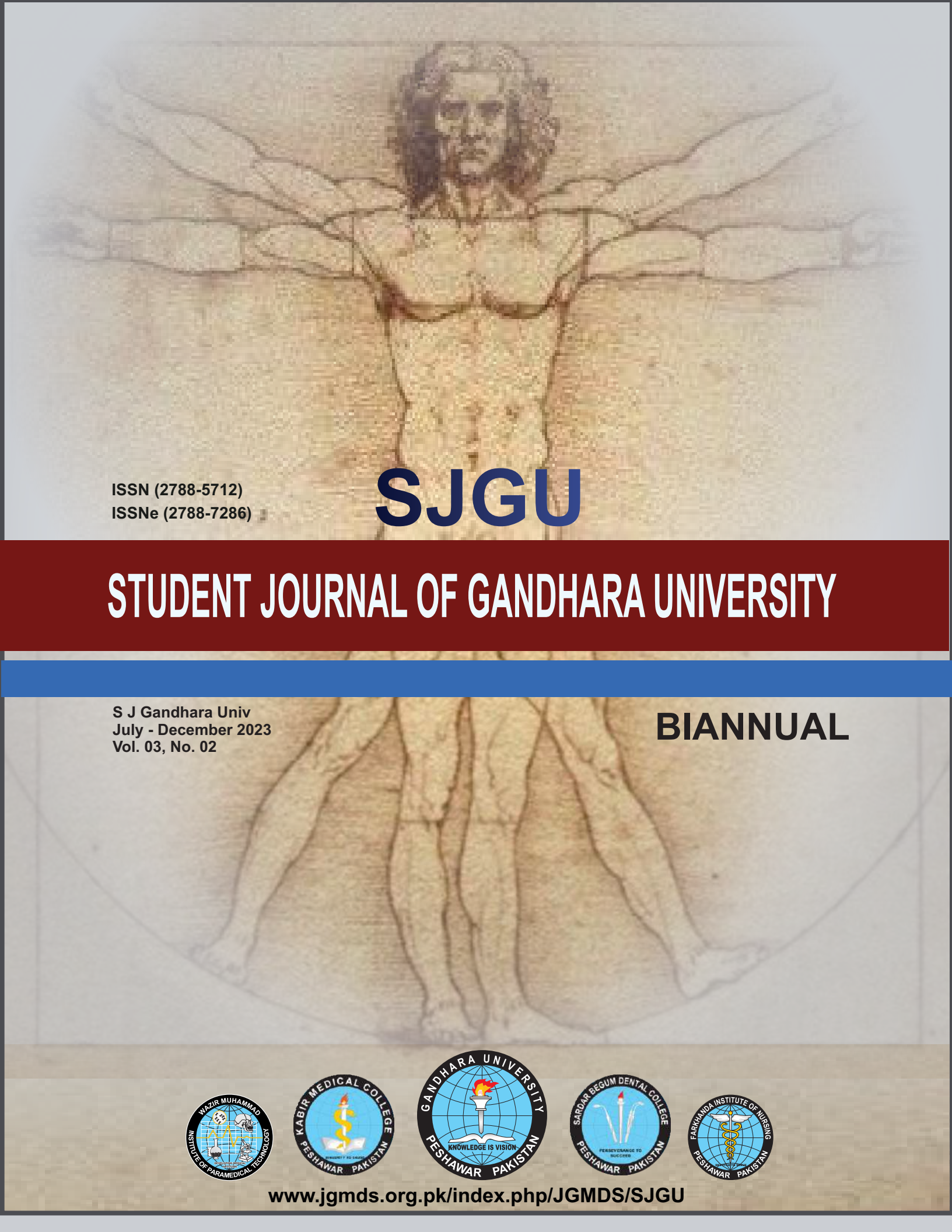

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ORIGINAL ARTICLES

MELATONIN'S POTENTIAL IN ORAL MEDICINE AND PERIODONTOLOGY

Ahmad Nasir
Final Year BDS Student, Saradar Begum Dental College Peshawar,
Student Ambassador, Research Society, Gandhara University, Peshawar

Melatonin (N-acetyl-5-methoxy tryptamine) is a chemical several organs release in vertebrates. Melatonin has been demonstrated to have antioxidant, anti-inflammatory, and anti-oncotic effects on human tissues, in addition to its role in the body's circadian cycle. Numerous diseases and disorders, including mucositis, cancer, cytotoxicity from different medicines, and biomaterials, can all impact the oral cavity. Topical administration of melatonin promotes the healing of tooth extraction sockets and may also impede oral cancer progression. Melatonin may help treat the illnesses mentioned above, according to research. Melatonin has also been shown to promote bone regeneration and osseointegration. Periodontitis results in progressive destruction of tooth-supporting tissues. In addition to in vitro studies, animal studies and clinical trials have also documented the therapeutic effects of melatonin on periodontitis. Studies suggested that topical administration of melatonin can be used as an adjunct to conventional treatment protocols such as scaling, root planning, and surgical debridement to improve the outcomes of periodontal therapy. Melatonin not only down-regulates the expression of pro-inflammatory factors such as C-reactive protein, interleukin-6, and tumour necrosis factor-alpha, but it also down-regulates receptor activators of nuclear factor kappa-B ligand/osteoprotegerin ratios to reduce periodontal inflammation. In addition to the up-regulation of salivary acid phosphatase, alkaline phosphatase, osteopontin, and osteocalcin significantly improves gingival index and pocket depth. These facts indicate enhanced osteoblast differentiation and bone formation following topical melatonin administration.[1]

Despite numerous research pointing to melatonin's potential in various dental applications, there are still certain hurdles to be cleared. No study has attempted to examine the effects of increased consumption of melatonin-rich foods like grapes, bananas, herbs, rice, and cereals on periodontal health or periodontal therapy, even though the beneficial effects of melatonin on general health have been proposed. The Food and Drug Administration has recognized melatonin as a supplement for managing sleep problems and insomnia.[2] Nevertheless, the effect of dietary melatonin supplementation on periodontal parameters has not yet been examined in any studies. Systemic melatonin should be used in conjunction with traditional nonsurgical and surgical therapy in studies to see whether it is feasible as a long-term therapeutic option. However, further well-designed studies with more extended follow-up periods are needed to ascertain the long-term efficacy of melatonin in treating periodontitis in clinical settings.

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KNOWLEDGE AND ATTITUDE REGARDING BIOETHICS AMONG DENTISTS WORKING IN A DENTAL TEACHING HOSPITAL: A CROSS-SECTIONAL STUDY

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ABSTRACT

OBJECTIVES

The present study aims to evaluate the knowledge and attitude towards healthcare ethics among dentists working in a Dental Teaching Hospital in Peshawar.

METHODOLOGY

The cross-sectional study was conducted at Sardar Begum Dental College. Data was collected using a self-administered pre-tested questionnaire. A total of 195 dental practitioners participated in this survey. The study population was faculty, trainee medical officers, house officers and final-year students. Percentages and frequencies were tabulated. The chi-square test assessed the association between different categorical variables, and p-values were generated.

RESULTS

Approximately 60.5% of the dental practitioners had knowledge about the Hippocratic oath, and only a minority (12.8%) had knowledge about ICMR 2017 guidelines. Most (85.6%) participants stated that they know about bioethics. Many dentists (71.3%) said they have never attended any training regarding bioethics. 40% of the participants said confidentiality cannot be maintained in modern care. Most participants (70%) stated that they did not have/had any formal courses or classes related to clinical /research ethics.

CONCLUSION

Dental practitioners are familiar with the Hippocratic oath but not with the Nuremberg Code, ICMR guidelines, and the Helsinki Declaration. There is a positive attitude towards informing patients about wrongdoings and patient wishes, but varying responses towards maintaining confidentiality. Incorporating healthcare ethics education in the dental undergraduate curriculum and arranging training workshops to educate dentists about bioethics in clinical setup is vital.

KEYWORDS: *Bioethics, Dentists, Ethics, Ethical committees, Dental Care*

INTRODUCTION

Ethics are the moral principles and codes that regulate an individual or group's character and conduct. - Ethics‖ originated from the Greek word ethos, which means character.[1] It is a branch of philosophy and theology and focuses on the question of what is right and good concerning character and conduct.[2] The term "bioethics" was coined by Fritz Jahr, a Protestant pastor, who introduced it in an editorial in the German natural science magazine Kosmos in 1927. The term "Bioethics" means the application of ethical principles to life sciences. Bioethics is the discipline that links all healthcare professionals to acknowledge, justify, and solve ethical issues in patient care.[3] The National Survey of Dentists practising in the United States highlighted prevalent ethical problems in dentistry. These ethical concerns included overtreatment, substandard work by fellow dentists, misleading advertisements, drug abuse, criticism of peers' work,

issues with patient referrals and poor communication skills among clinicians. Additionally, the rise in health literacy has increased lawsuits against dentists.[4] Several unethical and dreadful medical experiments on human subjects were done in the concentration camps in World War II, as advancements in medical technology led to the concept of bioethics.[5] Bioethics is an indispensable and integral part of healthcare practice.[6] The healthcare provider must aid the patient's well-being to reduce or prevent harm and respect the patient's needs and choices.[7] Bioethics addresses the ethical dilemmas regarding making complicated moral decisions, choosing appropriate treatment for patients, and allocating resources when dealing with patients, their family members and healthcare workers.[8] As per the American Dental Association, there are five fundamental principles of healthcare ethics. These are beneficence, patients' autonomy, non-maleficence, veracity, and justice.[1] Documents such as the Hippocratic oath, Nuremberg Code and Helsinki Declaration form the foundation of these principles.[9] Beneficence means the responsibility of the healthcare provider to act in the patient's best interest, and non-maleficence requires the doctor not to cause any harm to the patient. Justice is defined as the impartial and equitable treatment of patients. Patient autonomy refers to his right to make choices and decisions.[10] A medical professional is obliged to make choices for patients in different settings. These decisions involve more than selecting the proper intervention or treatment.[10] Health professionals must carefully pay attention to the ethical issues due to medical progression.[11] The field of bioethics is relatively new in medical practice, and many undergraduate medical programs do not teach medical students about ethics in healthcare.[12] The medical undergraduate curriculum focuses more on -protocol-based treatment‖ and does not provide comprehensive instructions on dealing with ethical issues in clinical practice.[13] Bioethics is an overlooked issue in low-middle-income countries,[10] and Pakistan is no exception. Pakistan Medical and Dental Council has formed codes of ethics for medical professionals. However, healthcare ethics is virtually missing in undergraduate and postgraduate curricula.[14] With dentistry becoming a recognized medical speciality, ethical healthcare principles must be acknowledged and practised.[15] Medical schools worldwide recognize the importance of ethics training in undergraduate medical curricula.[16] To be effective in the future workforce, students must be trained to handle ethically challenging situations.[17] A previous study conducted in Pakistan on healthcare practitioners regarding bioethics stated that more than half of the doctors did not know the codes of ethics of the Pakistan Medical and Dental Council. Many participants did not know about the Helsinki Declaration and were unaware of the ethical committee in their institutes.[14] A survey conducted in Nepal reported that most doctors did not know the three significant documents of healthcare ethics.[10] A study conducted in India revealed that postgraduate medical and dental students frequently face ethical dilemmas during training but lack the skills to handle them effectively. This study stated a lack of knowledge regarding healthcare ethics among dental postgraduates compared to medical postgraduates. Around 37.7% of dental practitioners stated that they have never encountered any ethical issue in their clinical practice.[18] A survey conducted in 2021 on postgraduate students revealed that there is no difference between medical and dental students in terms of knowledge regarding healthcare ethics. There was inadequate knowledge towards healthcare ethics in medical, dental and physiotherapy postgraduate students. So, it was suggested that the postgraduate curriculum should contain a balanced mix of theoretical and practical approaches to principles and guidelines of healthcare ethics across the different domains of healthcare.[8] Our study aimed to assess the status of knowledge and attitude regarding bioethics or healthcare ethics in dentist and final-year dental students working in the Dental Teaching Hospital of Peshawar.

METHODOLOGY

This descriptive cross-sectional study was conducted in Sardar Begum Dental Hospital from May 2023 to June 2023. The study population were Trainee medical officers, house officers, faculty, and final-year students. A total of 195 complete questionnaires were received, and participation was voluntary. All respondents were explained about the purpose of this study, and informed consent was obtained from them. Data was collected using a pre-tested, self-administered structured questionnaire. The questionnaire comprised of 18 closed-ended questions and 1 open-ended question. There were 3 sections of questionnaires consist of questions about demographic characteristics, knowledge, and attitudes regarding healthcare ethics in Dental Teaching Hospitals. The sampling technique was simple convenience sampling. All collected data were entered in SPSS version 21. Percentages and frequencies were tabulated. The association between different categorical variables was analyzed using the chi-square test, and p-values were generated.

RESULTS

A total of 195 dental practitioners and final-year students participated in this study. The mean age of the participants was 25.22 $\pm$2.90 years. The demographic characteristics of the participants are shown in the table 1.

Table 1: Demographic Characteristics of the Participants.

Gender n (%)	
Male	93 (47.7%)
Female	102 (52.3%)
Designation n (%)	
Faculty	16 (8.2%)
TMOs	45 (23.1%)
House Officers	83 (42.6%)
Final year students	51 (26.2%)
Years of Clinical Practice n (%)	
Less than 1 year	111 (56.9%)
1-3 years	51 (26.2%)
4-6 years	21 (10.8%)
More than 6 years	12 (6.2%)

Table 2: Knowledge Regarding the Healthcare Ethics of Dentists Working in a Dental Teaching Hospital

Question		n (%)
Do you know about the Hippocratic oath?	Yes	118 (60.5%)
	No	77 (39.5%)
Do you know about the Nuremberg code?	Yes	37 (19%)
	No	157 (81%)
Do you know about ICMR 2017 guidelines?	Yes	25 (12.8%)
	No	170 (87.2%)
Do you know about the 2008 Helsinki Declaration?	Yes	38 (19.5%)
	No	157 (80.5%)
Do you know about bioethics?	Yes	157 (85.6%)
	No	28 (14.4%)
How important is knowledge of ethics to you in your work?	Very important	158 (81%)
	Moderately	30 (15.4%)
	A little	06 (3.1%)
	Not at all	01 (0.5%)

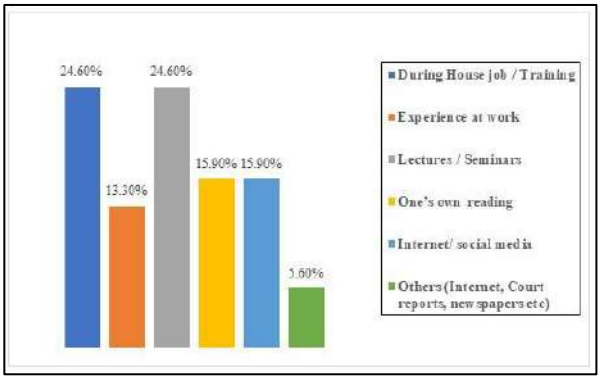

Figure 1: Response When Asked about How the Participants Acquired Knowledge of Bioethics.

