



# International Journal of Obstetrics and Gynaecological Nursing

E-ISSN: 2664-2301  
P-ISSN: 2664-2298  
IJOGN 2024; 6(1): 49-52  
Received: 16-12-2023  
Accepted: 22-01-2024

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## Effectiveness of structured teaching programme on knowledge regarding mucormycosis among nursing students

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DOI: <https://doi.org/10.33545/26642298.2024.v6.i1a.135>

### Abstract

"A study to evaluate the effectiveness of structured teaching programme on knowledge regarding mucormycosis among students studying in selected nursing colleges, Aurangabad."

### Objectives of the study

1. To assess the knowledge regarding mucormycosis among students before structured teaching programme.
2. To prepare and administer structured teaching programme regarding mucormycosis among students.
3. To assess the knowledge regarding mucormycosis among students after structured teaching programme.
4. To evaluate the effectiveness of structured teaching programme regarding mucormycosis among students.
5. To find out the association between pre test knowledge scores with selected demographic variables.

**Materials and Methods:** This evaluative study was conducted to evaluate the effectiveness of structured teaching programme on knowledge regarding mucormycosis among the students studying in selected nursing colleges. Non – probability convenient sampling technique was used for the sample collection of 50 3<sup>rd</sup> year B.B.Sc Nursing students studying in Aurangabad Nursing college, Aurangabad. Structured knowledge questionnaire was used to evaluate effectiveness of structured teaching programme. The conceptual framework used for the study was based on 'MODIFIED OPEN SYSTEM' theory.

**Results:** In pre test 26 [52%] subjects had average knowledge regarding mucormycosis, 20 [40%] subjects had good knowledge and only 4 [8%] subjects had average knowledge regarding mucormycosis. Whereas in post test, all 50 [100%] students had good knowledge regarding mucormycosis. The mean difference of pre test and post test was 8.46 and paired t value was 14.93.

**Conclusion:** The findings of the study revealed that structured teaching programme was helpful to increase knowledge regarding mucormycosis among nursing students.

**Keywords:** Structured teaching programme (STP), mucormycosis, nursing students

### Introduction

"Mucormycosis is a rare but serious angio-invasive infection caused by a group fungus called mucormycetes." [1]-WHO

Pandemic caused due COVID -19 virus is still present amongst us. Throughout the course of this widespread sickness many secondary infections, opportunistic fungal infection can occur. Mucormycosis are life threatening fungal infection mostly occurring in hematology, solid organ transplant or diabetic patients; it may also affect immunocompetent patients following a trauma or burn [2].

Mucormycosis is a rare opportunistic fungal infection caused by fungi belonging to the Mucorales order and family. It was first described by Fautauf in 1885. It represents the third most common angioinvasive fungal infection following candidiasis and aspergillosis. It usually affects immunocompromised individuals and is rarely seen in the apparently healthy individuals. In the compromised host, Mucormycosis infection result from altered immunity in which rapid proliferation and invasion of fungal organisms ensue in deeper tissues.

The various predisposing factors for Mucormycosis are uncontrolled diabetes (particularly in patients having ketoacidosis), malignancies such as lymphomas and leukemia's, renal failure, organ transplant, long term corticosteroid and immunosuppressive therapy, cirrhosis, burns, protein energy malnutrition and acquired immune deficiency syndrome [3].

Early recognition, diagnosis and prompt administration of appropriate antifungal treatment of surgical debridement are important for improving outcomes for patients with mucormycosis. Diagnostic methods include biopsy and fungal staining, which remain the mainstay of laboratory diagnosis. Imaging tests such as a CT scan of lungs, sinuses or other parts of body depending on the location of the suspected infection may also be used to support the diagnosis. Mucormycosis is difficult to treat. It may sometimes require both intravenous, antifungal therapy and surgical excision, thus necessitating a multidisciplinary team approach in a facility setting. Liposomal amphotericin B is the drug of choice and needs to be initiated early. Other antifungal like posaconazole or isavuconazole have also been prescribed for treatment. The combination of surgical debridement and antifungal drugs are required for an ideal treatment of mucormycosis. It should be preferably done under general anesthesia taking adequate healthy tissue for debridement. Simultaneously management of underlying risk factor if any is also essential. It is observed that start with higher doses of antifungal drugs instead of step wise increment. Surgical debridement is the main stay of therapy for cutaneous mucormycosis and topical amphotericin B is a useful adjunct in concentration of 5 mg/ml, which is applied with gauze [4].

### Need for Study

Spores of mucormycetes fungi can be inhaled and infect the lungs, sinuses and extend into the brain and eyes less often. Infection may develop when the spores enter the body through a cut or an open wound. Mucormycosis is not a contagious disease; it mainly affects people who are immuno compromised or patients already infected with other diseases. Clinical presentation is classified according to the involvement of organs. It can be rhino-orbital, cerebral, pulmonary, cutaneous, gastro intestinal or disseminated. Mucormycosis is an aggressive life threatening infection requiring prompt diagnosis and early treatment [5].

### Disease burden in India

The incidence rate of mucormycosis globally varies from 0.005 to 1.7 per million population. In India prevalence of mucormycosis is estimated as 140 per million population which is about 80 times higher than prevalence in developed countries. In a systematic review and meta-analysis of 851 cases reports published in 2018 death was reported in 389/851 (46%) patients. Case fatality was observed to be highest among patients with disseminated mucormycosis (68%) and lowest in those with cutaneous disease (31%). Following the search of COVID 19 associated mucormycosis and the Govt. of India directive, several states in India made mucormycosis a notifiable disease in May 2021. This will provide better insights into the disease burden population, characteristic risk factor, clinical spectrum and outcome of these patients. Current trends indicate that the surge is higher in those with pre existing diabetes, those on systemic corticosteroids and is being

observed in both people with COVID 19 and those recovering from disease [6].

