

Improving Swine Flu Awareness In Nursing Education: Outcomes Of A Structural Teaching Module Among First-Year Gnm Students

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Abstract:

This quasi-experimental study aimed to assess the effectiveness of a self-structural educational module on knowledge regarding swine flu and its prevention among first-year General Nursing and Midwifery (GNM) students at Parul Institute of Nursing, Vadodara, Gujarat. A quantitative research approach with a one-group pre-test post-test design was employed. A total of 100 students were selected using a non-probability purposive sampling technique based on inclusion criteria. Data were collected using a self-structural knowledge questionnaire developed through literature review, expert validation, and pretesting. The educational intervention was delivered via a structural teaching session using visual aids and PowerPoint presentations. The same questionnaire was administered as a pre-test and post-test with a 7-day interval to assess knowledge improvement. Statistical analysis using paired t-test showed a significant increase in post-test scores, indicating the module's effectiveness. The chi-square test was used to find associations between post-test knowledge and demographic variables. Reliability of the tool was confirmed through test-retest ($r = 0.84$). The study concludes that structural educational interventions can effectively improve knowledge among nursing students about swine flu prevention.

Results:

Out of 100 GNM students, the majority (91%) were aged 18–20 years and 93% were female. Most participants belonged to Hindu religion (67%), nuclear families (67%), and resided in hostels (73%). In the pre-test, 23% of students had poor knowledge, 46% average, and 31% good knowledge; none scored excellent. Post-intervention, no student remained in the poor category, with 36% average, 53% good, and 11% excellent knowledge scores. The mean knowledge score significantly increased from 11.52 ± 5.169 (pre-test) to 16.13 ± 3.886 (post-test), with a t-value of 7.707 ($p = 0.001$). Significant associations were found between pre-test knowledge and religion, family type, mode of admission, family income, previous knowledge, and participation in awareness programs. **Conclusion:** The study concluded that the self-structural teaching module was highly effective in enhancing the knowledge of GNM students regarding swine flu and its prevention. A significant improvement was observed in post-test scores, confirming the value of structural educational interventions.

Keywords: Swine flu, GNM students, educational module, quasi-experimental design, nursing education, knowledge assessment, disease prevention, pre-test post-test design, influenza awareness, structural teaching.

INTRODUCTION

Swine flu (H1N1 influenza) remains a global public health concern due to its rapid transmissibility and periodic outbreaks, particularly in countries with resource-constrained healthcare systems such as India¹. According to WHO, over 18,000 deaths were reported globally during the 2009 pandemic². Despite the introduction of vaccination and antiviral drugs, many nursing students still lack comprehensive knowledge regarding its prevention³.

Nurses are vital frontlines in healthcare, and their understanding of communicable disease control is essential. A study by Singh and Kaur⁴ revealed that 58% of nursing students demonstrated inadequate baseline knowledge about swine flu. Devi et al.⁵ emphasized that early curricular exposure improves knowledge and preventive behavior.

First-year GNM students are at a critical stage where foundational competencies are developed. Structural teaching interventions have been shown to be more effective than traditional methods. For instance, Sharma et al.⁶ noted a 32% improvement in knowledge post structural teaching among nursing students. Recent evidence supports the use of self-structural modules in nursing education. George et al.⁷ found a statistically significant increase in students' knowledge on respiratory infections post-intervention. Similarly, Yadav and Patel⁸ concluded that multimedia-integrated modules improve retention and conceptual clarity.

In India, where swine flu outbreaks recur, a large proportion of nursing students have not attended formal sessions on influenza. Jain et al.⁹ observed that 65% of students lacked awareness about personal protective measures, and 71% had never participated in awareness campaigns.

Interactive modules, combining video, quizzes, and visual aids, have been shown to foster engagement and improve learning outcomes¹⁰. Long-term knowledge retention was also observed in students exposed to multimodal educational strategies¹¹.

Thus, this study aims to evaluate the impact of a self-structural educational module on knowledge regarding swine flu and its prevention among first-year GNM students in Gujarat, using a pre-test post-test quasi-experimental design.

METHODOLOGY

This study adopted a quantitative research approach and employed a quasi-experimental one-group pre-test post-test design. This method enabled the assessment of the effectiveness of a self-structural educational module by comparing participants' knowledge before and after the intervention within the same group.