Approximately 28.7% of dentists said they have attended training in bioethics, while 71.3 % stated that they do not have any training in bioethics. Around 48.7% of dentists stated that they have an ethical committee in their institutions, and 51.3 % stated that they do not have an ethical committee in their institute. Compared to other designations, more trainee medical officers indicated that they had an ethical committee in their institutes (p=0.00).

Table 3: Dentists Attitudes Regarding Healthcare Ethics Working in a Dental Teaching Hospital.

How strongly do you agree or disagree with the following statements	Slightly Agree n (%)	Agree n (%)	Not sure/Neutral n (%)	Slightly disagree n (%)	Disagree n (%)
1. Doctors know the best, irrespective of patients' opinions.	25 (12.8%)	119 (61.0%)	27 (13.8%)	20 (10.3%)	04 (2.1%)
2. Patients should always be informed of wrongdoings.	36 (18.5%)	142 (72.8%)	10 (5.1%)	03 (1.5%)	04 (2.1%)
3. Patients' wishes should always be adhered to.	34 (17.4%)	120 (61.5%)	23 (11.8%)	07 (3.6%)	11 (5.6%)
4. Confidentiality cannot be maintained in modern care and should be abandoned.	17 (8.7%)	40 (20.5%)	21 (10.8%)	39 (20%)	78 (40%)
5. Consent is required only for operations and not for tests and medications.	15 (7.7%)	50 (25.6%)	17 (8.7%)	30 (15.4%)	83 (42.6%)
6. Certain medical practitioners charge more from rich patients to compensate for treating the poor. Do you agree with this?	25 (12.8%)	77 (39.5%)	44 (22.6%)	20 (10.3%)	29 (14.9%)
7. Ethical conduct is important only for avoiding legal action.	20 (10.3%)	67 (34.4%)	27 (13.8%)	31 (15.9%)	50 (25.6%)
8. A child should never be treated without the concern of the parents.	34 (17.4%)	127 (65.1%)	16 (8.2%)	09 (4.6%)	09 (4.6%)

Most participants (79%) said they did not have/had any formal course or class related to clinical ethics or research ethics. Of those dentists who had classes related to clinical or research ethics,8.2% of them had 3 classes/week,7.7% had 2 classes/week,3.1% had 5 classes/week, and only a minority (2.1%) had 1 class/week. There was a significant association between final-year students and formal courses or classes related to clinical or research ethics (p=0.01).

DISCUSSION

The present study was conducted to determine the knowledge and attitude towards bioethics in trainee medical officers, house officers, faculty and final -year students working in a Dental Teaching Hospital. A total of 195 complete questionnaires were received. A number (42.6%) participated in this study. Most participants (56.9%) had less than one year of

experience. The first section of this study assessed participants regarding knowledge of healthcare ethics. More than half of the participants (60.5%) knew the Hippocratic oath. At the same time, only a small percentage of dentists knew the Nuremberg Code (19%), Helsinki Declaration (19.5%) and ICMR 2017 guidelines (12.8%). However, a study conducted among dental postgraduates in South India stated that 88.5% of the participants knew about the Hippocratic oath, and only 1.6% said that they knew about the Nuremberg code (18). A survey regarding healthcare ethics among resident doctors and ward nurses stated that only 10% of the participants knew about the Nuremberg code.[18] Most dental practitioners (85.6%) stated that they know about bioethics. Approximately 28.7% of the participants had attended bioethics training, and half (51.3%) stated that they do not have an ethical committee in their institute. As per a study in India, around half of the dental postgraduates (49.0%) had attended training regarding bioethics.[12] Many trainee medical officers stated that their institute has an ethical committee. Possibly, this is because research is a requirement of postgraduate degrees, and every postgraduate resident must present their research to an ethical committee before starting their project. In the next section of this study, the dental professionals were assessed regarding their attitude towards healthcare ethics. Most participants (72.8%) agreed that patients should always be informed of wrongdoings, and 61.5% agreed that patients' wishes should always be followed. These findings are per a study conducted in South India in 2014, in which 80.3% of the dental practitioners stated that doctors know the best irrespective of the patient's opinion, and 62.3% of the participants said that patients should always be informed about the wrongdoings.[18] Around 40% of the dentists agreed that confidentiality cannot be maintained in modern care. However, in a study regarding healthcare ethics in 2020, approximately 24.2% of dental interns agreed that confidentiality cannot be maintained in modern care.[12] Approximately 39.5% of the dentists agreed that certain medical practitioners charge more from rich patients to compensate for treating the poor. According to a survey in India, medical practitioners (75.4%) disagreed that certain doctors charge richer patients to compensate for the treatment cost for poor patients.[18] Around (65.1%) of the participants agreed that a child should never be treated without the concern of the parents. Most participants (79%) stated that they did not have/had any formal course or class related to clinical or research ethics. This result is similar to the study conducted in India, where 80.6% of dental practitioners said they do not have any clinical ethics or research ethics class.[12] Most final-year students stated that they had taken formal courses or classes related to clinical or research ethics.

LIMITATIONS

In the present study, sampling was limited to only one Dental Teaching Hospital. Thus, a multisectoral study using a probability sampling technique is proposed for future investigations. Three codes of medical ethics were used to evaluate knowledge of healthcare ethics. Including biomedical ethics principles such as autonomy, beneficence, maleficence, and justice would have broadened our assessment.

CONCLUSIONS

It can be concluded from this study that most of the dentists knew the Hippocratic oath, while only a minority were familiar with ICMR 2017 guidelines and the Nuremberg code. A positive attitude was recorded regarding adherence to patients wishes while varying responses were recorded towards patients confidentiality in modern dental care. Most of the dental practitioners had never attended any training regarding bioethics. The study demonstrates a need for enhanced bioethics education within the dental curriculum. Workshops and seminars should be arranged to educate dentists regarding the importance of bioethics in clinical practice.

CONFLICT OF INTEREST: None

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ASSESSING KNOWLEDGE, ACCESS, AND ADMINISTRATION OF INFLUENZA VACCINES AMONG UNDERGRADUATE MEDICAL STUDENTS IN PESHAWAR

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ABSTRACT

OBJECTIVES

This study aimed to assess flu vaccine knowledge, access and administration among the undergraduate medical students of Peshawar.

METHODOLOGY

A cross-sectional study was conducted at different medical colleges in Peshawar. Data was collected from currently enrolled medical students. A self-administered questionnaire containing questions regarding knowledge, access and administration of flu vaccine was administered.

RESULTS

A total of 405 medical students from different medical colleges in Peshawar participated in our study by completing the questionnaire. Of the total, 62.2% were male, whereas 37.8% were female. As per the collected data, 64.2% had good knowledge and awareness about the flu vaccine. 36.8% had insufficient or no idea about the flu vaccine. 27.2% of students had easy access to and availability of vaccines, while the vaccine availability was limited for 55.1%. 17.8% had no access to the vaccine. Flu vaccine administered was 32.1 %, and those who did not were 67.9%.

CONCLUSION

Influenza epidemics affect a considerable portion of the global population annually. As per the data collected, there is ample knowledge and awareness about preventive measures in the form of flu vaccine, but limited or no vaccine availability is a problem. For better results, vaccines should be readily available to students.

KEYWORDS: *Knowledge, Vaccine, Undergraduate, Medical*

INTRODUCTION

Influenza is a communicable respiratory illness caused by various strains of influenza viruses, which can lead to mild or severe symptoms. The flu virus poses a significant risk to individuals with weakened immune systems, potentially resulting in life-threatening respiratory infections. Typically, it primarily affects the upper respiratory tract and, in some cases, the bronchopulmonary region. Common symptoms include fever, headache, fatigue, cough, and nasal congestion.[1] These symptoms typically resolve within 1 to 2 weeks without specific treatment or hospitalization. However, hospitalized patients, especially those with preexisting medical conditions and compromised immune systems, may experience more severe complications, such as secondary bacterial pneumonia.[2,3] Published data reveals that influenza epidemics affect a considerable portion of the global population annually, with 5-15% of individuals being affected, resulting in 4-5 million severe cases and 250,000 to 500,000 deaths.[4] Vaccination is considered the most crucial preventive measure against seasonal influenza, and it is strongly recommended for healthcare workers (HCWs) by organizations such as the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and the Ministry of Health of Italy.[5,6,7] Vaccination coverage in Europe varies across seasons, ranging from 16% to 63% (median 30%) during the 2015/2016, 2016/2017, and 2017/2018 seasons.[8] Countries such as Belgium, England, and Wales have higher coverage rates, while Italy and Norway have relatively lower rates.[9] Considering these factors, the Centers for Disease Control and Prevention strongly advises that all healthcare professionals receive the influenza vaccination.[10,11] This study investigated the knowledge, accessibility, and administration of the flu vaccine among undergraduate medical students in Peshawar. By identifying the deficiencies and gaps in the current setup, this study intends to contribute positively to the receipt of flu vaccine in future.

METHODOLOGY

A cross-sectional study was conducted in the medical colleges of Peshawar from January 2023 to February 2023. The study population were undergraduate medical students currently enrolled. The purpose of the study was explained to the participants, and informed consent was obtained from them. Data was collected

using a self-administered structured questionnaire through simple convenience sampling. A total of 405 completed questionnaires were received, and participation was voluntary. All collected data were entered and analyzed using SPSS version 21, and percentages and frequencies were tabulated.

RESULTS

The study comprised 405 undergraduate medical students from different colleges in Peshawar. Most participants were 21-22 (45.5%). 62.2% were male, whereas 37.7% were female. Most of the students had middle socioeconomic status.

Table 1: Overall, Knowledge about Flu Vaccine

Knowledge Level	No. of Participants	%Age
Excellent	26	6.4%
Good	173	42.7%
Fair	149	36.8%
Poor	57	14.1%

Table 2: Availability/Access to Flu Vaccine

	No of participants	%Age
Readily Available	110	27.2%
Limited Availability	223	55.1%
No Availability	72	17.8%

Table 3: A Flu vaccine Administered

	No of participants	%Age
Yes	275	32.1%
No	130	67.9%

Around 32.1% of the participants stated that they did not administer the flu vaccine because they had no idea about it, whereas 33.8% noted a lack of interest as their main reason. When asked about regular vaccine administration, 44.9% agreed to get routine seasonal flu shots if access was easy, and only 31.6% stated otherwise. 41.7% had no clue if a flu vaccine could also cause an allergic reaction

DISCUSSION

This study assessed undergraduate students knowledge, availability and overall use of flu vaccine. The results showed that students knowledge regarding flu prevention through flu vaccines was sufficient. This is in contrast to a study conducted in Saudi Arabia, where among university students, the knowledge was unsatisfactory(67.6%), and they were less inclined to receive the flu vaccine in the future.[13] Another study in Pakistan also showed that only (20.1%) of students were aware of the influenza vaccine, while most students (79.9%) reported no such vaccine.[14] Around (42.7%) of the participants in our study had sufficient knowledge, and (6.4%) had an excess of knowledge when asked about flu vaccine leading to vaccine administration regularly (44.9%). This is similar to a study conducted in Spain, where, out of the 1017 expectant women who received advice about the vaccine, (77.4%) declared their intention to vaccinate.[12] Regarding access/availability of the vaccine, (55.1%) stated that the vaccine was limited in quantity and scarcely available, which led to a decrease in administration. Also, no idea regarding the vaccine presented as a case for a decline in vaccination. This is similar to the study in Saudi Arabia, where (70%) were willing to receive a vaccine on their doctor's recommendations, and (46%) agreed to vaccinate if vaccines were freely available in the university.[13] In contrast, a study conducted among Lebanese University students showed that the vaccination rates among university students remained low despite the awareness campaigns and the COVID-19 pandemic. Among the non-vaccinated respondents, the main reason for non-vaccination was that they thought that they did not need it. The primary reason for vaccination among those vaccinated was that they believed they were at risk of catching influenza.[15] (33.6%) of participants in our study stated their negligence regarding flu vaccines effectiveness in preventing seasonal flu. This is primarily due to no campaign strategies affecting its administration. This is similar to a study that reported a substantial relative increase in vaccination coverage by implementing vaccination policies or multifaceted campaign strategies.[16] Similarly, a study from Israel reported that mandatory HCP influenza vaccination policies, compared to non-mandatory interventions, are most effective in obtaining maximum influenza vaccination uptake among Health Care Professionals.[17] Currently, vaccination coverage is low, with only (27.2%)of participants showing availability. This is well below the target of 75% set by the World Health Organization. Similarly reported by a study in France, where the vaccination coverage rates in target populations were respectively estimated at 32.1%, 31.9%, and 32.1%.[18]

LIMITATIONS

This study is only focused on undergraduate medical students. There is a need to conduct such studies on a broader level and include the general population and healthcare professionals.

CONCLUSIONS

There is average knowledge regarding flu vaccines and no campaign strategies or policies requiring mandatory flu vaccination. This leads to negligence and a low turnout in vaccination. On top of that, vaccine coverage

is limited, and few can avail of vaccines. There is considerable scope for increasing vaccination turnout through proper campaigns and recommendations by healthcare professionals.

