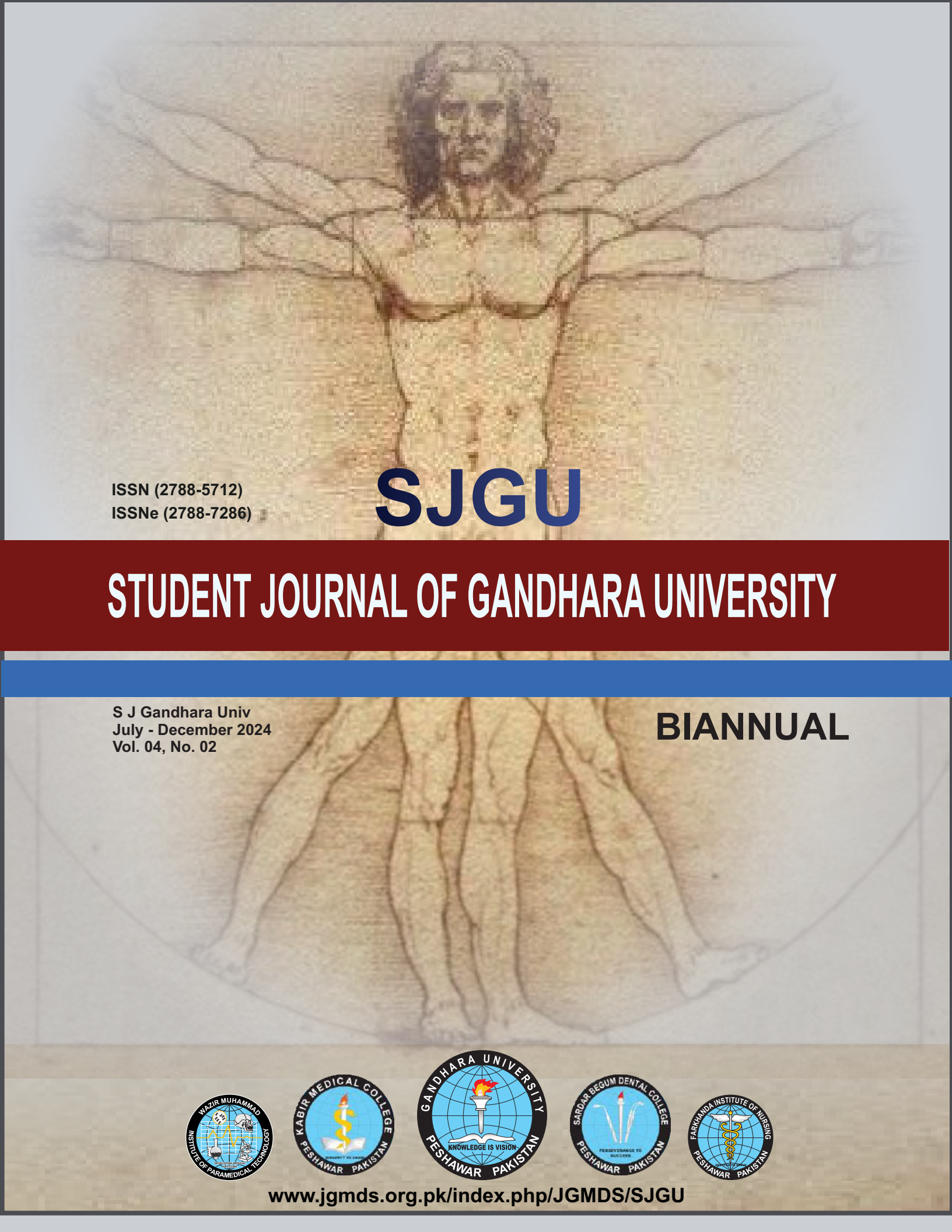

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CONTENTS

EDITORIAL

ORIGINAL ARTICLES

RETHINKING MEDICAL EDUCATION FOR UNDERGRADUATE MEDICAL AND DENTAL STUDENTS: A PARADIGM SHIFT FOR THE 21ST CENTURY

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The landscape of medical education is undergoing a significant transformation, particularly for undergraduate medical (MBBS) and dental (BDS) students. With the evolution of healthcare demands, technological advancements, and changing patient expectations, there is an urgent need to revamp traditional teaching methods and assessment strategies. This aims to stimulate critical reflection and inspire action among medical educators, students, and policymakers. The stakes are high, but so are the possibilities. By rethinking traditional practices and embracing evidence-based innovations, we can prepare a future healthcare workforce that is not only technically skilled but also emotionally intelligent and adaptable. Traditional medical education has long been criticized for its emphasis on rote memorization, passive learning, and information overload. The conventional "teacher-centered" approach often sidelines the development of critical thinking, problem-solving, and clinical reasoning skills-key attributes required in modern healthcare. Studies indicate that medical students experience heightened levels of stress, anxiety, and burnout, which negatively impact academic performance and mental well-being.[1] Additionally, there is a growing disconnect between theoretical knowledge and its practical application, leaving students inadequately prepared for real-world clinical challenges.[2] The COVID-19 pandemic further exposed the vulnerabilities of traditional medical education. Institutions were forced to transition rapidly to online learning, revealing significant gaps in digital literacy and e-learning infrastructure. While online learning offered some flexibility, it compromised hands-on clinical training, which is indispensable for MBBS and BDS students.[3]

To address these challenges, medical education is witnessing a shift towards student-centered learning models, such as problem-based learning (PBL), team-based learning (TBL), and flipped classrooms. These pedagogical strategies promote active participation, peer-to-peer learning, and contextual problem-solving. Evidence suggests that PBL enhances critical thinking skills and better prepares students for clinical decision-making.[4] Another noteworthy trend is the integration of technology-enhanced learning (TEL), including virtual reality (VR), augmented reality (AR), and simulation-based learning. These tools enable students to engage in risk-free, immersive clinical experiences. For instance, VR-based anatomy lessons offer 3D visualizations of human organs, facilitating a deeper understanding of spatial relationships. Research indicates that AR and VR significantly improve students' confidence and competence in clinical skills.[5] Furthermore, the Competency-Based Medical Education (CBME) framework is being widely adopted. Unlike time-bound curricula, CBME focuses on achieving predefined competencies, allowing students to progress at their own pace. This approach ensures mastery of essential clinical skills before graduation. The World Federation for Medical Education (WFME) has been advocating for the global implementation of CBME to standardize medical education across countries.[6]