The research was conducted at the Parul Institute of Nursing, Vadodara, Gujarat, targeting first-year General Nursing and Midwifery (GNM) students. This cohort was selected for its relevance, as these students are in the foundational phase of their professional education, where building awareness about communicable diseases like swine flu is essential.

A sample of 100 students was chosen through non-probability purposive sampling. Participants were selected based on inclusion criteria such as willingness to participate and presence during both testing periods. Students who had prior formal education on swine flu or were absent during either phase were excluded.

Data collection was performed using a self-developed knowledge questionnaire, formulated through extensive literature review and expert consultation. The tool assessed understanding of swine flu etiology, symptoms, transmission, prevention, treatment, and the healthcare provider's role. The content validity was reviewed by professionals in nursing and public health. The tool demonstrated good reliability, with a test-retest correlation coefficient of $r = 0.84$.

The procedure involved three key phases. Initially, informed written consent was obtained from all participants. This was followed by a pre-test using the validated tool to determine baseline knowledge. The intervention phase involved delivering a structural educational module that utilized PowerPoint presentations, charts, illustrations, and brief video demonstrations. Sessions were conducted interactively in the classroom.

Seven days post-intervention, the same questionnaire was administered as a post-test. The chosen interval aimed to provide adequate time for students to internalize the information without allowing significant recall loss.

Descriptive statistics, including mean, standard deviation, frequencies, and percentages, were used to describe demographic variables and knowledge scores. A paired t-test was employed to evaluate the effectiveness of the intervention by comparing pre- and post-test scores. Chi-square tests were used to examine associations between knowledge levels and selected demographic variables such as age, gender, income, prior awareness, and family structure.

Ethical approval was granted by the Institutional Ethics Committee of the Parul Institute of Nursing. All participants were assured of confidentiality, anonymity, and voluntary participation, in line with ethical principles of autonomy, beneficence, non-maleficence, and justice.

RESULTS

Frequency and Percentage Distribution of Demographic Variables of the Participants (n=100)

The study included 100 first-year GNM students, with the majority (91%) aged 18–20 years and predominantly female (93%). Most were Hindu (67%), from nuclear families (67%), and resided in hostels (73%). Sixty percent came from rural areas. Regarding prior education, 53% had schooling in both English and regional languages.

Forty-four percent were admitted through the management quota, 30% via merit, and 26% through the government quota. Over half (54%) had a monthly family income of ₹10,000–₹25,000. Prior knowledge or training on swine flu was reported by 59% of students. Internet and social media were the most common sources of information (52%), followed by books (39%). Seventy-five percent had participated in awareness programs. The sample was predominantly young, female, hostel-residing students from rural, nuclear families. A majority had prior exposure to swine flu information, mainly through digital platforms and awareness programs, which likely enhanced their receptivity to the educational module.

Table 1: Findings Related to knowledge regarding swine flu and its prevention among GNM student

(n= 100)

Knowledge Score	Pre-Test	Post-test
	Frequency (%)	Frequency (%)
Poor Score (≤ 7)	23(23%)	0 (0%)
Average Score (8-14)	46 (46%)	36 (36%)
Good Score (15 – 21)	31 (31%)	53 (53%)
Excellent Score (22 – 30)	0 (0%)	11 (11%)