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CONTRIBUTORS

1. ***Muhammad Awais -*** *Concept & Design; Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript; Critical Revision; Supervision; Final Approval*
2. ***Muhammad Abbas -*** *Data Acquisition; Data Analysis/ Interpretation*
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FREQUENCY AND PREDICTORS OF SELF-REPORTED USE OF COMPLEMENTARY AND ALTERNATE MEDICINE (CAM) IN KARACHI, PAKISTAN

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ABSTRACT

OBJECTIVES

The study aimed to determine the frequency, predictors and attitudes regarding the use of CAM in the general population of Karachi, Pakistan.

METHODOLOGY

A cross-sectional study was conducted in April-May 2018. Our questionnaire recorded demographics, CAM modalities used, reasons cited for using CAM therapy and their experience with CAM. SPSS version 23 was used to generate descriptive statistics.

RESULTS

Three hundred seventy-five people participated in the study, of which 58.4% (n=219) were female. 72.8% of people reported using at least one form of CAM. Our study showed that more women (78.5%) than men (64.7%) had used CAM (P=0.003). CAM use was significantly higher in the Muslim community (P<0.001) and in individuals who had secondary education and above (P=0.004). The most common healthcare provider seen was a homoeopath (n=130, 34.7%), mainly for acute illness. Praying for own health (n=231, 61.6%) was the most common self-help practice used. The most frequently used CAM products were vitamin and mineral supplements (n=165, 44.0%), mainly for general health maintenance. 18.2% of the CAM users were very satisfied, 60.6% were satisfied, and 21.2% were disappointed with CAM. Only 7.7% of the study participants reported any adverse effects of CAM use.123 people consulted an allopathic doctor before using CAM, out of which 109 claimed to follow the doctor's treatment plan.

CONCLUSION

The use of CAM is highly prevalent in our society, especially amongst Muslim, educated females. Most were satisfied with the therapy and were receiving benefits for benefits.

KEYWORDS: *CAM, Therapy, Attitude, Population, Homeopath*

INTRODUCTION

Complementary and alternative medicine (CAM) includes various modalities used with or without conventional practices to treat diseases. The modalities include homoeopathy, acupuncture, traditional Chinese medicine, herbal medicines, massage therapy, yoga or antidotes prepared by Hakeem, spiritual healers and quacks in countries like Pakistan. The use of CAM is on the rise worldwide. The use of CAM by adults in the United States rose from 36% in 2002 to 38.3% in 2007.[1,2] According to The World Health Organization (WHO) Strategy for Traditional Medicine for 2002-2005, 80% of the African population and 40% of the people living in China use some form of traditional medicine. The use of CAM is also quite prevalent in the developing world. 48% of people living in Australia, 70% in Canada, 42% in the USA, 38% in Belgium and 75% in France have used CAM at least once.[3] In a hospital-based study conducted in Karachi, Pakistan, almost 60% of the patients were using alternative medicine, with homoeopathy being the leading one.[4] CAM is of uncertain benefit and may, in some cases, prove to be harmful. As many people are using alternative medicines and do not tell their doctors about it, it can hinder their treatment. It is thus essential to know the trends in alternative medicine use in cities. Also, it is vital to see the consumption of herbal medicines to save their parent plants from extinction. Socio-economic status might also have a significant role as a predictor of alternative medicine use and should be further investigated. No recent data shows the frequency of people using alternative medicine in Karachi, Pakistan. We investigated factors contributing to the prevalent use of CAM and its prevalence by conducting a questionnaire-based survey amongst the general population of Karachi.

METHODOLOGY

This prospective, cross-sectional study was conducted in Karachi, Pakistan, from April 2018 to May 2018. Our sample size is 384 after taking the estimated frequency, which is 50%, though 400 people were interviewed using a structured and validated questionnaire. A two-stage sampling design consisted of a pilot test followed by a proper survey in which convenience sampling was used. Informed consent was obtained from the people before filling out the questionnaire. For questionnaire development, an extensive literature search exploring CAM usage was conducted, and we modified the original I-CAM-Q, which contains four sections, according to our requirements.[5] Our finalized questionnaire comprises three areas: the first section included questions regarding demographics, the second section dealt with their usage of CAM, CAM modality used, and reason for the use of CAM, and the third section had questions regarding their experience with CAM. Questions were also asked about the source of users' knowledge about CAM and self-reported adverse effects. The inclusion criteria were adults living in Karachi, Pakistan. The exclusion criteria were those having participated in the pilot test and those with intellectual disability that prevented them from giving informed consent. No imputation method was used for missing data. The data analysis was conducted using Statistical Package for the Social Sciences (SPSS version 23). The chi-square test was used to find associations between CAM use and potential predictor variables.

RESULTS

Three hundred seventy-five subjects participated in the study, of which 41.6% (n=156) were male and 58.4% (n=219) were female. The study population's mean age (±SD) was 33.35 (±14.52). 273 (72.8%) participants reported the use of CAM. More than half (66.4%) had an undergraduate education or higher. Over half (61.2%) had a monthly household income of Rs. 65,000 or above. More women (78.5%) than men (64.7%) had used CAM in the past 12 months (P=0.003). Age (P=0.686), marital status (P=0.465), employment (P=0.227) and income (P=0.235) had no significant association with the use of CAM. The participants religion significantly predicted CAM use (P<0.001). Most Muslims (75.2%) and Christians (83.3%) used CAM. The association between the level of education and CAM use was statistically significant (P=0.004). CAM was more frequently used among individuals with secondary education or above. The ethnicity (P=0.166) of the study population was not significantly associated with CAM use. Table 2 shows the type of CAM used and the motivation for its use. The most common healthcare provider seen was a homeopath (n=130, 34.7%), mainly for acute illness. Praying for own health (n=231, 61.6%) was the most common self-help practice used. The most frequently used CAM product was vitamins/minerals (n=165, 44.0%), health maintenance being the most common reason for its use. A major source of knowledge regarding CAM was friends and family (67%), as shown in Figure 2. The most common cause reported for the benefit of CAM was perceived failure of medical treatment (25%), followed by cost-effectiveness of CAM and adverse drug effects (Figure 1). 18.2% of the CAM users were very satisfied, 60.6% were satisfied, and 21.2% were disappointed with CAM. Only 7.7% of the study participants reported experiencing any adverse effects of CAM use. Figure 3 shows that among the people using CAM, the majority strongly agreed that there are fewer side effects when taking natural remedies (65.9%). Most CAM users neither agreed nor disagreed with the idea that CAM involves natural plant formulas (44.4%) and that CAM is a more cost-effective treatment (42.6%). In the study, 123 people consulted an allopathic doctor before using CAM, out of which 109 claimed to follow the doctor's treatment plan.

Table 1: Demographic Characteristics of the Study Participants

	Study Participants		Cam Users	Cam Non-Users	P-Value
	n	%	n=273(%)	n=102(%)	
Gender					
Men	156	41.6	101(64.7)	55(35.3)	0.003
Women	219	58.4	172(78.5)	47(21.5)	
Marital Status					
Single	177	45.6	132(74.6)	45(25.4)	0.465
Married	198	52.8	141(71.2)	57(28.8)	
Religion					
Islam	351	93.6	264(75.2)	87(24.8)	<0.001
Hinduism	15	04	03(20)	12(80)	
Christianity	06	1.6	05(83.3)	01(16.7)	
Other	03	0.8	01(33.3)	02(66.7)	
Ethnicity					
Sindhi	75	20	48(64)	27(36)	0.166
Punjabi	58	15.5	40(69)	18(31)	
Balochi	12	3.2	08(66.7)	04(33.3)	
Pathan	17	4.5	11(64.7)	06(35.3)	
Muhajir	137	36.5	111(81)	26(19)	
Siraiki	09	2.4	06(66.7)	03(33.3)	
Other	67	17.9	49(73.1)	18(26.9)	
Education					
None	11	03	08(72.7)	03(27.3)	0.004
Primary	30	08	13(43.3)	17(56.7)	
Secondary	86	22.9	64(74.4)	22(25.6)	
Undergraduat	186	49.6	137(73.7)	49(26.3)	
Postgraduate	62	16.5	51(82.3)	11(17.7)	
Employment					
Employed	258	68.8	183(70.9)	75(29.1)	0.227
Unemployed	117	31.2	90(76.9)	27(23.1)	

Table continued.....

Income (per month)					
Rs.0-3999	20	5.4	13(65)	03(15)	0.235
Rs.4000-24999	51	13.6	31(60.8)	20(39.2)	
Rs.25000-64999	77	20.5	60(77.9)	17(22.1)	
Rs.65000-250000	136	36.3	102(75)	34(25)	
>Rs. 250000	91	24.3	65(71.4)	26(28.6)	

Table 2: Type of CAM, Its Frequency and Motivation for Use

Type of CAM	Motivation				
	Frequency n(%)	Acute illness(%)	Long-term illness(%)	Health maintenance(%)	Other r(%)
Healthcare Provider					
Homoeopath	130(34.7)	60.2	27.1	4.2	8.5
Herbalist	54(14.4)	51.1	31.9	6.4	10.6
Spiritual healer	31(8.3)	30.0	20.0	35.0	15.0
Chiropractor	08(2.1)	75.0	25.0	0.0	0.0
Acupuncturist	05(1.3)	20.0	40.0	0.0	40.0
Other providers	04(1.1)	100.0	0.0	0.0	0.0
Self-help Practices					
Praying for your health	231(61.6)	7.4	2.1	75.5	14.9
Relaxation techniques	56(14.9)	29.2	16.7	27.1	27.1
Yoga	38(10.1)	21.2	18.2	36.4	24.2
Meditation	38(10.1)	27.6	13.8	31.0	27.6
Attending traditional healing ceremony	04(1.1)	0.0	0.0	0.0	100
Other practices	10(2.7)	11.1	11.1	66.7	11.1
CAM Products					
Vitamins/ Minerals	165(44.0)	31.3	17.0	32.7	19.0
Herbs/ Herbal medicine	88(23.5)	60.8	27.8	5.1	6.3
Homeopathic remedies	62(16.5)	53.6	41.1	3.6	1.8
Other supplements	14(3.7)	100.0	0.0	0.0	0.0

[1]The denominator is the total study respondent number of 375

[1]Valid percentages are reported. When participants indicated the use of CAM, they were asked but not required to state their motivation, sometimes resulting in a different n value.

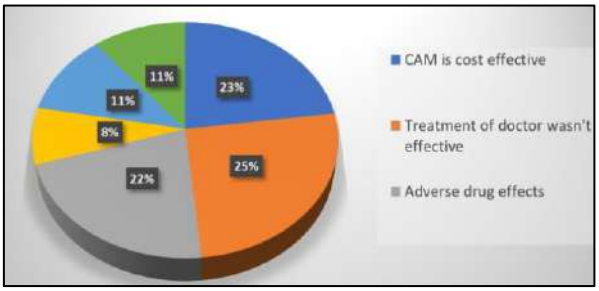

Figure 1: Reasons for the Use of CAM

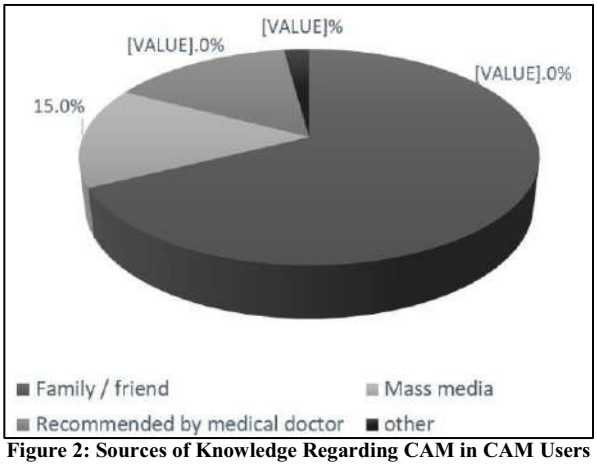

Figure 2: Sources of Knowledge Regarding CAM in CAM Users

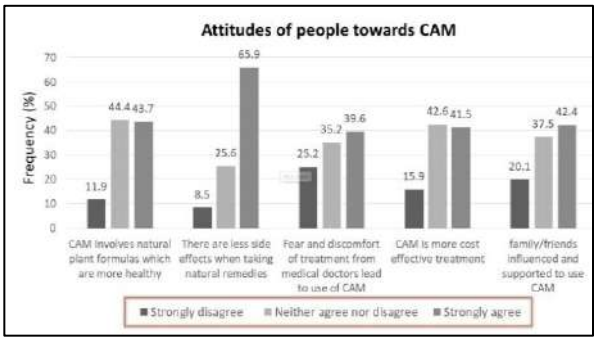

Figure 3: Attitudes of People towards CAM

DISCUSSION

There is a lack of cross-sectional studies regarding attitudes and perceptions of complementary and alternative medicine among the general population in Pakistan. After analysis and different findings, we concluded that CAM used in developed countries is more than 80% and in the developing world (approximately 50%).[6] Hence, it makes our study even more significant. An overwhelming majority (72.8%) of our participants reported some form of CAM usage. Our finding is considerably higher than similar studies done in Australia (48.5%).[7] However, since 70% of the developing world uses CAM, this is not a surprising finding.[8] More women than men use CAM, a finding common to most cultures since women tend to resort to CAM for gynaecological problems and depressive episodes.[9,10] This finding is consistent with Al-Faris et al.'s finding in Saudi Arabia, which cited reduced accessibility to health centres, long stay at home, herbs availability and media influence as reasons for the greater use of CAM seen in women.[11] Similarly, a study in rural Japan reported a female predominance and noted high levels of education among the key factors contributing to the increased prevalence of CAM