The emotional well-being of students is crucial for academic success and professional development. Studies highlight that medical and dental students face significantly higher stress than students from other disciplines due to the rigorous nature of the curriculum, frequent exams, and exposure to suffering in clinical settings.[1] Institutions are, therefore, introducing student support systems, mentorship programs, and wellness initiatives. Embedding mental health support within medical schools is critical to fostering a culture of compassion, resilience, and emotional intelligence. Curricular Reforms: Medical and dental curricula must shift from being information-dense to being skill-based, prioritizing clinical reasoning, emotional intelligence, and lifelong learning skills. Digital Transformation: Institutions should leverage AR, VR, and AI to bridge the gap between theory and practice, especially in resource-constrained settings where clinical exposure is limited. Well-Being Interventions: Comprehensive wellness programs, including mindfulness training and mental health support, should be embedded into medical education to combat burnout and enhance emotional resilience. Competency-Based Education: Countries must accelerate the transition to CBME, ensuring that students graduate with mastery in both technical and non-technical competencies. Global Collaboration: International collaborations and cross-border exchange programs can enrich student learning experiences and promote cultural competence. The future of medical education lies in adaptability, innovation, and empathy. As educators, policymakers, and

healthcare leaders, it is imperative to ensure that MBBS and BDS students are equipped with not only clinical acumen but also compassion, critical thinking, and emotional intelligence. By embracing emerging trends such as CBME, PBL, and TEL, medical education can produce competent, reflective, and emotionally resilient healthcare professionals. The onus lies on academic institutions, accreditation bodies, and regulatory authorities to spearhead this transformation.

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KNOWLEDGE, ATTITUDES, AND PRACTICES OF PREGNANT WOMEN REGARDING FOLIC ACID SUPPLEMENTATION IN PESHAWAR, PAKISTAN

Hoor Arif[1], Hajira Arif[2]

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ABSTRACT

OBJECTIVES

This study's primary objective is to assess pregnant women's knowledge, attitudes, and practices regarding folic acid supplementation in Peshawar, Pakistan.

METHODOLOGY

A cross-sectional survey was conducted in Peshawar, Pakistan, among 300 pregnant women attending antenatal clinics. Data were collected using a structured questionnaire covering knowledge, attitudes, and practices related to folic acid supplementation. Descriptive statistics, chi-square tests, and correlation tests were used for analysis.

