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Research Article

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A study to evaluate the effectiveness of a Video-Assisted Teaching Programme on Knowledge and Attitude Regarding Prevention of Selected Occupational Health Hazards Among Cotton Industry Workers in Dindigul, India

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Abstract:

Background: Cotton industry workers may be exposed to occupational hazards, including respiratory hazards related to cotton dust, noise-related hearing problems, and workplace injuries. Education is one approach used to improve workers' awareness of prevention. **Objective:** To evaluate the effectiveness of a video-assisted teaching programme on knowledge and attitude regarding prevention of selected occupational health hazards among cotton industry workers in Dindigul, Tamil Nadu, India. **Methods:** A quasi-experimental, one-group pre-test–post-test design was used. Sixty cotton industry workers were selected by simple random sampling from a selected cotton industry. Data were collected using a demographic and health-history proforma, a 21-item structured knowledge questionnaire, and a 15-statement five-point Likert attitude scale. A video-assisted teaching programme of approximately 30 minutes was followed by group discussion, and the post-test was conducted one week later. Descriptive statistics, paired t-tests, Pearson correlation, and chi-square tests were reported. **Results:** Before the intervention, all 60 participants (100%) had inadequate knowledge. At post-test, 41 (68%) had adequate knowledge and 19 (32%) had moderate knowledge. Negative attitude was reported by 15 participants (25%) and neutral attitude by 45 (75%) at pre-test; at post-test, 57 (95%) had positive attitude and 3 (5%) had neutral attitude. Mean knowledge scores increased from 21.91 (SD 5.16) to 73.98 (SD 6.94), with a reported paired t value of 52.02. Mean attitude scores increased from 43.92 (SD 5.89) to 82.95 (SD 3.87), with a reported paired t value of 64.11. Post-test knowledge and attitude were moderately positively correlated (r=0.51). Educational qualification and years of work experience were reported to be associated with knowledge and attitude. **Conclusion:** The study reported improved knowledge and attitude scores following the video-assisted teaching programme. The findings should be interpreted in light of the single-group design and inconsistencies in the original report's statistical notation.

Keywords: cotton industry workers; occupational health hazards; video-assisted teaching; knowledge; attitude; quasi-experimental study.

INTRODUCTION

Occupational health is concerned with protecting and promoting workers' physical, mental, and social well-being. Workers in cotton-processing environments may encounter several occupational hazards, including exposure to cotton dust, excessive workplace noise, and risks of accidental injury. The supplied study report identifies respiratory problems, noise-induced hearing impairment, and occupational accidents as priority hazards for cotton industry workers. It also describes the need for preventive education and safe work practices.

The report's literature review describes previous studies documenting respiratory morbidity and byssinosis among cotton textile workers, hearing impairment associated with occupational noise exposure, and inadequate use of personal protective equipment in some textile settings. It also refers to earlier educational interventions that reported improvements in occupational-health knowledge. Against this background, the present study evaluated a video-assisted teaching programme intended to improve knowledge and attitudes regarding prevention of selected occupational health hazards among cotton industry workers in Dindigul.

Aim and Objectives

The aim was to evaluate the effectiveness of a video-assisted teaching programme on knowledge and attitude regarding prevention of selected occupational health hazards among cotton industry workers.

- To assess participants' knowledge and attitude regarding prevention of selected occupational health hazards.
- To compare pre-test and post-test knowledge and attitude scores after the video-assisted teaching programme.
- To examine the relationship between post-test knowledge and attitude.
- To examine associations between knowledge and attitude and selected demographic variables.

Methods

Design and setting

The study used a quasi-experimental, one-group pre-test–post-test design (O_1–X–O_2). It was conducted among workers at Chola Cotton Industry in Vadasandur, Dindigul district, Tamil Nadu, India. The report states that the industry had 799 workers and that data collection took place over six weeks.

Participants and sampling

The sample comprised 60 cotton industry workers selected using simple random sampling. Inclusion criteria were workers at the selected industry who could converse in Tamil. Workers unwilling to participate and those employed outside the selected industry were excluded. Written consent was obtained, according to the report.

Measures

The data-collection instrument had three parts: (1) demographic variables, including age, sex, educational status, marital status, family type, income, duration of work, and years of work experience; (2) a 21-item structured knowledge questionnaire covering general aspects (5 items), respiratory problems (6), noise-induced disorders (4), and occupational accidents (6); and (3) a 15-statement, five-point Likert attitude scale. The report states that five nursing and medical experts reviewed the tool and that the Tamil translation was validated by Tamil experts. Test–retest reliability coefficients were reported as 0.87 for knowledge and 0.83 for attitude, based on six workers assessed one week apart.