among women.[12] We also observed that females with an undergraduate degree or above are more likely to use CAM. The majority of the users resorted to CAM due to acute illnesses rather than chronic health conditions, a consistent finding across all types of CAM. This is mainly due to our cultural and societal practice in which conventional medical help is sought only for severe medical conditions. It might also be because CAM providers and clinics are growing at an alarming rate due to the state's high demand and lack of effort to ensure that all health providers are medically registered professionals and, hence, are more accessible than clinics and tertiary health care hospitals. This has resulted in a rise in quackery over the years, which often goes unchecked. In a Singaporean study where Traditional Chinese Medicine (88%) was the most widely used form of CAM, it was found that CAM was more likely to be used for health maintenance than illness treatment.[13] This was in contrast to the present study in which most participants visited CAM providers to treat their illnesses, and only a few visited for health maintenance. This may suggest that people believe in CAM practitioners in treating their ailments. The 3 most sought-after healthcare providers (homoeopaths, herbalists (hakeems) and spiritual healers) comprised 57.4 per cent of all providers. Our findings were consistent with a similar study in Pakistan in 2010 in which herbal medicine, followed by homoeopathy, was the most commonly used therapy.[4] The percentage use of CAM was higher in our study (72.8%) compared to previous data reported in our region, 51.7% and 59.3%, respectively.[4,14] In another study, Lail et al. reported that 1 in 4 people with gastrointestinal disorders in Pakistan (25.8%) used one of the CAM modalities, herbal medicine being the most common, seen in (52.13%) followed by spiritual (26%), and homoeopathy (14%).[15] The use of homoeopathy has increased over the years as a result of growing evidence of its effectiveness and a subsequent rise in homoeopathic clinics across the city.[16] The extensive use of herbal and spiritual medicine indicates our high reliance on cultural and religious beliefs to drive fundamental health decisions. This should be kept in mind by concerned government and health authorities and a move to an integrative health system (by effective usage of conventional and alternative medicine hand in hand) should be debated. People using conservative and alternative medicine together might expect synergistic effects and be unaware of any significant side effects. Our study shows that most people who reported using CAM did not consult their doctor before CAM (54.9%). 61.3% of the respondents informed their caregivers about their CAM usage in a study by Blackmer et al. and less than half in a study done on the Chatsworth community in India.[17,18] This highlights the importance for doctors to develop an effective relationship with their patients and proactively ask about their usage of CAM.[18] The reasons for CAM usage were variable, as seen in Pie Chart 1, with the majority suggesting that conventional treatment had not been effective, that CAM was comparatively cost-effective and that they feared adverse side effects of conventional medicine. Similar findings were seen in a study conducted by Palinkas et al., which suggested that the upsurge in the popularity of CAM use may be due to fear of adverse effects of conventional medicine, the demand for greater patient participation in their treatment, failure of conventional medicine and friends advice.[19] One possible reason for a perceived lack of effectiveness of conventional medicine might be a lack of patient compliance in Pakistan, resulting from social factors or inadequate counselling from health care providers.[20] This lack of counselling might also be a reason why there is an irrational fear of the adverse effects of conventional medicine, causing people to shift to CAM. Effective counselling could help change these perceptions and thus should be advocated for and be made an integral part of the health care system in Pakistan.

LIMITATIONS

Our study had some limitations, including it is single city study only Karachi population is targeted multi cities study could improve our understanding more regarding self medication of CAM.

CONCLUSIONS

While considerable research shows the benefits of naturopathic and acupuncture techniques, the overall impact of alternative healthcare providers in Pakistan remains unknown due to a lack of research into this subject. Also, this study is in an urban setting with adequate tertiary health care available. Significantly different results might be obtained if such a study were conducted in rural areas which lack primary health care and have an even greater reliance on CAM. It would benefit healthcare providers and policymakers if such a study were conducted nationwide. Despite the limitations, this study was conducted in various public settings and is characteristic of an urban population in Pakistan, as suggested by the demographics. It could serve as a basis for further research into general usage and opinions regarding CAM.

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ASSESSMENT OF THE PREVALENT AIRBORNE DISEASES IN CHILDREN, PESHAWAR: A RETROSPECTIVE STUDY

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ABSTRACT

OBJECTIVES

This study aims to assess the incidence of airborne diseases among the population of Peshawar during the winter season.

METHODOLOGY

It was a retrospective study conducted in three different hospitals in Peshawar. It took a duration of 4 months, from January to April 2023. We visited the hospitals and collected data from the patient guardian via a questionnaire. The total patient count was 300 in all hospitals for 4 months. Asymptomatic Patients and Adults were excluded. The ethical approval was taken from the ethical review committee of Gandhara University. The collected data were entered and analyzed using the SPSS statistical package, specifically version 25.0.

RESULTS

The female ratio was higher than the male ratio. Female were 51% and male were 49%. From an age perspective, patients aged less than 6 months were found to be 42%, and in this category, pneumonia was found majorly. Patients aged between 6-12 months were 27.3%, and in this category, Bronchiolitis was found majorly. Patients aged more than 12 months were 30.7%, and in this category, pneumonia was found excessively. Pneumonia and Bronchiolitis were found in more significant percentage among all other airborne diseases, i.e., Pneumonia (24.3%), Bronchiolitis (21.3%), Measles (11%), Coughing and Tuberculosis (8.6%), Influenza and Common cold (6.3%), Mumps (6%), Diphtheria (4%), and chicken pox (3.3%).

CONCLUSION

This study shows the high prevalence of Pneumonia (24.3%) and Bronchiolitis (21.3%) in children of age up to 2 years. As supported by the results of this study and previous studies, Children have a higher risk of any airborne disease in winter. Moreover, Pneumonia and Bronchiolitis were found in greater ratios in correspondence to other airborne diseases.

KEYWORDS: *Air Borne Disease, Pneumonia, Bronchiolitis, Tuberculosis, Mumps*

INTRODUCTION

In pediatric health, the impact of airborne diseases on children's well-being is a profound concern. As a vulnerable demographic, children are particularly susceptible to the adverse effects of airborne pathogens, leading to a myriad of health challenges that can extend from infancy to adolescence. Airborne diseases are diseases transmitted through the air through infectious aerosolized particles.[1,2] Any activity that produces infectious aerosolized particles is responsible for transmitting airborne diseases, such as coughing, sneezing, spraying liquids, spreading dust, or even talking. Viruses, bacteria, and fungi are the leading infectious agents of airborne diseases.[3,4] Airborne diseases, often caused by infectious agents such as bacteria, viruses, and fungi, significantly threaten children's health worldwide. Factors such as close contact in educational settings, underdeveloped immune systems, and environmental pollution contribute to the heightened vulnerability of children to respiratory infections.[5,6,7] Understanding the prevalence and nature of these diseases is imperative for designing effective prevention and intervention strategies to safeguard the health and well-being of the pediatric population. The infectious aerosolized particle may be produced directly by the infectious animal by body secretions or raised from biological waste where the infectious agent is grown (particle size below 100 micrometres). The infectious agent must be present in these aerosolized transmitted to the host. It should be noted that disease caused by air pollution is not included in airborne diseases.[7] Airborne diseases include Tuberculosis, primary atypical pneumonia, Pneumococcal

pneumonia, Influenza, common cold, Measles, Chicken Pox, smallpox, Anthrax, Diphtheria, Whooping cough, Aspergillosis, Blastomycosis, Histoplasmosis.[8,9] The literature provides insights into assessing prevalent airborne diseases in children. Ha 2011 found a significant association between indoor fungal concentrations and atopy in children.[10] Liu 2018 reviewed the effects of airborne particulate matter on respiratory symptoms and diseases in children, highlighting the adverse impact of short-term exposure to particulate matter on respiratory health.[11] Bengtsson 2003 demonstrated that exposure to airborne infectious diseases during infancy increased mortality in later life.[12] Wan 2012 conducted surveillance in a hospital pediatric department and found the presence of airborne adenovirus and Mycoplasma pneumonia, suggesting the potential for airborne transmission of these pathogens in healthcare settings.[13]

METHODOLOGY

It was a cross-sectional study conducted in three different hospitals in Peshawar. It took a duration of 4 months, from January to April 2023. We visited the hospitals and collected data from the patient guardian via questionnaire. The total patient count was 300 in all hospitals for 4 months. Asymptomatic Patients and Adults were excluded. The ethical approval was taken from the ethical review committee of Gandhara University Peshawar. The collected data were entered and analyzed using the SPSS statistical package, specifically version 25.0.

RESULTS

Most of the patients were female and <6 months of age. The pneumonia was more prevalent among the patients.

Table 1: Demographics

		n(f)	Mean SD
Gender	Male	147(49.0)	1.51± 0.501
	Female	153(51.0)	
Age	<6 months	126(42.0)	1.89±0.846
	6-12 months	82(27.3)	
	>12 months	92(30.7)	
Type of airborne disease	diphtheria	12(4)	5.56±2.299
	measles	33(11)	
	influenza	19(6.3)	
	Common cold	19(6.3)	
	bronchiolitis	64(21.3)	
	tuberculosis	26(8.6)	
	pneumonia	73(24.3)	
	coughing	26(8.6)	
	mumps	18(06)	
	Chicken pox	10(3.3)	

Table 2: Airborne Diseases across Age

Type of Airborne Disease	Age			Chi-Square	P-Value
	<6 months	6-12 months	>12 months		
Diphtheria	07	33.728	0.014	33.728	0.014
Measles	16	11	06		
Influenza	12	02	05		
Common cold	08	06	05		
Bronchiolitis	26	20	18		
Tuberculosis	11	07	08		
Pneumonia	30	17	26		
Coughing	09	11	06		
Mumps	05	03	10		
Chicken pox	02	0	08		

DISCUSSION

Most airborne diseases run their course within a few weeks. Others, like whooping cough, can last for months. Serious complications and longer recovery time are more likely due to a weakened immune cyst.[14] In some cases, airborne diseases can be fatal. Airborne disease transmission depends on several physical variables endemic to the infectious particle. Environmental factors influence the efficacy of airborne disease transmission; temperature and relative humidity are the most evident environmental conditions.[15] The sum of all the factors that influence temperature and humidity, either meteorological (outdoor) or human (indoor), as well as other circumstances influencing the spread of the droplets containing the infectious particles, such as winds or human behaviour, sum up the factors influencing the transmission of airborne diseases.[10] About 120 million cases of pneumonia occur annually throughout the world, of which 1.7 million die.[16] A Community-Based Survey was conducted on Healthcare Utilization for Pneumonia in Children in Peri-Urban Slums of Karachi, Pakistan.[15] The prevalence of pneumonia with cough and rapid or difficulty breathing was 40.8% and 37.1% in infants (2–11 months) and children (12–59 months), respectively. Ninety-five per cent of caretakers sought care, 68.5% privately. Presence of symptoms such as fever OR, 1.51 (1.30–1.76); tachypnea, 1.57 (1.35–1.83); chest in drawing, 2.56 (2.05–3.18); persistent vomiting, 1.69 (1.37–2.09); and recurrent illness, 2.57 (2.23–2.97) were also predictive.[15] There is high healthcare utilization for pneumonia with the skewed presentation toward private services. Strategies should be focused on making pneumonia care standardized, efficient and affordable, especially in the private sector.[17] In a developing country like India, pneumonia is a common childhood illness with risk factors like lower maternal education, delayed onset of complementary feeding, lack of complete immunization, indoor air pollution and

lower socio-economic conditions, which is a scenario usually observed in urban slums.[18] Effective community-based interventions like health education and generating awareness amongst the people living in the slums may go a long way in addressing the risk factors as well as reducing the burden of pneumonia in these areas. Research was conducted on the prevalence of pneumonia among under-five children in Este town and the surrounding rural kebeles, Northwest Ethiopia; it was a community-based cross-sectional study. A total of 286 mothers with under-five children were interviewed, of which 64 (22.4%) were urban residents, and 222 (77.6%) were rural residents. The mean age of mothers was 28.4, and that of fathers was 36.8. About one-third of mothers and one-fourth of fathers were between the age group of 25-30. Most respondents (282) were Orthodox Christian, and the rest were Muslim. Concerning educational status, 205 (71.7%) of mothers and 119 (42.5%) of fathers were illiterate. Among the interviewed mothers, the majority (239) were housewives. Of all the under-five children in the survey, 148 (51.7%) were male and 138 (48.3%) were females. The under-five children's mean age, weight and height (length) were 26.1+ 14.0 months, 10.11+ 2.49 kg and 77.16 + 11.74 cm, respectively. Over one-fourth of children (26.9%) were between 24 and 35 months old.[19] Bronchiolitis is the most common lower respiratory tract infection in infants. It is the leading cause of hospitalization of infants younger than age 1, and more than 80% of children hospitalized are younger than 6 months of age.[20] Disease severity is directly related to the size and maturity of the infant. In Canada, between 1980 and 2000, the rate of hospitalization for Bronchiolitis increased, especially among children younger than 6 months of age.[21] The risk of death for a healthy infant with Bronchiolitis is less than 0.5%, but the risk is much higher for children with congenital heart disease (3.5%) and chronic lung disease (3.45%). Respiratory syncytial virus (RSV) accounts for 70% of Bronchiolitis, rising to 80% to 100% in winter epidemics. Each year, 1% to 2% of children younger than 12 months of age are hospitalized for Bronchiolitis. Only 1% of hospitalized children die of the illness. The mean duration of the hospital stay is 3 to 4 days. Bronchiolitis occurs mainly during winter. The incidence of Bronchiolitis is increasing. Around 70% of cases are due to RSV.[11] Tuberculosis is one of the leading infectious causes of death and, as such, represents a major global health problem. Infants may develop congenital Tuberculosis from an infectious mother or, most commonly, they may acquire postnatal disease by contact with an infectious adult source.[5] Ten per cent of Malian newborns were susceptible to measles; by six months, nearly all were. Maternal and infant antibody titers were highly correlated.[22] At delivery, 11% of mothers and 10% of newborns were susceptible to measles. Infant susceptibility increased to 72% and 98% by three and six months. Infants born to younger mothers were most susceptible at birth and three months. Time to susceptibility was 6.6 weeks in infants born to mothers with measles titer >120–<430 mIU/mL versus 15.4 weeks when mothers had titers ≥430 mIU/mL.[23]

LIMITATIONS

The limited sample size and convenience sampling techniques may introduce selection bias and limit the generalizability of the findings to the broader population. Additionally, relying on self-reported data from face-to-face interviews may introduce recall and response biases, potentially impacting the accuracy and reliability of the collected information. Furthermore, as the study was conducted in a specific geographical area (Peshawar, Pakistan), the results may not apply to regions with different socio-economic and environmental characteristics. Future studies with more diverse samples and rigorous data collection methods would help address these limitations and provide a more comprehensive understanding of airborne diseases.

CONCLUSIONS

The result of this study shows the high prevalence of Pneumonia (24.3%) and Bronchiolitis (21.3%) in children aged up to 2 years. As supported by the results of this study and previous studies, Children have a higher risk of any airborne disease in winter. Moreover, Pneumonia and Bronchiolitis were found in greater ratios in correspondence to other airborne diseases.