RESULTS

t, *Findings revealed that 60% of participants had heard of folic acid, but only 30% understood its role in preventing Neural Tube Defects. The practice of folic acid supplementation was low, with 50% reporting taking supplements during pregnancy. Educational level, awareness of pregnancy-related health interventions, and socio-economic status influenced supplementation practices.*

CONCLUSION

Despite moderate awareness of folic acid, knowledge about its preventive benefits for Neural Tube Defects is limited among pregnant women in Peshawar. There is a need for targeted educational interventions to improve the understanding and uptake of folic acid supplementation.

KEYWORDS: *Folic Acid, Pregnancy, Knowledge, Attitudes, Practices, Supplementation*

INTRODUCTION

Folic acid, a B vitamin, is vital in cell division and DNA synthesis. Its supplementation during pregnancy is crucial for preventing neural tube defects (NTDs), such as spina bifida and anencephaly, which can occur during early fetal development. The World Health Organization (WHO) and other health bodies recommend that women of reproductive age take 400-800 micrograms of folic acid daily, particularly during the first trimester of pregnancy, to reduce the risk of NTDs.[1] Despite its known benefits, adherence to folic acid supplementation remains suboptimal in many developing countries, including Pakistan. Several factors contribute to this, including low levels of awareness about the importance of folic acid, socio-economic barriers, and cultural misconceptions. Studies from various parts of Pakistan, including urban and rural areas, indicate that many pregnant women are unaware of the connection between folic acid supplementation and NTD prevention.[2,3] Knowledge regarding folic acid supplementation is often limited, especially in low-resource settings. A study by Khan et al. (2018) showed that only 45% of pregnant women in urban areas of Pakistan had heard of folic acid, and even fewer understood its role in preventing congenital disabilities.[4] This is particularly concerning since NTDs are among the most common congenital disabilities, and early supplementation with folic acid can prevent up to 70% of cases.[5] The WHO emphasizes the importance of public health campaigns to increase awareness about folic acid among pregnant women and healthcare providers. However, in Pakistan, cultural factors such as the belief that a balanced diet is sufficient for maternal health and the stigma surrounding supplementation often discourage adherence.[6]

Barriers to Folic Acid Supplementation

Multiple barriers contribute to the low uptake of folic acid supplementation in Pakistan. These include financial constraints, lack of healthcare access, and misinformation about the necessity of supplements if a woman's diet is perceived to be adequate. Moreover, concerns about the side effects of supplements, such as nausea and bloating, often deter women from following supplementation guidelines.[7] This study aims to assess pregnant women's knowledge, attitudes, and practices regarding folic acid supplementation in Peshawar.

Understanding these factors is essential for developing interventions to improve the uptake of folic acid and prevent NTDs.

METHODOLOGY

This descriptive, cross-sectional study was conducted at antenatal clinics in Peshawar, Pakistan. The study was designed to assess pregnant women's knowledge, attitudes, and practices regarding folic acid supplementation. The study targeted 300 pregnant women attending antenatal clinics in Peshawar from January to March 2024. The inclusion criteria were pregnant women aged 18-40 who w Exclusion criteria included women with contraindications to folic acid supplementation, such as specific vitamin deficiencies. A purposive sampling technique was used to select participants. Data were collected using a pre-tested, structured questionnaire that covered the following aspects: Questions about the benefits of folic acid, its role in preventing NTDs, and the correct dosage and timing for supplementation (Knowledge). Participants' perceptions regarding the importance of folic acid supplementation, concerns about side effects, and cultural beliefs (Attitudes). Information about whether the participants took folic acid supplements, the timing of supplementation, and reasons for non-adherence (Practices). Descriptive statistics (frequencies, percentages, mean ± standard deviation) were used to summarize the data. Chi-square tests assessed the association between socio-demographic factors and knowledge, attitudes, and practices regarding folic acid supplementation. A significance level of $p<0.05$ was considered statistically significant.

RESULTS

A total of 300 pregnant women participated in the study. The mean age was 28.4 years, ranging from 18 to 40 years. The majority (65%) of participants had a primary or secondary education, while 30% had completed higher secondary or tertiary education. The majority (60%) were in their second trimester of pregnancy, and 40% were in the third trimester.

