PATTERN OF UPPER RESPIRATORY TRACT INFECTIONS AMONG UNDERGRADUATE STUDENTS AT AHMADU BELLO UNIVERSITY, ZARIA

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Abstract

The study investigated the pattern of Upper Respiratory Tract Infections among undergraduate students of Ahmadu Bello University, Zaria. This aims to document the pattern of Upper Respiratory Tract Infections and provide an evidence-based interventional strategy among the studied group. A retrospective design was utilized for the study, and samples were recruited from the General Out-Patient Department (GOPD) of the Ahmadu Bello University Medical Centre from January 2023 to December 2023. Eight hundred and forty-three (843) patients formed the sample size. A standardized instrument based on CDC/WHO was adapted based on the documented hospital records. The obtained data were analyzed using measures of central tendency, and results were presented in frequency distribution tables and percentages. The result shows that the majority of the (40.3%) respondents were between the age group of 22-25 years and were mostly male gender. The findings further revealed a clear seasonal pattern of Upper Respiratory Tract Infections, with the highest incidence reported in January at 24% and a notable peak decrease in July at 1.3%. The study concluded that a clear seasonal pattern in the prevalence of Upper Respiratory Tract Infections (URTIs) existed, with higher rates during the colder months, particularly in January and February, and a notable decrease during the summer and recommended that the University Health Services should incorporate regular screenings for respiratory infections among students, particularly during high-risk seasons, to facilitate early detection and prompt intervention.

Key words: Upper Respiratory Tract Infections (URTIs), Prevalence, Pattern, Students, Season

INTRODUCTION

Upper Respiratory Tract Infections (URTI) encompass a range of viral and, less commonly, bacterial infections affecting the nasal passages, sinuses, pharynx, and larynx. Common viral pathogens include rhinoviruses, coronaviruses, influenza viruses, and respiratory syncytial viruses (RSV), which account for the majority of cases (De Lusignan et al., 2022; Xuting et al., 2021). These infections typically manifest with symptoms such as nasal congestion, rhinorrhea, sore throat, and cough. Upper Respiratory Tract Infections (URTI) are common worldwide, affecting

individuals of all ages. These infections are predominantly caused by viral pathogens such as rhinoviruses, coronaviruses, influenza viruses, and respiratory syncytial virus (RSV) (Abioye et al., 2020). These infections commonly present with symptoms including nasal congestion, sore throat, cough, and sometimes fever.

Upper Respiratory Tract Infections (URTI) are primarily caused by viral pathogens, with rhinoviruses, coronaviruses, influenza viruses, and respiratory syncytial virus (RSV) being the most common (Greenberg, 2020). These viruses typically infect the upper respiratory tract, leading to symptoms such as nasal congestion, sore throat, and cough (Lumley et al., 2022). Bacteria causes of URTIs, though less frequent, can include Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis, particularly in cases of secondary infection or in individuals with predisposing factors (De Lusignan *et al.*, 2018). The pattern and prevalence of URTIs vary seasonally and geographically, with higher rates typically observed during colder months and in crowded environments (Abioye *et al*., 2020). Viral URTIs are generally self-limiting but can lead to complications, especially in vulnerable populations such as young children, the elderly, and individuals with underlying health conditions. Epidemiological studies underscore the significant burden of URTIs on healthcare systems, including frequent outpatient visits, antibiotic prescriptions, and associated economic costs (Wang and Gupta *et al*., 2023). Understanding the prevalence and epidemiology of URTIs is essential for developing effective prevention strategies and optimizing healthcare resource allocation (Smith *et al*., 2022).

MATERIAL AND METHODS

Research Design

This study utilized a retrospective design. A retrospective design involves using past medical records in patients confirmed to have a disease condition (Sal-kind 2012). It looks back in time and assesses events that have already occurred.

Study Area

The study was conducted at Ahmadu Bello University Medical Center (ABUMC). The medical centre is an NHIS-accredited primary and secondary care facility comprising about twelve units: medical, pharmacy, nursing, dental, laboratory, NHIS, preventive/sanitation, parks/garden, account, store and medical records units. Located opposite the university community market, the ABUMC is mandated to provide medical, preventive, and wellness services to students, members

of staff and their dependents, immediate community members, and some NHIS enrollees. It is located in Samaru, a suburban community in Sabon Gari local government of Kaduna State, Nigeria.

Population of Study

This study targets undergraduates who sought medical services at the General Outpatient Department (GOPD) of the ABUMC from January 2023 to December 2023. The records from the Health Information Management System were used for the study. Only Samaru campus students who sorted medical services within the timeline were included. From the records, 4,424 undergraduates were sorted for checkups at the GOPD in 2023. Even though the number of attendees varies monthly, an average of 816 undergraduates attend the GOPD unit every month.

Sample Size

The study included all the undergraduate students who presented themselves to the General Outpatient Department at ABUMC from January 2023 to December 2023

Sampling Technique

The researcher used a purposive sampling census technique to determine the prevalence. The researcher used all the undergraduates with upper respiratory tract infections who attended ABUMC from January 2023 to December 2023.

Instrument for Data Collection

The instrument for data collection was adapted based on CDC/WHO criteria for establishing Upper Respiratory Tract Infection (WHO, 2022; CDC, 2017) from the documented hospital records of undergraduates with URTI in ABUMC from January 2023 to December 2023.

Method of Data Collection

The researcher reviewed records of Undergraduates with Upper Respiratory Tract Infections (URTI) and collected data after securing an introductory letter from the Department of Nursing Science, Ahmadu Bello University, Zaria.