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INVESTIGATING THE TRENDS OF PSYCHOTROPIC SUBSTANCE USE AMONG MEDICAL AND DENTAL STUDENTS IN DISTRICT PESHAWAR; A CROSSECTIONAL STUDY

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ABSTRACT

OBJECTIVES

The study aimed to determine the trends of psychotropic substance use in medical and dental colleges of Peshawar.

METHODOLOGY

A cross-sectional study was conducted at the Khyber Medical University and Gandhara University in Peshawar from April 2023 to October 2023. A total of 285 medical students were selected as study participants. Data analysis was performed using the SPSS statistical package version 26.0.

RESULTS

Among the study participants, 169 (59.29%) were male, and 115 (40.71%) were female, with the majority, 154 (54.03%), falling in the 18-21 years age group. The observed prevalence of substance use among these students was 55 (19.29%). Cigarettes and Prescription drugs were the substances most used, with students from private medical colleges more likely to have experimented with psychotropic substances. Overall, male students were more likely to have experimented with these substances compared to their female counterparts.

CONCLUSION

The findings of this study indicate that the trends of psychotropic substance use among medical students in Peshawar are of serious concern. Efforts should be directed towards increasing awareness about the hazards of substance use among medical students. One potential approach to addressing this issue is the integration of addiction medicine into the undergraduate curriculum.

KEYWORDS: *Medical, Peshawar, Psychotropic, Drugs*

INTRODUCTION

The use of psychotropic drugs has become a global issue with severe consequences on the individual, society, and the healthcare system. Psychotropic drugs alter mental processes, including perception, consciousness, cognition, mood, and emotions. Psychoactive substances include alcohol, nicotine, and illegal drugs.[1] One of the populations that are susceptible to drug abuse is medical students, who face a high level of academic pressure, peer pressure, and easy access to illegal drugs.[2] According to global literature, one out of every four medical students is using illegally prescribed medications or some other form of psychotropic drug.[3] A study conducted in Khyber Pakhtunkhwa province of Pakistan revealed that 68% of medical students engaged in intoxicant use, with tobacco being the most commonly used intoxicant. Males were found to be more commonly involved in the use of tobacco smoking through a pipe than females. Sedative drugs were the second most consumed intoxicant, with males being the most common users. Alcohol, cannabis, and injectable drugs were also found to be prevalently consumed, with men consuming more alcohol and women using more injectable drugs.[4] A survey done by UNODC in 2013 showed that Pakistan has around 6% or 6.7 million drug abusers, where 75% are males and 25% are females. However, 4.25 million individuals were drug-dependent.[5] Another study conducted on students in Lahore, Pakistan, showed that the most common intoxicants used were tobacco cigarettes, alcohol, cannabis, amphetamines, benzodiazepines, and glue sniffing. The study found that students belonging to a higher-income class were more involved in the use of intoxicants and illicit drugs.[6] There is a significant prevalence of psychoactive substance use among medical and dental students. Noshad 2020 found that 21% of medical students in Lahore reported substance abuse, with tobacco being the most consumed substance.[7] Sapkota 2020 also found high rates of substance use among medical and dental students in Nepal, with 47.75% reporting alcohol use and 19.55% reporting nicotine use.[8] Maddux surveyed senior

medical students and found that a noteworthy proportion had used various psychoactive substances, including marijuana, amphetamines, and opioids.[9] Nawaz 2017 reported that 21.49% of medical undergraduates in Abbottabad admitted to using psychoactive substances, with cigarette smoking, naswar, and benzodiazepines being the most prevalent.[10] These findings highlight the need for awareness and interventions to address the issue of substance use among medical and dental students. Our study aimed to provide valuable insights into abuse trends among medical students in District Peshawar, Pakistan.

METHODOLOGY

A cross-sectional questionnaire-based study was conducted at Khyber Medical University and Gandhara University in Peshawar, Khyber Pakhtunkhwa, Pakistan, from April 2023 to October 2023. The names of the medical colleges were not disclosed to maintain confidentiality. Informed consent was obtained from the participants, and their names were kept confidential. The target sample size was 300 students, calculated by using an online Raosoft sample size calculator. The parameters for the calculation were: population size = 500000, response distribution = 50%, confidence interval = 90%, and margin of error = 5%. A total of 285 students were contacted to participate in the study using a conventional sampling technique. The questionnaire was developed by reviewing the literature on the use of psychotropic substances and the associated factors. It consisted of 21 self-prepared closed-ended questions in different sections. Experts in pharmacy practice validated the questionnaire. The aim and instructions of the research project were explained to the participants before they filled out the questionnaire with their signed consent. The inclusion criteria were: being a university student, aged between 18 and 25 years, and being male or female. The exclusion criterion was having incomplete responses. The data were entered and analyzed using SPSS version 26.0. All the categorical variables, such as demographic and other study questions, were described using frequency (n) and percentage (%).

RESULTS

Table 1: Demographic Characteristics (n=285)

Variables	n%
Gender	
Male	169(59.29%)
Female	116(40.7%)
Age Group	
18-21	154(54.03%)
22-27	132(46.31%)
Level of Education	
MBBS	274(96.14%)
BDS	11(3.85%)
Study Year	
1st Year	63(22.10%)
2nd Year	105(36.84%)
3rd Year	54(18.9%)
4th Year	31(10.87%)
5th Year	32(11.22%)
Students Using Psychotropic Substance	
Yes	55(19.29%)
No	230(80.71%)

Table 2: Occassions and Pattern of Drug Abuse among Drug Abusers (n=55)

Occasions of Using Drugs by Students	n%
Before exams	27(49.09)
At Parties	13(23.63)
After Exams	09(16.36)
At home	05(9.09)
Form of Drug Being Used	
Cigarette	15(27.27)
Naswaar	06(10.90)
Sheesha	03(05.4)
Prescription Pills	13(23.63)
Others	13(23.63)
Chars	02(03.63)
Alcohol	01(01.81)
Gutka	01(01.81)
Paan	01(01.81)
Method of Taking the Drug	
Oral	32(58.18%)
Smoke	20(36.36%)
Injection	02(3.63%)
Patch	01(1.81%)

Table 3: Pattern of Drug Abuse, Source of Obtaining Drugs and Experience Side Effects among the Users (n=55)

Variables	n%
Source of Drug Obtaining	
Friend	24(43.63%)
Relatives	18(32.72%)
Drug Dealer	08(14.54%)
Medical Store	05(9.09%)
Commonly Experience Side Effects	
Sleep disorder	22(40%)
Nausea	17(30.9%)
Dry mouth	11(20%)
Mydriasis	02(3.63%)
Constipation	02(3.63%)
Diarrhea	01(1.81%)

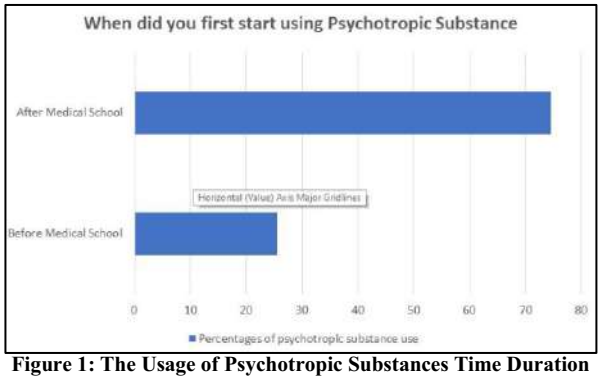

Figure 1: The Usage of Psychotropic Substances Time Duration

DISCUSSION

The prevalence of substance abuse among medical students is a matter of significant concern, as indicated by the findings of our study. Approximately 19.29% of the surveyed students reported using substances, while a substantial majority of 80.71% refrained from such behaviour.[12] Although the prevalence in our study is lower than figures reported in Western countries, it remains unacceptably high. This disparity is noteworthy, particularly when compared to predominantly Muslim countries where the point prevalence for psychotropic substance use is reported to be only 4%, with a subset of students consuming alcohol.[13] The substances commonly used by students in our study encompassed cigarettes, naswar, sheesha, prescription pills, and other substances. Cigarettes and prescription drugs emerged as the most frequently experimented with substances in our study, signalling a societal acceptance of cigarette smoking in Pakistan.[14] This finding contrasts with the belief that alcohol is not a significant problem among medical students in the region. It is noteworthy that the frequency of cigarette use in our study significantly surpassed figures reported in Western countries, emphasizing the need for targeted interventions and awareness programs to address this issue.[15] A concerning revelation from our study is the early initiation into substance abuse among medical students. Over a quarter of the respondents began experimenting with substances before entering medical school, and nearly 40% initiated substance use between the ages of 15 and 20 years.[16,17] This underscores the urgency for comprehensive awareness programs targeting the youth, particularly in high schools and colleges, to prevent early initiation into substance abuse. Socioeconomic factors were identified as playing a significant role in substance abuse patterns among medical students. Students from private medical colleges, often associated with more affluent families, were found to experiment more with cigarettes, alcohol, or cannabis. This observation underscores the influence of socioeconomic status on substance abuse patterns.[18] our study sheds light on the prevalence of substance abuse among medical students in Pakistan, emphasizing the need for targeted interventions and awareness programs, mainly focusing on early initiation prevention and addressing socioeconomic influences on substance abuse patterns. The findings also prompt a reevaluation of societal attitudes towards cigarette smoking in the region and challenge the assumption that alcohol is not a significant problem among medical students.

LIMITATIONS

The study was conducted in two institutions, limiting the generalizability of the results. Additionally, the topic's sensitivity may have influenced how students responded to the questionnaire. Future studies should include more institutions and use anonymous methods to ensure honest responses.

CONCLUSIONS

Our study reveals alarming rates of psychotropic substance use among medical students in Peshawar, Pakistan. Nearly one-fifth of the participants reported substance use, with cigarettes and prescription drugs being the most prevalent choices. Early initiation into substance use and the influence of socioeconomic factors further compound the issue. It is imperative to increase awareness about the risks associated with substance abuse among medical students. Integrating addiction medicine into the undergraduate curriculum can help tackle this problem for professionals and the broader society.

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PREVALENCE OF ANEMIA IN CHILDREN ACROSS THE GENDER, SOCIOECONOMIC STATUS AND AGE IN DISTRICT PESHAWAR

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ABSTRACT

OBJECTIVES

The study aimed to determine the prevalence of anaemia in children across genders, socioeconomic status and ages in the district of Peshawar.

METHODOLOGY

It was a cross-sectional study conducted in teaching hospitals in Peshawar from January-April 2023. Data was collected based on HB level, of which 300 patients were selected for our research purpose. Patients having severe blood or other physical illness were excluded. Data was analysed on SPSS version 22.

RESULTS

Our study result showed that 48.5% of the female children and 83.4% of the male youngsters were identified as anaemic due to low Hb. Children from low SES backgrounds had low Hb, 79.7% across the SES. In children under 24 months of age, the anaemia ratio was 73.3%; in children over 48 months, it was 64.3%; and in children between 24 and 48 months of age, it was 73.3%.

CONCLUSION

The ratio of anaemia in males and low socioeconomic status and young children was high.

KEYWORDS: *Anemia, Hb, Children, Peshawar*

INTRODUCTION

Anemia is defined as a decreased concentration of blood haemoglobin. According to WHO, anaemia is one of the most common nutritional deficiencies affecting a quarter of the world's population. Globally, it affects 1.62 billion people.[1] With its highest prevalence among children and pregnant women, anaemia is a significant public health problem affecting all ages of the population.[2,3] In developing countries, it is most common in children and women. It is believed that iron deficient (ID) children aged 1-2 years are700, 000 and Iron deficiency anaemia (IDA) are 2400, 000.[4] Africa and Southeast Asia are declared to have elevated risk, according to the World Health Organization (WHO). Around 66% of preschool-aged children and 50% of women suffered from anaemia.[5] In 2018, a cross-sectional study in Brazil showed a frequency of 23.1%, primarily affecting children younger than five years of age living together with other children.[6] According to the Ethiopian Demographic and Health Survey (EDHS), 57% of children are anaemic.[7] In poor areas of China, it was reported that 22% of children under 5 years old, 40% of infants and 18%-32% were affected by anaemia.[8] The prevalence of anaemia in Coronel Portillo was 36.2%, and in Huancavelica was 55.9%. In Huancavelica, iron deficiency anaemia was 22.8%, and vitamin B12 deficiency was 11%.[9] In Pakistan, the prevalence of anaemia in children under five was reported to be 40%-70%.[10] Studies revealed that an iron-deficient diet and malaria were among the causes of anaemia.[11] Other factors contributing to the cause of anemia among children under five years age include parasitic infections (hook worm and tapeworm), acute or chronic inflammations ,inherited or acquired disorders affecting Hb synthesis, red blood cell production, and survival and nutritional deficiencies.[12] In a similar study in Tanzania, the risk factors associated with severe anaemia among children under five years were unemployment among caretakers, malaria parasitaemia, and the presence of sickle Hb.[13] In Ethiopia, the risk factors contributing to anaemia include male sex 9-11 months of age, poor diet, stunting, diarrhoea, early initiation of complementary food and lowest wealth quintile.[14] Behavioural delay reduced cognitive development (impaired learning and decreased school achievement), low immunity growth and weight, fatigue, difficulty with concentration, lethargy, increased mortality, and susceptibility to infection are the adverse effects of anaemia on children, especially in the first two years of life.[11,15,16] Dizziness, fatigue, body tension, paleness of skin, palms and eyes, loss of appetite and body weight, general body

weakness under severe conditions, unconsciousness, and finally, death are the common signs and symptoms of anaemia in children.[17]

METHODOLOGY

A cross-sectional study was conducted on 300 pediatric patients of Naseer Teaching Hospital and Lady Reading Hospital Peshawar over 4 months. The non-probability convenience sampling technique was used. The pediatric department of Naseer Teaching Hospital approved a structured questionnaire. The questionnaire has demographic questions and laboratory-oriented questions. The questionnaire was filled out after obtaining consent. The inclusion criteria were pediatric patients under the age of 5 years, and the exclusion criteria were those patients suffering from diseases other than anaemia and those not willing to consent. SPSS version 20.0 was used to analyze the data.