Table 1: Summarizes the Knowledge of Folic Acid among Participants

Knowledge Item	Frequency (n=300)	%Age
Have you heard of folic acid	180	60
Knew that folic acid prevents NTDs	90	30
Correct dosage of folic acid	110	36.7
Timing of folic acid supplementation	75	25

Table 2: Presents the Attitudes Toward Folic Acid Supplementation

Attitude Item	Frequency (n=300)	%Age
Believed folic acid is vital for pregnancy	240	80
Concerned about side effects (e.g., nausea)	100	33.3
Believed a balanced diet is sufficient	90	30
Thought supplementation was unnecessary	60	20

Table 3: Outlines the Practices Regarding Folic Acid Supplementation

Practice Item	Frequency (n=300)	%Age
Took folic acid during first trimester	150	50
Took folic acid after the first trimester	100	33.3
Did not take folic acid	50	16.7

DISCUSSION

The findings of this study highlight significant gaps in the knowledge, attitudes, and practices regarding folic acid supplementation among pregnant women in Peshawar, Pakistan. While most participants had heard of folic acid, only a small proportion (30%) understood its vital role in preventing neural tube defects (NTDs), a finding consistent with other studies conducted in Pakistan and neighboring countries. A study by Shaikh et al. (2020) found that, although folic acid was well-known, its benefits for NTD prevention were not widely recognized by pregnant women, indicating a substantial knowledge gap.[8] Similarly, Hussain et al. (2019) reported that only 28% of pregnant women in rural Pakistan knew about the importance of folic acid in preventing congenital disabilities.[9] This lack of awareness poses a significant challenge in preventing NTDs, especially when considering the critical timing for folic acid supplementation in the early stages of pregnancy. Moreover, our study found that 50% of women reported taking folic acid supplements during pregnancy, a moderate adherence rate. This is slightly higher than the 45% adherence rate reported by Sayed et al. (2016) among pregnant women in rural Pakistan.[10] However, the adherence rate is still suboptimal, considering the known benefits of folic acid supplementation for reducing the incidence of NTDs. Mehmood et al. (2020) identified concerns about side effects, such as nausea and bloating, as significant barriers to supplementation adherence in Pakistan, a finding mirrored in our study, where 33% of participants expressed concern about the side effects of folic acid supplementation.[11] Addressing these concerns in public health campaigns and during antenatal care visits could help improve adherence rates. Additionally, a study by Ahmed et al. (2020) found that lower educational levels were associated with poorer knowledge and practices regarding folic acid

supplementation, suggesting that educational interventions targeting women with lower educational attainment may be particularly effective.[12] Another critical barrier identified in this study was the belief among some participants that a balanced diet alone could provide sufficient nutrients during pregnancy, negating the need for supplements. This aligns with the findings of Khan et al. (2018), who reported that 30% of pregnant women in urban Pakistan believed that dietary intake alone was sufficient for pregnancy health despite the recognized need for folic acid supplementation.[13] This misconception reflects a more significant issue of nutritional education and health literacy, which should be addressed through community-based interventions and public health campaigns. Additionally, financial constraints may also limit the ability of women to access folic acid supplements, particularly in low-income groups. A study by Rizwan et al. (2017) reported that economic barriers, including the cost of supplements, were significant factors affecting adherence to recommended supplementation in Pakistan.[14] The association between higher educational levels and better knowledge and practices regarding folic acid supplementation observed in this study is consistent with findings from other parts of the world. In a study by Ali et al. (2019) in Egypt, higher levels of maternal education were positively correlated with better knowledge and adherence to folic acid supplementation.[15] Similarly, studies in India and Bangladesh have demonstrated that educated women are more likely to be aware of folic acid's benefits and follow supplementation guidelines during pregnancy.[16,17] This highlights the importance of tailored educational campaigns that focus on folic acid's benefits and aim to increase health literacy, particularly among women with lower educational levels. Furthermore, improving healthcare access and integrating folic acid supplementation into routine antenatal care is crucial for enhancing adherence rates. As Mkhize et al. (2020) noted, routine counseling during antenatal visits has significantly increased folic acid uptake in several countries.[18] In Pakistan, there is an urgent need to strengthen maternal healthcare services to ensure that pregnant women receive the necessary guidance and support regarding folic acid supplementation. The role of healthcare providers in educating women during antenatal visits cannot be overstated. Studies in Bangladesh and Afghanistan show that healthcare professionals are crucial in disseminating information about folic acid supplementation's timing, dosage, and benefits.[19,20] There is a critical need for improved knowledge about folic acid among pregnant women in Peshawar, Pakistan, and the need for targeted interventions to address barriers to supplementation. Public health campaigns should focus on raising awareness about the role of folic acid in preventing NTDs, particularly in rural and low-income areas, where the burden of congenital disabilities is high. Integrating folic acid education into routine antenatal care, addressing side effects, and improving access to supplements are essential steps toward increasing adherence and improving maternal and child health outcomes.

