single college limits the generalisability of the findings. Knowledge was assessed only seven days after the intervention, so long-term retention is unknown, and the study measured knowledge alone rather than attitudes, skills or behaviour.

CONCLUSION

A structured teaching programme significantly improved nursing students' knowledge regarding alcohol dependence syndrome: the mean score rose from 10.88 ± 4.11 to 15.32 ± 4.15, and the proportion of students with good knowledge increased from 23.3% to 66.7%. Age and course of study were associated with baseline knowledge, whereas other demographic characteristics were not. Structured teaching on alcohol-related disorders should be incorporated regularly into nursing education to prepare students for prevention, early identification and management of alcohol-related problems. Future studies should use controlled designs with larger, multicentre samples, compare teaching strategies such as e-learning, simulation and peer education, assess attitudes and practices as well as knowledge, and measure retention over longer periods.

DECLARATIONS

Author contributions: Mandakini Khemnar conceived and designed the study, developed the instrument and the teaching programme, collected and analysed the data, and wrote and approved the final manuscript.

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Data availability: The data supporting the findings of this study are available from the corresponding author on reasonable request.

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