RESULTS

Three hundred paediatrics patients CBC reports were taken from different teaching hospitals of district Peshawar. The mean age of participants was 22.78±20.25 months; in this study, 199(66.3%) were males, and 101(33.7%) were females. The mean HB level of our population was 10.702±2.46. Our study result showed that 83.4% of male and 48.5% of female children had low Hb and were diagnosed as anaemic. Across the SES, the low SES children had a low Hb of 79.7%. Across ages, the ratio of anaemia in children under 24 months was 73.3%, ages more significant than 48 months was 64.3%, and age 24-48 months was 73.3%.

Table 1: Demographic Characteristics. (n=285)

Age	HB			P-Value	Chi-Square Value
	Low	Normal	High		
Less than 24 months	73.3%	21.4%	5.3%	2.542	0.627
24-48 months	73.7%	23.7%	2.6%		
More than 48	64.3%	30.4%	5.4%		

There is no such relation between a patient's age and the HB level

Table 2: Relationship of Gender with HB level

Gender	HB			P-Value	Chi-Square Value
	low	Normal	High		
Male	83.4%	12.6%	4.0%	41.910	0.000
Female	48.5%	44.6%	6.9%		

A relation exists between a patient's age and HB level, i.e. the percentage of anaemia in males is more significant than in females.

Table 3: Relationship of Socioeconomic Status with HB

Socioeconomic status	HB			P-Value	Chi-Square Value
	Low	Normal	High		
low	79.9%	18.8%	1.4%	26.230	0.000
Middle	71.3%	23.8%	4.9%		
High	12.5%	50.0%	37.5%		

The HB level of a patient depends upon the patient's socioeconomic status.

DISCUSSION

Comparing the demographics of our study with other studies, those participating in our studies who participated in our study were of ages ranging from 1 month to 5 years. The study's primary purpose was to discover the prevalence of anaemia. Other studies compared to the prevalence of anaemia were found to be lower, i.e. our 71.7% current study. In 1995-96, research was conducted according to which the ratio was 30%.[18] Another research was conducted in China in 2015, according to which the ratio of iron deficiency anaemia was lowered by 15.68% (2015) as compared to 17.26% (1990) of their previous value (1990).[19] In research in China in 2011, the prevalence ratio of anaemia was 22.4% in age 2-5 years.[20] In research conducted at Hawasa University Teaching and Referal Hospital, Hawasa, southern Ethiopia, in 2016, the overall prevalence of anaemia was 41.7% in children under five years of age.[21] Similarly, the prevalence of anaemia was reported in other Latin American countries, where a population study conducted by Rivera, which focused on preschool children in Cuba, reported a prevalence of 55.6% in 2000.[22] Sanabaria reported a prevalence of 52% in under 5 years old children in Referral hospitals in Paraguay in 2003.[6,23] Anaemia has continued to be a health problem in children under 5 years, which adversely affects the mental, physical and social development of children. This burden also affected middle and lower-income countries, including Pakistan. The variation might be due to having the problem of low income or parasitic infection of children, which are contributing factors associated with low Hb in children.

LIMITATIONS

Our study was limited to the pediatric patients under the age of 6 years. The research was based only on the data

collected from Naseer Teaching Hospital and Lady Reading Hospital Peshawar. No other hospital was involved, either private or government.

CONCLUSIONS

According to our studies, we conclude that in Peshawar, the ratio of anaemia in males and low socioeconomic status and young children was high.

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PREVALENCE OF ANEMIA AMONG PREGNANT WOMEN; A COMMUNITY-BASED STUDY IN RULER AND URBAN AREAS OF PESHAWAR

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ABSTRACT

OBJECTIVES

The study aimed to find out the prevalence of anemia among the pregnant women of Peshawar.

METHODOLOGY

A cross-sectional study was conducted among 301 pregnant women, 154 from urban areas and 147 from rural areas of Peshawar, using a convenient sampling technique using Slovin's Formula, where the population size was 185676 with a 5.75% margin of error. Data was collected through a structured questionnaire interviewing the patients and analyzing lab reports from concerned hospitals. Anemia was defined as haemoglobin <11 g/dl. Data were analyzed using SPSS version 23.

RESULTS

The overall prevalence of anaemia among pregnant women in Peshawar was 42.52%, with a higher prevalence in rural areas (45.5%) compared to urban areas (39.6%) with a mean age of 28 ±.1. The risk of anaemia increased with the number of miscarriages, and multigravidas showed increased contingency to anaemia.

CONCLUSION

The study found a high prevalence of anaemia among pregnant women in Peshawar; we concluded that there is not enough evidence to suggest a difference in urban and rural areas regarding the prevalence of anaemia, particularly in the following factors: lack of knowledge about health care, poor self-care during pregnancy and socioeconomic status. The findings highlighted that the latter trimesters and dietary intake had much more effect on anaemia among pregnant women. The need for a better diet and extensive care, particularly in the third trimester, could benefit women during pregnancy.

KEYWORDS:

INTRODUCTION

Anaemia during pregnancy is a significant public health problem throughout the world, particularly in developing countries. Women during pregnancy are more vulnerable to anaemia not only because of the synergistic effects of a physiological increase in plasma volume (hemodilution) but also because of increased demand and poor bioavailability of iron in the food, predisposed by social factors like preferential feed for men, women eating last with whatever left, being deprived of good food, the workload of household chores.[1,2] WHO defines anaemia in pregnancy as haemoglobin less than 11 g/dl and hematocrit of less than 32%.[3] WHO classifies anaemia into three grades for pregnant women according to severity: Normal (Hb) ≥ 11.0 g/dl, Mild (Hb) 9.0-10.9 g/dl, Moderate (Hb) 7-8.9 g/dl, Severe (Hb) < 7 g/dl.[4] According to a recent study carried out in India (South Asia), 35.28% of pregnant women were reported to be normal, while 64.72% suffered from anaemia of variable degrees. Mild anaemia was seen in 29.50% of pregnant women, moderate anaemia in 34.55%, and severe anaemia in 0.65%.[5] According to a survey, in Pakistan, 26% of women in urban areas are on the verge of developing maternal anaemia, and this percentage rises to 47% in rural women.[6] Furthermore, several socioeconomic factors, including poverty, the improper diet of pregnant women, lack of awareness, and lack of birth control, are all contributing significantly to the increased prevalence of maternal anaemia in Pakistan.[7] In recent years, there has been a growing awareness of the global burden of maternal, newborn, and child mortality. Although estimates vary, approximately 300,000 women die each year worldwide, while over 15 million suffer long-term illness or disability as a result of pregnancy and childbirth complications.[8,9] The health consequences of anaemia during pregnancy are well documented. There is a greater risk of reproductive morbidity and mortality, such as abortion, stillbirth, low

birth weight baby, high perinatal mortality, infant mortality, postpartum haemorrhage, intercurrent infection, and maternal mortality.[4,10] Anaemia during pregnancy contributes significantly to 20% of all maternal deaths in developing countries like Pakistan.[11] According to the National Nutritional Survey of Pakistan (2018), 41.7% of pregnant women are anaemic, with a slightly higher prevalence of anaemia in rural parts (44.3%) compared to 40.2% in urban areas.[12] More notably, 18.2% of WRA are iron deficient, with rural (18.7%) being more frequent than urban (17.4%).[12] Similarly, research done in one of Pakistan's rural districts indicated that 77% of pregnant women are anaemic, 20.8% are moderately anaemic, and more than half (56.5%) are suffering from moderate to severe anaemia.[13] About 1/5 of the global maternal deaths (295000 per year) occur in South Asian countries, out of which 14.47% is contributed by Pakistan.[14] An underlying reason must be addressed when anaemia is identified because it is a condition rather than a disease. Anaemia falls under the group of microcytic anaemia. Iron deficiency anaemia is the most prevalent form of anaemia and microcytic anaemia.[15] Anaemia might manifest differently clinically depending on its severity.[16] WHO estimates that over two-thirds of pregnant mothers in developing countries suffer from nutritional anaemia.[17] Pakistan continues to be one of the countries with the highest prevalence of anaemia.[18] Regular physiologic changes during pregnancy influence haemoglobin (Hb), causing a total or relative decrease in Hb level.[19] A diverse group of macrocytic anaemia known as megaloblastic anaemia (MA) is defined by the presence of giant red blood cell precursors called megaloblasts in the bone marrow.[20] Iron deficiency anaemia (about 75% of cases) and megaloblastic anaemia are the most frequent during pregnancy.[21] The most frequent contributing factor to megaloblastic anaemia in pregnancy is a folic acid deficiency, which is also linked to other issues such as open neural tube abnormalities, and they are more likely in women who have poor diets and do not receive prenatal iron and folate supplementation.[22] Any interventive strategy for the population must address the problem of iron deficiency and the deficiencies of other micronutrients, such as B12 and folic acid and other possible factors.[23] The reason for exploring this topic is that studies on it are extremely limited in Pakistan. There are no published studies in Peshawar. In this research article, we have investigated the connection between lack of health care, substandard personal care during pregnancy, miscarriages and abortions, and consecutive pregnancies with exacerbated risk of anaemia among pregnant women.

METHODOLOGY

A cross-sectional study was conducted inwards and OPDS of district Peshawar's primary and secondary hospitals from February-March 2023. Different teams of data collectors were assigned for data collection in varied hospitals after approval from the ethical committee and Research cell of ORIC (Office of Research, innovation and Commercialization), Gandhara University. The inclusion criteria were pregnant women of all trimesters, age group 17-49, while the exclusion criteria included nonpregnant women and populations from another area apart from Peshawar. The data was compiled from pregnant women of both urban and rural localities to compare the prevalence of anaemia. A total of 301 pregnant women were selected through a convenient sampling technique using Slovin's Formula, where the population size was 185676 with a 5.75% margin of error. The data was collected through a structured questionnaire designed with two portions. One was interview-based, while the other included questions answered indirectly through lab reports. Analysis of the CBC report's red blood cell count (RBC), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH) and mean corpuscular haemoglobin concentration (MCHC) was done. The final data was analyzed on SPSS version 23.

RESULTS

A total of 301 pregnant women were enrolled in the study, of which 147 belong to rural and 154 belong to urban areas of Peshawar. The age of pregnant women was ranging from 17 to 49 years. With a mean age of 28±1. 41% of the population had microcytic anaemia, and 1.3% had macrocytic anaemia. Out of 41.2% having microcytic anaemia, rural contributed 44.2%, while 38.3% were from urban areas. The prevalence of anaemia during the first, second and third trimesters was 18.2%, 37% and 44.2% respectively. The pregnant women eating a balanced diet suffered 37.1% as compared to those eating a non-balanced diet, i.e. 48.6%.

Table 1: Cross Tabulation of Number of Pregnancies and Microcytic Anemia

Total Number of Pregnancies	Positive Microcytic Anemia	Negative Microcytic Anemia
Primigravida	29.2%	70.8%
Multigravida	43.4%	56.5%

Women who breastfed the last child had 42.6% microcytic anaemia out of 195 pregnant women, and those who did not breastfeed had 38.6% out of 106

sample population. The women who took iron supplements during pregnancy suffered 39.4% out of 198, while 44.7% out of 103 suffered microcytic anemia and were not taking iron supplements. Of the women who took vitamin C supplements, 36.2% contributed to microcytic anaemia 130, while others were 45% affected 171.

Table 2: Financial Position of the Family* Microcytic Anemia Cross Tabulation

Financial Status	Positive Microcytic Anemia	Negative Microcytic Anemia
Poor	45.8%	54.2%
Lower Middle	36.5%	63.5%
Middle	38.8%	61.2%
Upper	25%	75%

DISCUSSION

Our study found that 41.2% of the population, corresponding to 124 individuals out of 301, were diagnosed with microcytic anaemia. Furthermore, macrocytic anaemia was observed in 1.3% of the population. Since the prevalence of macrocytic anaemia is observed in just four individuals out of the 301 patients included in our study, we will now focus exclusively on discussing microcytic anaemia and its associated factors. According to the national nutritional survey of Pakistan, 41.7% of pregnant women were anaemic, with a slightly higher prevalence of anaemia in rural parts, 44.3% compared to 40.3% in urban areas.[24] Our research further supports this notion by revealing that within the 41.2% (124 out of 301) population with microcytic anaemia, it was found that 52.4% (65 out of 124) of rural residents exhibited microcytic anaemia, whereas 47.6% (59 out of 124) of urban residents had microcytic anaemia. 35.44% (67 out of 189) of pregnant women aged 19-28 experienced anaemia during their pregnancy. Among pregnant women aged 29-38, about 52.94% (54 out of 102) were diagnosed with anaemia. Of pregnant women aged 39-48, 30% were found to be anaemic. In contrast to a study conducted in Ghana, where anaemia was more prevalent among pregnant women aged 15-24, the highest occurrence of anaemia in this study was observed among women aged 29-38.[24] Among a group of 150 illiterate pregnant women, 39.3% (59 women) were identified as having microcytic anaemia. Out of 24 pregnant women who had received primary education, 41.7% (10 women) showed signs of anaemia. Among the 27 pregnant women who had attained secondary education (middle school), 51.9% (14 women) were found to be anaemic. Within the group of 37 pregnant women who had completed matric, 48.6% (18 women) were diagnosed with anaemia. Among 22 women who received intermediate education, 36.4% (8 women) were found to have anaemia. In contrast, among 41 women who had graduated, 36.6% (15 women) were found to have anaemia. Even though there may not be a drastic difference among all the data points, it can still be observed that anaemia is more prevalent in the low educational groups. Another research conducted in Nepal corroborates this notion, indicating that the prevalence of anaemia was higher among individuals with lower levels of education, although their data was not statistically important. This observation could be attributed to individuals with limited education having less knowledge about nutrition and related aspects of anaemia.[25] A research study was conducted at Hamdard Hospital in Karachi, Pakistan, in 2021, involving 158 pregnant women. The findings revealed that 56.9% (90) of participants were anaemic. Specifically, 20.88% (33) of the women were anaemic during the first trimester. This percentage increased to 26.58% (42) during the second trimester, and in the third trimester, anaemia decreased to 9.49% (15). Notably, within our study, 18.2% (4) out of 22 pregnant women in the first trimester, 37% (17) out of 46 pregnant women in the second trimester, and 42.2% (84) out of 199 pregnant women in the third trimester were identified as anaemic. These results indicate a progressive increase in the prevalence of anaemia with each trimester. As the pregnancy advances through trimesters, the risk of anaemia can increase due to the changing iron requirements. In the first trimester, iron needs are lower because menstruation ceases, reducing the loss of iron through blood. However, as the pregnancy progresses, the mother's red blood cell mass expands, and the placenta and fetus rapidly grow. These factors lead to a higher demand for iron in the third trimester, ranging from 3.0 to 7.5 mg/day. Two mechanisms are used to meet these increasing iron demands: dietary iron absorption and iron mobilization from existing stores. Unfortunately, many women begin pregnancy with insufficient iron stores, making it difficult to fulfil the iron requirements during this crucial period. Combining higher iron needs and inadequate iron stores increases the risk of developing anaemia during pregnancy.[26] In our study, we categorized the participants into two groups: primigravidas (women pregnant for the first time) and multigravida (women who had been pregnant multiple times). Out of the 48 primigravidas, 11.3% (14) were identified as positive for microcytic anaemia. Among the 253 multigravidas, 43.4% (110) tested positive for microcytic anaemia. These findings align with a study conducted in Bathinda, India, which also reported a higher likelihood of anaemia in women with multiple pregnancies compared to those experiencing their first pregnancy. This trend can be attributed to the increased risk of malnutrition in women who have given birth multiple times, leading to anaemia, as well

as reduced maternal iron reserves due to blood loss during previous deliveries.[26] The study revealed that pregnant women faced several challenges in adhering to iron supplementation, including experiencing gastrointestinal side effects (41.7%), being unable to afford the supplements (28.3%), and frequently forgetting to take them (15.0%). These factors collectively highlight the importance of addressing barriers to compliance and implementing strategies to improve the effectiveness of iron supplementation in reducing anaemia rates among pregnant women.[27]