Knowledge was scored from 0 to 100, with one point for each correct response and zero for an incorrect or absent response. The report classified scores of 0–50% as inadequate, 51–75% as moderate, and 76–100% as adequate. Attitude was assessed using 15 statements on a five-point scale; the report classified scores above 80% as positive, 60–80% as neutral, and 0–59% as negative.

Intervention and data collection

The video-assisted teaching programme covered definitions, causes, signs and symptoms, management, prevention, and complications of respiratory problems, noise-induced disorders, and occupational accidents. The video lasted approximately 30 minutes and was followed by about 15 minutes of group discussion. Knowledge and attitude were assessed before the intervention and again one week after it using the same instruments. The report states that permission was obtained from the industry manager and that written consent was obtained from participants.

Data analysis

The report describes the use of frequencies and percentages for demographic characteristics and knowledge and attitude categories, means and standard deviations for score comparisons, paired t-tests for pre-test and post-test comparisons, Pearson correlation for the relationship between knowledge and attitude, and chi-square tests for associations with demographic variables. The statistical software used was not specified in the supplied report.

RESULTS

A total of 60 cotton industry workers participated. The demographic profile and health history below reproduce the counts and percentages reported in the source. Some source categories have totals or labels that do not align perfectly; these have not been silently corrected.

Table: 1 Participant characteristics

Characteristic	Category	n (%)
Age	20–30 years	34 (57%)
	31–40 years	22 (37%)
	Above 40 years	4 (6%)
Sex	Male	31 (52%)
	Female	29 (48%)
Educational status	Illiterate	35 (58%)
	Literate	25 (42%)
Marital status	Unmarried	25 (41%)
	Married	32 (53%)
	Widowed	1 (2%)
	Divorced	1 (2%)
	Separated	1 (2%)
Family type	Joint	20 (33%)
	Nuclear	31 (52%)
	Extended	7 (12%)
	Broken	2 (3%)
Monthly income	Below Rs. 4,000	1 (2%)
	Rs. 4,001–6,000	35 (58%)
	Rs. 6,001–8,000	23 (38%)
	Above Rs. 8,000	1 (2%)
Work experience	Less than 1 year	10 (17%)
	1–5 years	49 (82%)
	Above 5 years	1 (2%)
Daily work duration	5–8 hours	51 (85%)
	More than 8 hours	9 (15%)

The largest age group was 20–30 years (57%); 52% were male and 58% were reported as illiterate. Most participants reported 1–5 years of work experience (82%) and a daily work duration of 5–8 hours (85%). Percentages for work experience total 101% due to rounding or source reporting.

Table: 2 Health history

Health-history item	Category	n (%)
Reported health problems	Joint pain	40 (66%)
	Asthma	22 (36%)
	Breathing difficulty	45 (75%)
	Hearing problem	36 (60%)
Workplace injury	Yes	23 (38%)
	No	37 (62%)
Body part injured (as reported)	Hand	31 (51%)
	Legs	6 (10%)
	Face	7 (11%)
	Back	0 (0%)
Regular exercise	No	60 (100%)
Hospitalization	Yes	28 (47%)
	No	32 (53%)

Breathing difficulty was the most frequently reported health problem (45; 75%). Twenty-three participants (38%) reported a workplace injury, and all 60 (100%) were reported not to undertake regular exercise. The source's injury body-part counts are not readily reconcilable with the number reporting injury and are presented as reported.

Table: 3 Pre-test and post-test knowledge and attitude categories

Outcome category	Pre-test n (%)	Post-test n (%)
Knowledge: Inadequate	60 (100%)	0 (0%)
Knowledge: Moderate	0 (0%)	19 (32%)
Knowledge: Adequate	0 (0%)	41 (68%)
Attitude: Negative	15 (25%)	0 (0%)
Attitude: Neutral	45 (75%)	3 (5%)
Attitude: Positive	0 (0%)	57 (95%)

At pre-test, all participants were classified as having inadequate knowledge. At post-test, 68% were classified as having adequate knowledge and 32% as having moderate knowledge. Positive attitude increased from 0% at pre-test to 95% at post-test, while the remaining 5% had a neutral attitude.

Table: 4 Pre-test and post-test score comparisons

Outcome	Assessment	n	Mean	SD	Paired t value
Knowledge	Pre-test	60	21.91	5.16	52.02
Knowledge	Post-test	60	73.98	6.94	
Attitude	Pre-test	60	43.92	5.89	64.11
Attitude	Post-test	60	82.95	3.87	

The mean knowledge score increased from 21.91 (SD 5.16) before the intervention to 73.98 (SD 6.94) after it. The mean attitude score increased from 43.92 (SD 5.89) to 82.95 (SD 3.87). The report describes both pre-test/post-test differences as statistically significant and gives paired t values of 52.02 for knowledge and 64.11 for attitude. However, the original knowledge table contains the notation "p>0.05," which conflicts with its narrative interpretation; the report does not provide exact p values or degrees of freedom. The statistical significance should therefore be verified against the original dataset before publication.