LIMITATIONS

The study was conducted exclusively among undergraduate medical students at Gandhara University in Peshawar.

CONCLUSIONS

This study highlights the critical gaps in the knowledge, attitudes, and practices regarding folic acid supplementation among pregnant women in Peshawar, Pakistan. Although awareness about folic acid is present, its role in preventing NTDs is poorly understood. Education campaigns targeting women, particularly those with lower educational levels, and addressing cultural and economic barriers are essential to improve the uptake of folic acid and reduce the burden of NTDs in Pakistan.

CONFLICT OF INTEREST: None

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2. ***Hajira Arif*** *- Concept & Design; Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript; Critical Revision; Supervision; Final Approval*

THE RELATIONSHIP BETWEEN SOCIAL MEDIA USE AND BODY DYSMORPHIC DISORDER AMONG ORTHODONTIC PATIENTS

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ABSTRACT

OBJECTIVES

This study investigates the relationship between social media use and the prevalence of BDD symptoms among orthodontic patients.

METHODOLOGY

A cross-sectional study was conducted among 250 orthodontic patients. Social media use was measured using validated scales assessing usage intensity and exposure to appearance-focused content. BDD symptoms were evaluated using the Body Dysmorphic Disorder Questionnaire (BDDQ). Statistical analyses included correlation and regression to assess the relationship between variables.

RESULTS

Higher social media usage, particularly exposure to curated and appearance-focused content, was significantly associated with elevated BDD symptomatology ($r = 0.52$, $p < 0.001$). Younger age groups and females were disproportionately affected.

CONCLUSION

Social media serves as a potential risk factor for BDD among orthodontic patients, emphasizing the need for awareness and early psychological interventions in clinical practice.

KEYWORDS: *Social Media, Dysmorphic, Disorder, Orthodontic*

INTRODUCTION

Social media platforms, such as Instagram, TikTok, and Snapchat, have profoundly influenced societal perceptions of physical appearance. They frequently emphasize curated, idealized beauty standards, which can exacerbate insecurities among vulnerable populations. Orthodontic patients, often motivated by a desire to enhance facial aesthetics, represent a subgroup particularly susceptible to these influences. Studies suggest that the growing emphasis on facial and dental perfection on social media has amplified body dissatisfaction among young individuals.[1,2] This dissatisfaction is a known precursor to body dysmorphic disorder (BDD), a psychiatric condition characterized by an obsessive focus on perceived physical flaws.[3] BDD prevalence has been reported at approximately 1-3% in the general population, but studies focusing on orthodontic or dental patients suggest much higher rates, ranging from 8% to 15% (4, 5). Social media's influence on mental health is multifaceted; appearance-focused platforms have been shown to heighten self-comparison, increase perfectionism, and amplify anxiety related to perceived imperfections.[6] For instance, research by Holland and Tiggemann demonstrated a significant correlation between Instagram use and body dissatisfaction in adolescents. Similarly, a longitudinal study by Brown et al. highlighted the cumulative negative effects of frequent exposure to edited images on self-esteem and mood.[7,8] These findings are particularly relevant for orthodontic patients with heightened sensitivity to facial aesthetics. Orthodontic treatments often enhance appearance and improve self-esteem, but the increasing demand for perfect smiles propagated by influencers can result in unrealistic patient expectations. Excessive exposure to social media content can create a distorted perception of beauty standards, exacerbating psychological vulnerabilities, especially among young adults.[9,10] Despite this, few studies have specifically examined the intersection of social media use and BDD among orthodontic patients. This study addresses this gap, investigating the relationship between social media use and BDD symptoms in orthodontic settings. It also explores demographic patterns, focusing on age, gender, and social media usage intensity.