LIMITATIONS

Due to time constraints in this study, we could only conduct a limited sample of the population in the investigation. Furthermore, we had to rely on existing lab reports rather than conducting our tests for the research, which may slightly affect the results. Since we manually collected the data for our research, there might be a possibility of human error in the process. Our study excluded individuals who expressed uncertainty regarding supplement usage from the analysis.

CONCLUSIONS

The study found a high prevalence of anaemia among pregnant women in Peshawar, particularly in rural areas, due to a lack of knowledge about health care and poor self-care during pregnancy and their socioeconomic status. The findings highlight the need for effective interventions to improve maternal health and reduce the burden of anaemia in this population.

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THE PREVALENCE AND RISK FACTORS ASSOCIATED WITH SCIATICA IN DISTRICT PESHAWAR

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ABSTRACT

OBJECTIVES

The study aimed to determine the prevalence and risk factors of Sciatica among the population of Peshawar.

METHODOLOGY

A cross-sectional study was carried out among hospitals in Peshawar over 6 months. A purposive sampling targeted 200 patients from neurosurgery, neurology, and physiotherapy wards. Informed consent was obtained, and data collected through questionnaires were analyzed using SPSS version 26.0.

RESULTS

Most participants were under 30 (67.5%), with 9.5% above 60 and 23.0% falling in the 31-59 age range. The gender distribution was nearly equal, with 54.5% females and 45.5% males. Regarding marital status, 52.0% were unmarried, and 48.0% were married. Education levels varied, with 14.0% having primary school education, 31.0% secondary school, 20.5% higher secondary, 25.0% bachelor's degree, 7.5% postgraduate, and 2.0% having other educational backgrounds. 78.0% of patients reported no physical illnesses, 14.0% experienced back pain, 4.5% had migraines, 3.0% had heart disease, and 0.5% reported itching. Additionally, 46.5% reported having another back-related condition aside from sciatica. Regarding the severity of sciatica, 51.0% had a moderate level. 48.0% undergoing physiotherapy, 51.0% using painkillers, and 1.0% opting for other treatments. The risk factors contributing to sciatica indicated that obesity, physical inactivity, heavy lifting, and traumatic spine injury were prevalent among participants. Other factors, such as spinal stenosis, scoliosis, smoking, family history of sciatica, diabetes, and herniated disc, were reported by varying proportions of patients, ranging from 2.0% to 19.0%.

CONCLUSION

These findings underscore the need for targeted preventive measures, early interventions, and awareness programs tailored to the specific demographics and risk factors identified in this study.

KEYWORDS: *Risk Factors, Sciatica, Sciatic Nerve, Prevalence*

INTRODUCTION

The term Sciatica (SCI) designates a syndrome in which pain is located in the lumbosacral region(L4-S3), spreading to the lower limb and can be felt in the buttock, thigh, calf, knee and leg or a disorder in which the patient experiences pain in the distribution of sciatic nerve.[1] Sciatica is widely known by different terms in the literature, such as nerve root pain, radiculopathy, nerve root irritation or entrapment and lumbosacral radicular syndrome.[2] Cauda equina syndrome (CES) is generally described by low back pain or sciatica, commonly bilaterally symmetrical but sometimes absent, particularly at L5/S1 with inferior sequestration.[3] The condition may advance to paraplegia and permanent incontinence.[4] Sciatica is considered a significant health issue worldwide. It has a major impact on medical expenses as it is estimated to account annually for € 500 million of direct cost and almost € 4 billion of indirect cost in the United Kingdom, In addition to significant disability and work absenteeism worldwide.[5] The most common cause of sciatica is a herniated lumbar disc with nerve root compression.[6] The sacroiliac joint (SIJ) was examined to be the most crucial cause of sciatica in 1920. Initially, the intervertebral disc was implicated in the pathophysiology of sciatica in 1934.[7] By the 19th century, Sciatica was thought to be due to various rheumatic conditions which cause inflammation or swelling of the sciatic nerve. The existence of sciatic pain was initially recognised as pressure on nerve roots. Infection must also be eliminated in cases of sciatica.[8]

The risk factors of sciatica include obesity, occupational workload, carrying heavy objects and physical activities at work. Occupational lifting, particularly with a bent back and straight knees, has also been linked with an increased risk of herniated lumbar disc. Occupational exposure to the whole body vibration and work-related twisting of the trunk, machine operators and motor vehicle drivers have also been found to increase the risk of sciatica.[6] The prevalence of sciatica has been considered prospectively in carpenters, office workers and machine operators and among forest industry workers.[8] A survey conducted in the United Kingdom indicates that between 3 per cent to 10 per cent of LBP patients will experience sciatica' with or without neurological signs among 90 per cent recovering from sciatica; however, a further 10 per cent require surgery for sciatica.[9] Recent studies found that the prevalence of sciatic complaints is widely variable, ranging from 1.6% to 43%, and argued that the term 'sciatica' referring to L1-L4 nerve roots might contribute to misinterpretation of lower back pain radiating down to the leg, according to research conducted in District Nowshera. The overall prevalence of sciatica was found to be higher in female patients (58.7%) compared to males (41.3%).[8,10] The study objectives were to determine sciatica's prevalence and risk factors in the district of Peshawar.

METHODOLOGY

A cross-sectional study was conducted at different hospitals in Peshawar over 6 months of duration. The study participants were patients who visited the hospitals neurosurgery, neurology, and physiotherapy wards from whom data were collected by face-to-face communication. Before data collection, the study's objectives were discussed, and written consent was taken from patients enrolled. Data were collected from 200 patients with the purposive sampling technique who were diagnosed with Sciatica. All the patients were diagnosed with MRI, CT scan, spinal X-rays and Straight leg raising (SLR) test. A well-constructed questionnaire method was used for data collection. Data were collected and entered using SPSS version 26.0. The percentages were evaluated.

RESULTS

Table 1: The Descriptive Variables of the Study

		Frequency	%age
Age	<30	135	67.5
	>60	19	9.5
	31-59	46	23.0
Gender	Female	109	54.5
	male	91	45.5
Marital Status	unmarried	104	52.0
	married	96	48.0
Education	primary school	28	14.0
	secondary school	62	31.0
	higher secondary	41	20.5
	bachelors degree	50	25.0
	postgraduate	15	7.5
	other	4	2.0
Physical Illness	Migraine	9	4.5
	back pain	28	14.0
	Heart Disease	6	3.0
	Itching	1	.5
	None	156	78.0
Severity of Disease	mild	51	25.5
	moderate	102	51.0
	severe	47	23.5
What type of treatment are you receiving?	Physiotherapy	96	48.0
	Painkiller	102	51.0
	other	02	1.0

Table 2: Treatment which Relieves the Pain

		Frequency	%age
	physiotherapy	16	8.0
	pain killers	52	26.0
	hot bags	60	30.0
	posture adjustment	46	23.0
	other	26	13.0

Table 3: Risk Factors Contributing to Sciatica

		Frequency	%age
Risk Factors	obesity	31	15.5
	spinal stenosis	16	8.0
	physical inactivity	37	18.5
	scoliosis	16	8.0
	heavy lifting	38	19.0
	traumatic injury to the spine	35	17.5
	smoking	08	4.0
	family history of sciatica	09	4.5
	diabetes	06	3.0
	herniated disc	04	2.0

DISCUSSION

Several studies have explored the prevalence and risk factors associated with sciatica. The study conducted at Nowshshera, Pakistan, reported that the prevalence of sciatica was higher in female patients (58.7%).[11] A study conducted in Saudi Arabia shows similar results in which females were more affected (78.6%) compared to male gender (21.4%).[12] Similar to our study, results

showed a prevalence of sciatica among females and in the age group <30. This finding agrees with those who reported that the prevalence of low back pain throughout school age increases from childhood to puberty. However, it peaks among ages 35 and 55 years.[13] In our study, the marital status data underscore a higher prevalence of sciatica among unmarried individuals. Education levels varied widely among participants, indicating that sciatica affects individuals across different educational backgrounds. The treatment preferences identified, with a significant portion of participants opting for physiotherapy and painkillers, highlight the importance of non-pharmacological interventions such as physiotherapy in managing sciatica. This preference can inform healthcare providers and policymakers in developing treatment protocols that align with patient preferences and yield adequate outcomes. In people with acute sciatica, muscle relaxants show clinically remarkable short-period pain relief.[14] Another study reported that pharmacotherapy with physiotherapy showed significant pain relief in our study. However, it was noticed in the study that medical intervention relieved sciatica symptoms for a short period while physiotherapy and medical intervention have remarkable effects in reducing pain, gaining range and improving the quality of everyday life in the long run.[15] The detailed exploration of risk factors provides a nuanced understanding of the contributors to sciatica in the Peshawar population. Heavy lifting, physical inactivity, traumatic spine injury, and obesity emerged as significant risk factors. Similarly, a study found that heavy lifting, occupational workload, injury and depression are the essential risk factors for the prevalence of sciatica, which is similar to previously published studies.[16] Smoking was a significant risk factor for sciatica in male patients. Karahan et al. conducted a study which identified smoking as a significant risk factor for sciatica. Sciatica is a condition characterized by pain that radiates along the path of the sciatic nerve. The authors also identified three distinct groups of potential risk factors for sciatica. The first group comprised individual factors, such as age and body weight. The second group comprised biomechanical factors, such as heavy physical load, lifting, twisted postures, and vibration. The third group comprised psychosocial factors, such as job control and job satisfaction. The identification of these groups of factors is important for healthcare professionals to consider when assessing and treating patients with sciatica, particularly those who may be at higher risk.[18] The increased risk for bricklayers has been attributed to inclined work postures and repetitive lifting of bricks weighing 5-24 kg, depending on the type and size.[19] Future research is needed to explore the relationship of risk with sciatica concerning gender and their daily life routine. There is a need to spread awareness and take precautionary measures to prevent sciatica.

LIMITATIONS

The sample size was small and restricted to limited patients.

CONCLUSIONS

Sciatica is more common among the female gender than the male gender in the district of Peshawar. It is strongly associated with heavy lifting, physical inactivity, traumatic injury to the spine, obesity, scoliosis, spinal stenosis, family history and smoking.

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THE ROLE OF COLD DRINKS IN OBESITY AMONG THE UNDERGRADUATE MEDICAL STUDENTS OF PESHAWAR FOR YEAR 2023: A CROSS-SECTION STUDY

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ABSTRACT

OBJECTIVES

To assess the prevalence of cold drink consumption, examine the association between cold drink consumption and body mass index (BMI), and explore potential factors influencing cold drink consumption among medical students.

METHODOLOGY

A cross-sectional study was conducted among undergraduate medical students of Peshawar. A non-probability sampling technique was used to recruit the students. The survey form was administered to gather information on dietary habits, including cold drink consumption. Anthropometric measurements, including height and weight, were recorded to calculate BMI. The SPSS version 26.0 was used for data entry and analysis.

RESULTS

Most students reported consuming cold drinks at least once a week, with 20% indulging 2-3 times a week and 5% daily. An analysis of the association between cold drink consumption and BMI revealed a trend of increasing BMI with higher consumption, with average BMIs of 23.5 ± 2.1, 24.8 ± 2.5, and 26.2 ± 2.8 for those consuming once a week, 2-3 times a week, and daily, respectively. Factors influencing cold drink consumption included stress and workload (25%), lack of time for meal preparation (30%), peer influence (15%), and leisure/gratification (30%). Furthermore, a positive correlation was observed between the frequency of cold drink consumption and sedentary behaviour, with average hours of sedentary behaviour increasing from 4.5 ± 1.2 to 6.0 ± 1.8 as consumption frequency escalated. Students' perceptions regarding the impact of cold drink consumption on weight indicated that 98 students believed it led to weight gain, while 185 perceived no change in weight.

CONCLUSION

These findings emphasize the importance of considering dietary habits and lifestyle factors in the holistic well-being of undergraduate medical students.