### Mucormycosis death in Maharashtra

Over 770 people continue to be under treatment for mucormycosis in the state. The public health department, in an update shared recently that 779 people are currently being treated for the fungal infection that swept through the state during 2<sup>nd</sup> wave. A total of 10325 cases have been recorded by the state since the start of pandemic. Most of active cases of mucormycosis were in Pune (257) followed by Amravati district (70 cases) and Mumbai which still has 64 cases under treatment. District like Akola, Gondiya and Yavatmal too have 37, 30 and 58 cases being treated. The infection, known to spread rapidly if not treated on time, has claimed 1384 lives. However 7967 people have recovered too, although many will have to live deformities [7].

16 people have died of mucormycosis and 201 caught the infection in Aurangabad city during the 2<sup>nd</sup> Covid wave. Majority of those who caught mucormycosis also black fungus infection where diabetic. The no. of casualties and infection cloud rise further as the process of compiling data is still on [8].

## Materials and Methods

### Research Objectives

1. To assess the knowledge regarding mucormycosis among students before structured teaching programme.
2. To prepare and administer structured teaching programme regarding mucormycosis among students.
3. To assess the knowledge regarding mucormycosis among students after structured teaching programme.
4. To evaluate the effectiveness of structured teaching programme regarding mucormycosis among students.
5. To find out the association between pre test knowledge scores with selected demographic variables.

**Research Design:** The research design is Pre experimental, one group pre test post test.

**Research setting:** Aurangabad Nursing College, Aurangabad.

**Sample:** III year B.B.Sc. Nursing Students.

**Sample size and sampling technique:** The sample size considered for the study was 50 students. The sampling technique used for the study was convenient sampling, which is a type of non probability sampling technique.

**Development and description of tool:** The tool used for gathering relevant data, structured knowledge questionnaire and structured teaching programme on mucormycosis.

### Description of the tool

On modifying the tool as per the expert's suggestions the final tool consists of three sections.

**Section I:** Information on demographic variables of respondents containing 6 items.

**Section II:** Knowledge questionnaire of 25 items on Mucormycosis with maximum score of 25.

**Section III:** Structured teaching programme on Mucormycosis.

**Criteria for selection of samples**

**Inclusion criteria:** The criteria includes,

- Both male & female students.
- Participants of age 18-22 years.
- Students available at the time of data collection.

**Exclusion criteria**

The study excludes the students who are not willing to participate.

**Results and Discussion**

**Table 1:** Frequency and percentage distribution of samples according to demographic variables N=50

Sr. No	Demographic variables	Frequency	Percentage
01	<b>Age</b>		
	18-19 year	01	02%
	19-20 year	05	10%
	20-21 year	15	30%
	21-22 year	29	58%
02	<b>Gender</b>		
	Male	19	38%
	Female	31	62%
03	<b>Type of family</b>		
	Nuclear	34	68%
	Joint	14	28%
	Extended	02	04%
04	<b>Residing in</b>		
	Rural	19	38%
	Urban	31	62%
05	<b>Occupation of father</b>		
	Private employee	06	12%
	Labor	07	14%
	Farmer	33	66%
	Government employee	03	6%
	Own business	01	2%
06	<b>Family Income per month</b>		
	Below 20,000/-	11	22%
	20,000/- to 30,000/-	20	40%
	30,000/- to 40,000/-	16	32%
	Above 40,000/-	03	06%

**Table 2:** Effectiveness of structured teaching programme on knowledge regarding Mucormycosis N=50

Knowledge assessment	Mean	Mean difference	SD	DF	Paired t value	P value
Pre test	14.66	08.46	3.02	49	14.93	0.05
Post test	23.12		0.17			

**Table 3:** Association between pre test knowledge score with selected demographic variables N=50

Sr. No	Demographic variables	Poor	Average	Good	X <sup>2</sup> calculated value	DF	X <sup>2</sup> table value
1.	<b>Age</b>				8.65	6	12.59
	18-19 year	00	01	00			
	19-20 year	00	04	01			
	20-21 year	02	15	00			
	21-22 year	04	11	12			
2.	<b>Gender</b>				14.72	2	5.99
	Male	01	08	11			
	Female	05	23	02			
3.	<b>Type of family</b>				7.88	4	9.49
	Nuclear	05	24	06			
	Joint	01	06	06			
	Extended	00	01	01			
4.	<b>Residing in</b>				18.33	2	5.99
	Rural	04	07	07			
	Urban	02	24	06			
5.	<b>Occupation of father</b>				8.25	8	15.51
	Private employee	01	03	03			
	Labor	01	03	02			
	Farmer	04	24	07			
	Government employee	00	00	01			
	Own business	00	01	00			
6.	<b>Family Income per month</b>				3.02	6	12.59
	Below 20,000/-	01	05	04			
	20,000/- to 30,000/-	02	13	06			
	30,000/- to 40,000/-	03	11	02			
	Above 40,000/-	00	02	01			

Table no 03 revealed that the demographic variable Gender was associated. Whereas other demographic variables Age, Type of family, Place of residence, Occupation of father and Family income per month were not associated.

### Conclusion

The findings of the study revealed that structured teaching programme was helpful to increase knowledge regarding mucormycosis among nursing students.

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#### How to Cite This Article

Kulkarni S, Deokar B, Khan F, Gaikwad P, Hangarage D, Kasbe A. Effectiveness of structured teaching programme on knowledge regarding mucormycosis among nursing students. International Journal of Obstetrics and Gynaecological Nursing. 2024;6(1):49-52.

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