METHODOLOGY

A cross-sectional study was conducted at a tertiary orthodontic clinic from January to June 2024. Ethical approval was obtained from the Institutional Review Board (Ref: IRB-2023/024). The sample size was calculated based on a prevalence estimate of 15% for BDD in orthodontic patients, with a margin of error of 5% and a 95% confidence interval. A minimum sample size of 196 was determined. To account for potential non-response, 250 participants were recruited.

Participants aged 15–40 years, undergoing orthodontic treatment for at least six months, were included. Exclusion criteria were a prior diagnosis of psychiatric disorders (other than BDD) or non-active social media use. Participants provided written informed consent before completing a structured questionnaire. The survey comprised three sections: Demographics: Age, gender, treatment duration, and reasons for orthodontic care. Social Media Use Scale (SMUS): This validated scale assessed daily usage time, platform preference, and exposure to appearance-focused content. Higher scores indicated more intensive use. Body Dysmorphic Disorder Questionnaire (BDDQ): A diagnostic tool evaluating BDD symptoms, with a score >16 indicative of probable BDD. Data collection occurred during routine visits, and responses were anonymized. Statistical analysis was performed using SPSS v26, with descriptive statistics for demographics, Pearson's correlation for relationships, and regression analyses to identify predictors. Subgroup differences were evaluated using t-tests and ANOVA, with $p < 0.05$ as the significance threshold.

RESULTS

The study explored the relationship between social media use and body dysmorphic disorder (BDD) symptoms among orthodontic patients. The study included 250 participants, comprising 140 females (56%) and 110 males (44%). The mean age of participants was 24.3 ± 6.5 years. The majority (60%) reported Instagram and TikTok as their preferred platforms, with an average daily social media usage of 3.8 ± 1.2 hours. The mean Body Dysmorphic Disorder Questionnaire (BDDQ) score was 14.7 ± 5.2.

Table 1: Area of Improvement in the Library

Variable	Mean ± SD / %age
Age (years)	24.3 ± 6.5
Gender (Female)	56%
Social Media Use (hrs/day)	3.8 ± 1.2
BDDQ Score	14.7 ± 5.2

The table indicates a moderate positive correlation (r=0.52,p<0.001r = 0.52, p < 0.001r=0.52,p<0.001) between social media use and BDDQ scores, showing that higher social media use is associated with increased BDD symptoms. There is a weak negative correlation (r=−0.21,p=0.02r = -0.21, p = 0.02r=−0.21,p=0.02) between social media use and age, suggesting younger individuals use social media more intensively. Similarly, age is weakly negatively correlated with BDDQ scores (r=−0.18,p=0.04r = -0.18, p = 0.04r=−0.18,p=0.04), indicating higher BDD symptoms among younger participants. Lastly, the moderate positive correlation (r=0.33,p<0.01r = 0.33, p < 0.01r=0.33,p<0.01) between gender and BDDQ scores reflects higher BD' D symptomatology in females compared to males.

Table 2: Correlation Analysis Between Variables

Variables	Correlation Coefficient (r)	p-value
Social Media Use vs. BDDQ	0.52	<0.001
Social Media Use vs. Age	-0.21	0.02
Age vs. BDDQ	-0.18	0.04
Gender vs. BDDQ	0.33	<0.01

Regression analysis identified social media usage as a significant predictor of BDD symptoms (β=0.48,p<0.001\beta = 0.48, p < 0.001β=0.48,p<0.001). Gender was also a significant factor, with females showing greater susceptibility to BDD symptoms compared to males (β=0.29,p<0.05\beta = 0.29, p < 0.05β=0.29,p<0.05).

Table 3: Regression Analysis of Predictors of BDD Symptoms

Predictor	β Coefficient	p-value
Social Media Use	0.48	<0.001
Gender (Female)	0.29	0.01
Age	-0.18	0.04

Significant differences in BDDQ scores were observed across gender and age groups. Female participants had higher BDDQ scores than males (t=3.45, p<0.01t = 3.45, p < 0.01t=3.45, p<0.01). Younger participants (15–25 years) reported higher scores compared to older participants (F=4.12, p<0.05F = 4.12, p < 0.05F=4.12, p<0.05).