KEYWORDS: *Cold Drinks, Obesity, Medical Students*

INTRODUCTION

Cold drinks are widely used by teenagers throughout the world, but it has many side effects on human health and can be the cause of many diseases. The excessive consumption of soft drinks has become a severe public health concern worldwide. The association between the risk of being obese and the consumption of artificially sweetened soda is controversial. The most common types of soft drinks are soda water, syrup, and other carbonated or noncarbonated drinks with a lot of added sugar.[1] Non-diet beverages with additional sugar often have 7% to 14% sucrose, 55% fructose, 42% glucose, and 3% additional sweeteners, which comprise HFCS.[2] In Developed countries, soft drinks account for 7 % of the total energy consumption.[3] According to the 2003 WHO/FAO Expert Consultation, soft drinks and fruit juices are among the dietary factors contributing to overweight and obesity.[4] Consuming soft drinks every day raises the risk of being obese by 60%.[5] It has been suggested that high consumption of sugar-sweetened beverages may contribute to weight gain and obesity by increasing overall energy intake.[6] About 95% of cases of obesity have an apparent environmental factor at play, linked to a sedentary lifestyle and eating and drinking habits that promote a positive energy balance and, as a result, a steady build-up of fat mass.[7] According to a study of SSB consumption among adults in 187 countries, middle-income countries had greater intakes than high-income or low-income countries.[8] Those who exercise would gain less weight than those who do not, given the same degree of exposure to SSB intake, making physical activity a moderator of the relationship between SSB and body weight.[9] The

American Heart Association endorses a limited indication for LNCSBs [Low-calorie sweetened beverages], suggesting that only regular SSB consumers should switch to LNCSBs instead of water or an unsweetened option.[10] Overweight, obesity, substitution of milk consumption, and dental caries are potential health issues linked to a high consumption of soft drinks.[11] Nowadays people consume more soft drinks, which increases their caloric intake and weight growth.[12] About 29% of people ingested soft drinks in the preceding 24 hours, including flavoured mineral waters.[13] According to a recent Australian study, a 20% tax on sugar-sweetened beverages would reduce average daily consumption from 141 to 124g for men and from 76 to 67g for women, resulting in reductions of 16 and 9kJ/d, respectively, and an average eventual weight loss of 320g and 170g for both adolescent males and females.[14] Soft drinks, in particular colas, also contain 4-methylimidazole, a caramel colouring additive that may cause cancer in humans.[15] Energy drinks (soft drinks) significantly impacted cardiovascular systems by moderating heart rates and blood pressure.[16] Moreover, it was thought that pharmacological intolerance and genetics contributed to a person's susceptibility to diseases associated with caffeine, such as intoxication, dependency, and withdrawal.[17]

METHODOLOGY

A cross-section study was conducted in different medical colleges of Peshawar from 6 June to 25 September 2023. A non-probability sampling technique was used to recruit the students. The survey form was administered to gather information on dietary habits, including cold drink consumption. Anthropometric measurements, including height and weight, were recorded to calculate BMI. The SPSS version 26.0 was used for data entry and analysis.

RESULTS

Table 1: Prevalence of Cold Drink Consumption

Frequency of Cold Drink Consumption	%age of Students
At least once a week	75%
2-3 times a week	20%
Daily	05%

Table 2: Association between Cold Drink Consumption and BMI

Cold Drink Consumption Frequency	Average BMI (Mean ± SD)
Once a week	23.5 ± 2.1
2-3 times a week	24.8 ± 2.5
Daily	26.2 ± 2.8

Table 3: Factors Influencing Cold Drink Consumption

Factors	%age
Stress and workload	25%
Lack of time for meal prep	30%
Peer influence	15%

Table 4: Correlation between Cold Drink Consumption and Sedentary Behavior

Cold Drink Consumption Frequency	Average Hours of Sedentary Behavior (Mean ± SD)
Once a week	4.5 ± 1.2
2-3 times a week	5.2 ± 1.5
Daily	6.0 ± 1.8

*p-value = <0.01

Table 5: Students Perception Regarding the Change in Weight with Cold Drink Consumption

Change in Weight with Consumption	
Weight gain	Weight gain
No change in weight	No change in weight

*p-value = <0.01

DISCUSSION

This study determines the role of cold drinks in obesity. The results show that the frequency of drinking cold drinks in medical students is about 20% daily, 44% weekly, and 44.9% occasionally, while 4.6 % did not consume cold drinks, which is in contrast with a study that was conducted in China where its account for about 7% total energy drinks consumption. According to WHO reports, soft drinks can be one of the dietary factors that lead to obesity, and another study shows that consuming cold drinks daily can increase the risk of being obese by 60%, which again is supported by our study, which shows that 20% of the student did not feel any change in their weight with consumption of cold drinks daily. Another study shows that even a 1% increase in soft drink consumption was associated with gaining weight in 4.8% of overweight adults' which again is not in favour of our study, which shows that around 66.7% felt no change with cold drink consumption.[18] A study stated that the consumption of cold drinks was higher in non-obese rather than in Obese children and adults who consumed significantly more servings of meat and alternatives like grain products and potato chips, which contributed to a higher calorie which supports our study that shows 65.7% of the student did not feel any change in their weight with cold drinks consumption. The weight of epidemiologic and experimental evidence indicates that greater consumption of SSBs is associated with weight gain and obesity, which again did not support our study that eliminating cold drinks did not play any significant role in losing weight.[20] Despite much supporting data, we have controversial results, as there is no relation between obesity and cold drinks. Contrary to our

hypothesis, this study did not find any association between consumption of regular soft drinks and obesity.

LIMITATIONS

The study focus was only limited to undergraduate medical students; non-medical students and the general population were excluded from our study.

CONCLUSIONS

Our study found that most undergraduate medical students consume cold drinks regularly, with potential links to higher BMI and sedentary behaviour. Factors influencing consumption include stress and peer influence. Divergent perceptions exist regarding the impact on weight. The study highlights the need for interventions and educational programs to promote healthier dietary choices and address potential weight-related concerns in this specific demographic.

CONFLICT OF INTEREST: None

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ASSOCIATION BETWEEN GASTROESOPHAGEAL REFLUX DISEASE (GERD) AND THE DIETARY HABITS OF MEDICAL STUDENTS

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ABSTRACT

OBJECTIVES

To find out the association of diet with GERD and triggering/relieving causes of GERD in medical students.

METHODOLOGY

An observational cross-sectional study was conducted at different hospitals in Peshawar. The study was carried out on 400 undergraduate medical students over a 6-month duration. A well-designed questionnaire was used to collect the data on GERD and dietary habits of students. The data obtained was analysed using SPSS version 26.0.

RESULTS

In a study, 98.7% were aware of GERD. Of these, 84.7% experienced GERD, mainly triggered by oily and spicy foods (56.7%) and junk food (25.4%), as well as fizzy drinks (32.6%) and coffee/tea (28.7%). The prevalence of GERD varied, with 36.2% reporting symptoms for 1 to 2 months and 33.3% for a year. Surprisingly, 68.4% did not adopt preventive measures, and 85% did not seek medical consultation. However, 31.6% took preventive measures, and 14.7% consulted a doctor, highlighting a divergence in healthcare-seeking behavior. Triggers for GERD included Ramadan (41.4%) and exam preparation (42.3%). A significant association was found between meal frequency and GERD, with 77.2% prevalence for 2 to 3 meals/day versus 5.9% for more frequent meals. Timing of lying down after meals also played a role, with 32.2% reporting symptoms immediately versus 48.2% waiting an hour or more. Chi-square analyses revealed a significant relationship between triggering foods and GERD, underscoring the impact of dietary habits, while the adoption of preventive measures showed no direct association, suggesting a multifaceted interplay of factors influencing preventive actions among medical students.

CONCLUSION

GERD is common among medical students and highlights the need for interventions promoting healthier lifestyles. Dietary habits play a significant role in managing and preventing GERD, with meal frequency and lying down post-meals showing notable associations.

KEYWORDS: *GERD, Medical Students, GERD, Disease*

INTRODUCTION

Gastroesophageal reflux disease (GERD) is a chronic condition characterized by regurgitating stomach contents into the oesophagus, leading to symptoms such as heartburn, chest pain, and regurgitation. Gastroesophageal reflux disease (GERD) is the unusual reflux of gastric contents into the oesophagus, mainly because of the lower oesophagal sphincter relaxation, leading to symptoms, such as heartburn or acid regurgitation and oesophagal mucosal damage, which may lead to a change in the epithelium, eventually causing Barrett's oesophagus.[1,2] According to 2004 statistics, the incidence was 4.5/1000 people per year.[3] According to current epidemiological statistics, in North and South America, 1/5 of people are affected, while 1/7 are in Australia. At the same time, due to some unknown reason in Asian countries, the percentage of recorded patients is deficient, and according to global statistics, 14% of the world population experienced reflux symptoms.[4,5,6] Factors that cause GERD include weight/BMI, stress, sex, exercise, certain medications, and a person's dietary habits.[2] GERD tends to affect the medical students and hinder their progress by negatively impacting their study hours, attendance and general well-being. Between 14.8% and 25% of university students were affected in Asian countries, with most of the symptoms usually reflux and other irritable symptoms affecting their lifestyle.[7,8,9] While GERD has been extensively

studied in various populations, there is a paucity of research specifically addressing its prevalence and association with dietary habits among medical students. The demanding nature of medical education often leads to irregular and sometimes unhealthy dietary practices, making this cohort particularly intriguing for investigation. As future healthcare professionals, medical students are exposed to a rigorous academic curriculum and a high-stress environment that may influence their lifestyle choices, including dietary habits. Understanding the correlation between the dietary patterns of medical students and the occurrence of GERD is crucial not only for the well-being of this specific population but also for gaining insights into potential preventive measures that can be implemented during medical education. This research aims to bridge the existing gap in the literature by exploring the relationship between acid reflux and the dietary habits of medical students. By delving into the unique challenges and lifestyle factors that medical students face, we aim to shed light on whether certain dietary practices contribute to the prevalence and severity of GERD within this demographic.

METHODOLOGY

An observational cross-sectional study was conducted to assess the knowledge, attitude and practice regarding GERD among medical students. A total of 400 medical students were selected through convenient sampling technique. A structured questionnaire was formed, which was approved by the Medicine Department of Naseer Teaching Hospital. Informed consent was taken from the authority, the research committee of Gandhara University. Data collection started in March 2023 via distributing printed questionnaires to the 2nd and 3rd-year MBBS students at the different private medical colleges. Informed consent was ensured to be obtained from every participant before handing over the questionnaire. The questionnaire had 17 questions that included sections of demographic data, knowledge, attitude and practice about the association of different factors with GERD. The data collected was analyzed using SPSS version 20, and frequency tables and charts were drawn. Chi-square was applied for the different variables, and their p values were derived. That is, p value<0.05 was considered significant with GERD.

RESULTS

Table 1: Overview of GERD Awareness and Prevalence among MBBS Students

Parameter	%age
Awareness of GERD	98.7
Unaware of GERD	1.3
Students experiencing GERD	84.7
Duration of GERD	
- 1 to 2 months	36.2
- 1 year	33.3
GERD during Ramadan	41.4
GERD during exam preparation	42.3
Most common triggering factors for GERD	
- Oily and spicy foods	56.7
- Junk food	25.4
Most common triggering drinks for GERD	
- Fizzy drinks	32.6
- Coffee/Tea	28.7

Table 2: Preventive Measures and Lifestyle Factors Related to GERD

Parameter	%age
Students taking no extra measures for GERD	68.4
Students taking extra measures for GERD	31.6
Students consulting a doctor for GERD	14.7
Students not consulting a doctor for GERD	85.0
Meal Frequency and GERD	
- 2 to 3 meals per day (GERD)	77.2
- More than 4 meals per day (GERD)	5.9
Time between lying down and having food (GERD)	
- Immediately after food	32.2
- After an hour or more	48.2

DISCUSSION

Gastroesophageal Reflux Disease (GERD) is a chronic condition characterized by the backward flow of stomach acid into the esophagus, leading to symptoms such as heartburn, regurgitation, and chest pain. While various factors contribute to the development and exacerbation of GERD, dietary habits play a crucial role in influencing the frequency and severity of symptoms.The prevalence of GERD in a group of medical students was 25.9%, which rose to 33.2% by 2023 according to our research.[10] The medical students experienced the most frequent symptoms of regurgitation and burning sensation due to oily and spicy foods being the most prevalent(56.7%) and fizzy drinks being the triggering factor in 32.6% of the cases in our study. In 2019, univariate analysis found high

BMI, family history, energy drinks and fried food to be statistically significant risk factors ($p<0.05$), with family history having the most significant correlation. (11) Our research found that medical students having fewer meals per day experienced GERD symptoms more frequently, with a prevalence of 77.2%, compared to those having meals more frequently, with a markedly decreased prevalence of 5.9%. This was supported by a 2018 study that found out that those who consumed 6-7 or ≥ 8 snacks and meals per day had a 38% and 43% risk reduction for GERD compared with those who ate < 3 snacks and meals per day.[12] In 2018, fasting had no significant increase in the symptoms of GERD provided the medical students were given antisecretory drugs, but by 2023, there was a relation between participants experiencing GERD during fasting in Ramzan. Our study resulted in people with more extended dinner to bedtime experiencing GERD more, with a prevalence of about 48.2%, than people with shorter dinner to bedtime, about 32.2%. However, a study conducted in 2005 says that shorter dinner to bedtime was significantly associated with Gerd ($p<0.0001$).[13,14] A review in 2017 on medical students from a southern Indian medical school showed that significantly more females experience Gerd than males' with our current study also showing the female gender experiencing Gerd more than males with a prevalence of about 55% and 45%, respectively.[15] Our study showed that 42.8% of medical students experience Gerd during preps. It is more prevalent in medical students due to the constant burden of study and assessments. Previous studies on GERD conducted in 2023 have found that psychological stress is a significant risk factor that has been shown to aggravate GERD symptoms in medical students.[16] We found that 42.8% of medical students experience GERD during preps. It is more prevalent in medical students due to the constant burden of study and assessments. Previous studies on GERD conducted in 2023 have found that psychological stress is a significant risk factor that has been shown to aggravate GERD symptoms in medical students.[17,18] We found out that frequent consumption of tea and coffee was a risk factor for Gerd in about 28.7% of medical students. However, a systematic review of the effects of coffee and tea on Gerd found that tea and coffee ($p=0.026$) were associated with a diagnosis of Gerd.

LIMITATIONS

The study focus was only limited to undergraduate medical students; non-medical students and the general population were excluded from our study.

CONCLUSIONS

Most students knew about GERD triggers, but few took preventative measures during Ramzan, exam preparations, and consumption of oily, spicy foods, and fizzy drinks.

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