Table: 5 Correlation between post-test knowledge and attitude

Variable	n	Mean	SD	Correlation (r)
Knowledge	60	73.98	6.94	0.51
Attitude	60	82.95	3.87	

The report gives a Pearson correlation coefficient of r=0.51 and describes it as a moderate positive relationship between post-test knowledge and attitude (reported $p<0.05$).

Table: 6 Association with demographic variables

Variable	Knowledge χ^2	Knowledge finding	Attitude χ^2	Attitude finding
Age	2.46	Not significant	0.50	Not significant
Sex	2.00	Not significant	1.60	Not significant
Educational qualification	16.00	Significant; $p<0.001$	15.72	Significant; $p<0.001$
Years of work experience	12.60	Significant; $p<0.05$ (as reported)	16.16	Significant; $p<0.01$

The report states that educational qualification and years of work experience were significantly associated with both knowledge and attitude. Age and sex were not significantly associated with either outcome in the reported analyses. The report does not provide complete contingency tables, degrees of freedom, or exact p values for these tests.

DISCUSSION

The study found a marked increase in knowledge and attitude scores following the video-assisted teaching programme. Before the intervention, all participants were categorized as having inadequate knowledge, and three-quarters had a neutral attitude while one-quarter had a negative attitude. At post-test, over two-thirds were categorized as having adequate knowledge and 95% as having a positive attitude. These descriptive changes are consistent with the study's stated objective of evaluating a structured educational intervention.

The reported mean scores also increased between assessments: knowledge rose from 21.91 to 73.98, and attitude rose from 43.92 to 82.95. The report compares these findings with earlier educational studies among textile workers, including studies by Jessica S. Kale and Akash H. A. that reportedly found improved occupational-health knowledge after teaching interventions. Such comparisons are contextual rather than direct evidence of equivalence, because the designs, instruments, and settings may differ.

The reported correlation of $r=0.51$ suggests a moderate positive association between post-test knowledge and attitude in this sample. Educational qualification and years of work experience were reported to be associated with both outcomes, whereas age and sex were not. These associations should be interpreted cautiously because the source does not provide full contingency tables or exact p values, and the sample was drawn from one industry.

The findings are limited by the one-group pre-test–post-test design, absence of a comparison group, short one-week follow-up, and reliance on questionnaire scores. Without a control group, changes cannot be attributed exclusively to the intervention, and the study did not report whether knowledge or attitudes translated into sustained protective practices or reduced occupational injuries or illness. In addition, the source contains a conflicting p-value notation for the knowledge comparison and some inconsistencies in health-history reporting. These should be checked against the original records before submission.

Limitations

- The study used a one-group pre-test–post-test design without a control group.
- The sample included 60 workers from one selected cotton industry, limiting generalizability.
- The post-test was conducted one week after the intervention; longer-term retention was not assessed.
- The report contains inconsistencies in the notation of statistical significance and some health-history counts.
- Exact p values, degrees of freedom, and complete contingency tables were not provided.

CONCLUSION

Among 60 cotton industry workers in Dindigul, knowledge and attitude scores regarding prevention of selected occupational health hazards were higher at post-test than at pre-test following a video-assisted teaching programme. The report also describes a moderate positive correlation between post-test knowledge and attitude and associations of educational qualification and work experience with both outcomes. The results support the potential usefulness of structured occupational-health education, but controlled studies with larger samples, longer follow-up, and verified statistical reporting are needed to strengthen the evidence.

Implications for nursing practice

The source report identifies community and occupational-health nurses as potential contributors to preventive education for cotton industry workers. Video-assisted sessions combined with discussion may be used to communicate information about respiratory hazards, noise-related risks, workplace injuries, and preventive measures. The effectiveness of such education should be assessed not only through knowledge and attitude scores but also through observed protective practices and follow-up outcomes.

Recommendations

- Replicate the study with a larger sample from multiple cotton industries.
- Use a control or comparison group to strengthen evaluation of intervention effects.
- Include practice-related outcomes and longer-term follow-up.
- Verify statistical values and reconcile discrepancies with the original dataset before publication.

Ethical considerations

The report states that approval was obtained from the dissertation committee and relevant officials, permission was obtained from the industry manager, and written consent was obtained from participants. The name of an institutional ethics committee and an approval number were not specified in the supplied report.

Funding and conflicts of interest

Funding and conflict-of-interest declarations were not specified in the supplied report and should be completed by the authors before submission.

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