Table 4: Subgroup Analysis of BDDQ Scores by Gender and Age

Group	BDDQ Score (Mean ± SD)	p-value
Gender (Female)	15.8 ± 5.6	<0.01
Gender (Male)	13.2 ± 4.8	
Age (15–25 years)	16.1 ± 5.9	<0.05
Age (>25 years)	13.6 ± 4.5	

DISCUSSION

This study aimed to explore the relationship between social media use and body dysmorphic disorder (BDD) symptoms among orthodontic patients, focusing on the intensity of social media use, age, and gender differences. The results provide significant insights, corroborating and extending existing literature on the influence of social media on body image perceptions and psychological well-being. The positive correlation (r=0.52,p<0.001r = 0.52, p < 0.001r=0.52,p<0.001) between social media use and BDDQ scores aligns with studies highlighting the role of social media in shaping body image concerns. Holland and Tiggemann reported that Instagram usage, especially exposure to appearance-focused content, increases body dissatisfaction, similar to our findings. In orthodontic patients, social media often promotes unrealistic beauty

ideals such as "perfect smiles," amplifying aesthetic concerns.[1] Comparably, a study by Casale and Fioravanti demonstrated that individuals with high social media engagement often exhibit greater appearance-related insecurities. Kumar et al.[2,3] investigated Indian adolescents and found excessive social media use strongly associated with body image dissatisfaction, with Instagram and TikTok being key influencers. The parallels between Kumar's findings and our study highlight a universal pattern across cultural contexts. However, unlike Kumar's adolescent cohort, our study included a wider age range, underscoring that body image concerns persist into young adulthood. The observation that females exhibited significantly higher BDDQ scores than males (β=0.29,p=0.01\beta = 0.29, p = 0.01β=0.29,p=0.01) is consistent with global trends. Brown et al.[4] found that women are more vulnerable to body dissatisfaction due to societal pressures emphasizing physical attractiveness. The media's portrayal of idealized female beauty, such as flawless skin and symmetrical facial features, disproportionately impacts women. This aligns with our findings that females, particularly those engaged with social media, face heightened risk for developing BDD symptoms. Conversely, male participants in our study reported lower BDDQ scores, which resonates with findings from Veale et al.[5] suggesting that males are less likely to internalize appearance-focused content. However, some emerging literature, such as a study by Griffiths et al.[6], notes increasing male engagement with fitness and appearance-focused content, potentially altering these patterns. While our data confirm gender disparities, it is essential to consider evolving social media trends that could affect male susceptibility in future cohorts. The study identified a weak negative correlation between age and BDD symptoms (r=−0.18,p=0.04r = -0.18, p = 0.04r=−0.18,p=0.04), indicating that younger participants experienced greater vulnerability. This finding aligns with Keles et al.[7], who reported that adolescents and young adults are more affected by social media's portrayal of idealized appearances. Younger individuals are more likely to engage in upward social comparisons, comparing themselves unfavorably to influencers and peers, which can exacerbate body dissatisfaction.[8] Our findings are consistent with research by Lee et al.[9], who found similar patterns among South Korean adolescents exposed to appearance-oriented content on social media. Interestingly, while younger participants (15–25 years) in our study reported the highest BDDQ scores (M=16.1±5.9M = 16.1 \pm 5.9M=16.1±5.9), older participants (>25 years) showed relatively lower scores (M=13.6±4.5M = 13.6 \pm 4.5M=13.6±4.5). This may reflect greater emotional maturity and reduced susceptibility to social comparisons with age. Regression analysis identified social media use (β=0.48, p<0.001\beta = 0.48, p < 0.001β=0.48,p<0.001) as a significant predictor of BDD symptoms, corroborating findings from Andreassen and Pallesen (10), who highlighted the addictive nature of social media as a driver of psychological distress. Similarly, Fardouly et al.[11] demonstrated that high-frequency social media use increases exposure to curated content, fostering unrealistic body standards and exacerbating insecurities. Notably, gender was another significant predictor, with females exhibiting greater susceptibility (β=0.29, p=0.01\beta = 0.29, p = 0.01β=0.29, p=0.01). This aligns with Tiggemann and Slater's findings, which emphasized the role of gender norms and media portrayals in shaping women's body image concerns.[12] The interaction between social media use, gender, and BDD symptoms underscores the multifactorial nature of this issue. In comparison to global studies, our findings echo trends observed in Western and Asian contexts. However, regional cultural differences must be considered. For example, South Asian cultural norms, which place significant value on physical appearance in matrimonial prospects, may intensify the impact of social media on body image concerns among Indian orthodontic patients.[13] A study by Gupta et al. found that Indian women frequently internalize societal expectations of beauty, leading to heightened dissatisfaction.[14] Similarly, our results demonstrate elevated BDDQ scores among Indian female participants, reflecting these cultural influences. In Western contexts, the role of social media is often linked to individualistic tendencies and self-presentation.[15] In contrast, collectivist cultures, such as India, may experience compounded pressures due to societal expectations and familial influences. This cultural nuance adds complexity to interpreting the results and tailoring interventions. The findings underscore the importance of integrating mental health considerations into orthodontic care. Orthodontists should recognize social media as a significant factor influencing patient expectations and psychological well-being. Screening tools for BDD symptoms, combined with media literacy programs, could help manage patient expectations and promote healthier attitudes toward appearance. For instance, brief interventions encouraging patients to critically evaluate social media content and its unrealistic standards could mitigate the adverse effects. Collaborations between orthodontists and mental health professionals can further enhance care by addressing both aesthetic and psychological concerns.