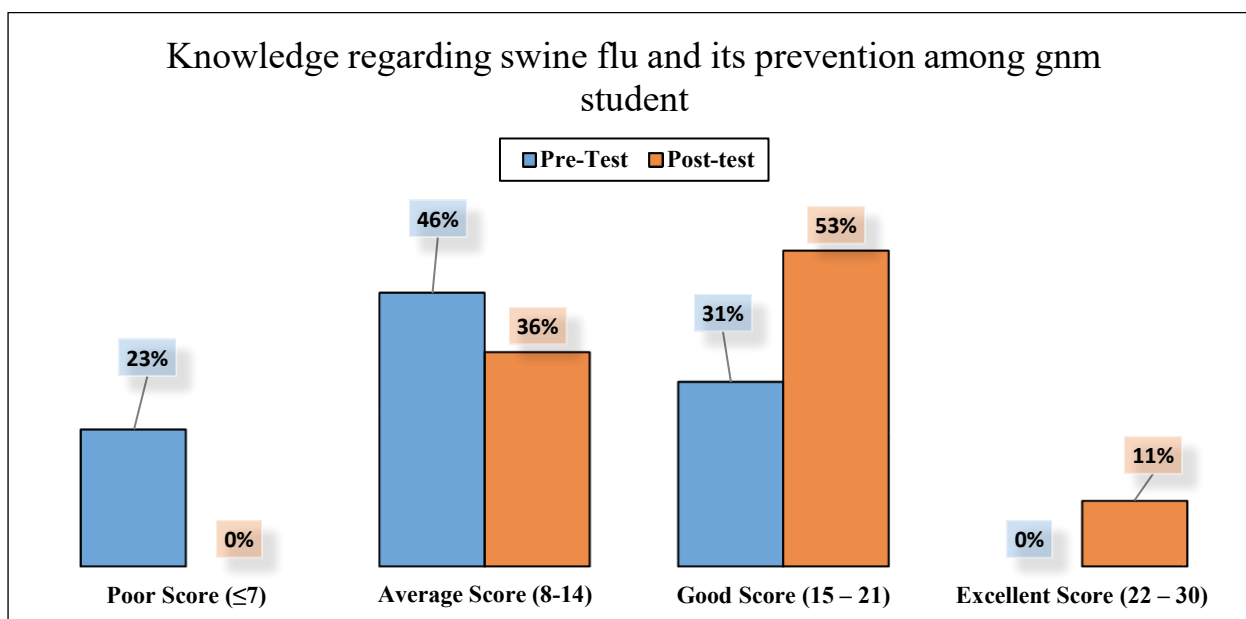


Figure Bar diagram: 01 Knowledge regarding swine flu and its prevention among GNM student

Table 2: Findings Related to the effectiveness of a self-structural module on knowledge regarding swine flu and its prevention among GNM students

(n= 100)

Knowledge Score	Mean Score	Standard Deviation	Degree of Freedom	Calculated 't' Value	Tabulated 't' Value	p-value
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Post-test	16.13	3.886	99	7.707	1.984	0.001
Pre-test	11.52	5.169				

As per the table no 3, the findings revealed a significant improvement in knowledge scores following the educational intervention. The mean pre-test score was 11.52 (± 5.169), while the post-test mean increased to 16.13 (± 3.886). A paired t-test showed a calculated t-value of 7.707, which was greater than the tabulated value of 1.984 at 99 degrees of freedom. The p-value of 0.001 indicated high statistical significance. This demonstrates that the self-structured educational module was effective in enhancing knowledge regarding swine flu and its prevention among GNM students.

Table 3: Chi- Square Association between the pretest knowledge level of GNM students regarding swine flu and its prevention with the selected demographic variables (n= 100)

Demographic Variable	Category	F	Knowledge Score			df	χ^2 Value	p-value
			Poor	Average	Good			
Age (in years)	18-20	91	20	42	29	6	4.122	0.66
	21-23	3	1	1	1			
	24-26	3	1	2	0			
	Above 26	3	0	2	1			
Gender	Male	7	2	3	2	2	0.132	0.936
	Female	93	21	43	29			
Religion	Hindu	67	14	38	15	6	16.7	0.010*
	Muslim	5	2	1	2			
	Christian	7	4	1	2			
	Other	21	3	6	12			
Family Type	Joint	33	4	20	9	2	5.039	0.045*
	Nuclear	67	19	26	22			
Residential Status	Hostel	73	19	31	23	2	1.834	0.4
	Day Scholar	27	4	15	8			