Data Analysis

The obtained data of 843 records with required diagnosis and retrieved was analyzed using measures of central tendency and presented in frequency distribution, tables.

RESULTS

Table1: Socio-demographic data (n =843)

Item	Variables	Frequency	Percentage %	
Age	<18	81	9.6	
	18-21	183	21.7	
	22-25	340	40.3	
	26 – 29	142	16.8	Mean age = 20.5
	30 and above	97	11.6	
Gender	Male	454	53.9	
	Female	389	46.1	
Religion	Christianity	167	19.8	
	Islam	666	79	
	Others	10	1.2	
Faculty	Administration	10	1.2	
	Agriculture science	56	6.6	
	Allied health science	16	1.9	
	Art	10	1.2	
	Basic medical sciences	56	6.6	
	Education	300	35.6	
	Engineering	131	15.5	
	Environmental design	9	1.1	
	Life sciences	28	3.3	
	Social sciences	80	9.5	
	Physical sciences	107	12.7	
	Pharmaceutical sciences	21	2.5	
	Veterinary medicine	19	2.3	

Table 1 reveals a predominantly young and male-skewed population, with the majority of participants aged 22-25 (40.3%) and a notable concentration in the 18-21 age group (21.7%). Gender distribution shows a slight male predominance at 53.9%, while females make up 46.1%.

Table 2: Pattern of URTI (n =843)

S/N	Month	No. of cases	Percentage %
1	January	202	24
2	February	158	18.7
3	March	100	11.9
4	April	51	6.0
5	May	29	3.4
6	June	20	2.4
7	July	11	1.3
8	August	41	4.9
9	September	28	3.3
10	October	73	8.7
11	November	91	10.8
12	December	39	4.6

Table 2 reveals a clear seasonal pattern, with the highest incidence in January at 24% and a notable peak decrease in July at 1.3%. The number of cases significantly drops in March (11.9%) and continues to decline through April (6.0%) and May (3.4%), reflecting a decrease as winter ends.

DISCUSSION

The socio-demographic data reveals that the age group of 22-25 years is mostly affected and is a predominantly male population. This distribution aligns with the socio-demographic profiles observed in other studies (Smith et al., 2018). The predominance of URTI cases in this age group suggests a need for targeted interventions aimed at young adults. These might include educational programs about preventive measures and strategies to manage stress and maintain a healthy lifestyle. Comparing these results with Loosen et al. (2023), who observed a significant post-pandemic increase in URTI diagnoses among individuals aged 18-30, underscores the vulnerability of this age group to respiratory infections. The male predominance in URTI cases (53.9% male vs. 46.1% female) is consistent with Falagase et al. (2017), which also noted a higher incidence of respiratory symptoms in women. However, the slight male predominance observed in this study contradicts the findings of Shapiro et al. (2018) and Falagas et al. (2017), who reported that males are generally more affected by lower RTIs and experience more severe outcomes. The discrepancy between this study and Falagas et al. (2017) may be due to different types of respiratory infections being studied (upper vs. lower RTIs) or varying methodologies. Health-seeking behaviour and social factors, such as increased exposure to risk factors among males or differences in healthcare

utilization, may also influence the observed gender differences. The presence study found the preponderance of students from Education and Engineering faculties to be more implicated with Upper Respiratory Tract Infections, suggesting that students in these fields might experience higher stress levels or have different exposure levels than those in other faculties. It was also revealed that cultural and religious practices could impact exposure to infectious agents and healthcare access, which could be explored further in future research. The presence study demonstrated a seasonal pattern, with higher incidence rates observed in the colder months, particularly in January (24%), and this trend is consistent with findings from other studies (Smith et al., 2018; Ponda et al., 2023) and Small and Kin (2021), which noted a high prevalence of URTIs among undergraduates. The possible explanation for this trend could be linked to prevailing factors such as stress, close contact, and lifestyle choices that are more pronounced during colder months when people are more likely to be indoors and near others. The acute decrease in URTI cases during the warmer months (June and July) aligns with the post-pandemic increase observed by Loosen et al. (2023), which noted a seasonal variation in URTI prevalence. This data reinforces the understanding that colder weather increases susceptibility to URTIs, possibly due to lower humidity and indoor crowding, facilitating the spread of infections. These present findings are consistent with global trends reported by WHO (2022), highlighting higher URTI rates in harmattan months. This seasonality is likely due to increased exposure to viral pathogens and reduced immune system efficacy in cold weather. More so, the peak months of URTI documented in the study mirror the findings from White et al. (2020) and Glessen and Denny (2023) on pediatric respiratory infections, suggesting that similar seasonal patterns affect different age groups.

CONCLUSION

The study showed a clear seasonal pattern in the prevalence of Upper Respiratory Tract Infections (URTIs), with higher rates during the colder months, particularly in January and February, and a notable decrease during the summer. Additionally, the data highlights that young adults, specifically those aged 22-25, are the most affected demographic, suggesting that targeted prevention and education efforts might be particularly beneficial for this age group. The slight male predominance indicates a minor gender imbalance but does not significantly alter the overall trends.

Strength

This is the first study conducted by the faculty in this area, and efforts are underway to establish the most commonly associated microorganism implicated among the studied group.

Limitation

The study is limited to fewer faculties of the university; therefore, the interpretation of the results should be done with caution

Recommendation

The study recommends the use of protective agents /gadgets during lectures to minimize cross-infection

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Conflict of interest

The authors report no conflict of interest.

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