Place of Residence	Rural	60	16	28	16	2	1.8	0.407
	Urban	40	7	18	15			
Medium of Schooling (Prior Education)	English	31	11	15	5	4	6.328	0.176
	Regional Language	16	3	7	6			
	Both	53	9	24	20			
Mode of Admission	Merit-Based	30	10	9	11	4	12.505	0.014*
	Management Quota	44	4	28	12			
	Government Quota	26	9	9	8			
Family Income (Monthly in INR)	Less than ₹10,000	23	6	14	3	6	13.046	0.042*
	₹10,000-₹25,000	54	10	24	20			
	₹25,001-₹50,000	20	7	8	5			
	Above ₹50,000	3	0	0	3			
Previous Knowledge/Training on Swine Flu	Yes	59	10	33	16	2	6.076	0.048*
	No	41	13	13	15			
Sources of Information about Swine Flu	Books/Academic Material	39	12	16	11	6	4.661	0.588
	Internet/social media	52	10	25	17			
	Television/News	7	1	3	3			
	Workshops/Seminars	2	0	2	0			
Participation in Awareness Programs	Yes	75	21	29	25	2	7.295	0.026*
	No	25	2	17	6			

Table 3 presents the Chi-Square test results for the association between pretest knowledge levels of GNM students regarding swine flu and various demographic variables. **Chi-Square Test for Association between Pretest Knowledge Levels and Demographic Variables (n=100)**

Chi-square analysis showed significant associations between pretest knowledge levels and the variables: religion ($\chi^2 = 16.7$, $p = 0.010$), family type ($\chi^2 = 5.039$, $p = 0.045$), mode of admission ($\chi^2 = 12.505$, $p = 0.014$), monthly family income ($\chi^2 = 13.046$, $p = 0.042$), previous knowledge/training ($\chi^2 = 6.076$, $p = 0.048$), and participation in awareness programs ($\chi^2 = 7.295$, $p = 0.026$).

No significant associations were found with age ($\chi^2 = 4.122$, $p = 0.660$), gender ($\chi^2 = 0.132$, $p = 0.936$), residential status ($p = 0.400$), place of residence ($p = 0.407$), source of information ($\chi^2 = 4.661$, $p = 0.588$), or medium of schooling ($\chi^2 = 6.328$, $p = 0.176$).

Demographic factors such as religion, family structure, mode of admission, income, previous awareness, and participation in programs significantly influenced baseline knowledge. These findings underscore the role of socio-cultural and educational exposure in shaping students' understanding of public health topics like swine flu.

DISCUSSION

The present study confirmed that a self-structural educational module significantly improved GNM students' knowledge of swine flu. The mean knowledge score increased from 11.52 (SD ± 5.169) in the pre-test to 16.13 (SD ± 3.886) in the post-test. A paired t-test yielded a t-value of 7.707 ($p = 0.001$), indicating statistical significance.

These findings align with Sharma et al.⁶ who observed a similar trend of knowledge enhancement following structural teaching. Additionally, Fernandes et al.¹² reported that structural modules improved both immediate and long-term knowledge retention on H1N1 among nursing interns.

The knowledge gain observed in the current study supports previous findings by Bhardwaj et al.¹³, who demonstrated that interactive teaching methods were more effective than lectures in increasing awareness about communicable diseases. Furthermore, a quasi-experimental study by Narayan and Mishra¹⁴ showed a post-intervention knowledge improvement of over 35% using a similar approach among nursing students in Rajasthan.

Our findings also revealed that prior exposure to swine flu information, either through awareness programs or digital media, positively influenced baseline knowledge. This supports Singh and Batra¹⁵ who reported a correlation between prior information and higher baseline awareness.

The Chi-square analysis indicated that variables such as religion, family type, admission category, and income significantly influenced knowledge levels. These factors may affect access to health education or exposure to awareness campaigns. This was similarly noted by Kumar et al.¹⁶ in a study conducted among diploma nursing students.

However, variables like gender, age, and place of residence showed no significant impact, echoing the findings of Rahman et al.¹⁷, who found no gender-based differences in knowledge levels regarding swine flu.

In summary, the use of a self-structural educational module significantly enhanced the knowledge of GNM students on swine flu prevention. This supports integrating structural and interactive modules into nursing curricula to build foundational competencies in communicable disease control.

CONCLUSION:

In conclusion, the findings suggest that the self-structural module was an effective intervention for increasing GNM students' knowledge about swine flu and its prevention. Furthermore, demographic factors played a role in shaping students' pre-test knowledge levels. This underscores the importance of tailoring educational interventions to address the needs and backgrounds of different student groups. The study also highlights the significance of prior knowledge and participation in awareness programs in enhancing students' understanding of health-related issues.

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