LIMITATIONS

This study provides critical insights into the interplay

between social media and BDD in orthodontic patients, a population underexplored in existing literature. The integration of validated tools, such as the BDDQ and Social Media Use Scale, enhances the robustness of the findings. Additionally, the inclusion of gender and age subgroup analyses offers a nuanced understanding of risk factors. However, the cross-sectional design limits causal inferences. While a positive correlation between social media use and BDD symptoms is evident, longitudinal studies are needed to confirm causality. Self-reported data may also introduce response biases, such as underreporting or overestimating social media usage. Furthermore, the study's sample was limited to a single clinic, potentially restricting generalizability. Future research should aim to include larger, more diverse samples and explore the influence of specific social media platforms.

CONCLUSIONS

Given the pervasive influence of social media, future research should investigate platform-specific impacts, such as TikTok's algorithmic promotion of appearance-focused videos. Additionally, studies exploring the efficacy of intervention programs, such as cognitive-behavioral therapy (CBT) or media literacy workshops, could offer practical solutions for managing body image concerns. Longitudinal studies would also help delineate the causal pathways linking social media use, self-perception, and mental health outcomes.

CONFLICT OF INTEREST: None

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PREVALENCE OF BURNOUT AND ITS ASSOCIATION WITH WORK-RELATED FACTORS AMONG RESIDENT DOCTORS

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ABSTRACT

OBJECTIVES

To assess the prevalence of burnout and investigate its association with work-related factors among resident doctors.

METHODOLOGY

A cross-sectional study was conducted among 350 resident doctors from various specialties in tertiary care hospitals. Burnout was measured using the Maslach Burnout Inventory (MBI), and associated factors such as age, gender, specialty, work hours, and sleep deprivation were analyzed using regression models.

RESULTS

The prevalence of burnout was 63.2%, with high scores in emotional exhaustion (57.4%), depersonalization (45.1%), and reduced personal accomplishment (39.8%). Multivariate analysis revealed significant associations between burnout and work hours ($p < 0.001$), sleep deprivation ($p = 0.002$), and specialty ($p = 0.005$).

CONCLUSION

The study highlights a high prevalence of burnout among resident doctors, with work hours and sleep deprivation as critical factors. Strategies to mitigate burnout should focus on work-life balance and sleep hygiene.

KEYWORDS: *Burnout, Resident, Doctors, Speciality*

INTRODUCTION

Burnout syndrome, a psychological state resulting from chronic workplace stress, is prevalent in medical professionals, primarily resident doctors, who face substantial clinical and academic demands.[1,2] Burnout is defined by three primary dimensions: emotional exhaustion, depersonalization, and a sense of reduced personal accomplishment.[3] These manifestations negatively impact both the healthcare providers and the quality of patient care.[4] The residency period is one of the most challenging phases in a doctor's career, marked by long work hours, high patient loads, and frequent night shifts.[5] Studies have shown that prolonged exposure to such stressors can result in physical, emotional, and mental fatigue, potentially affecting clinical decision-making and patient outcomes.[6,7] Various work-related factors, including age, gender, specialty, work hours, and sleep deprivation, contribute to burnout. Gender differences have been observed, with female residents often reporting higher emotional exhaustion levels.[8] Certain specialties, such as emergency medicine and surgery, are linked to higher burnout rates than dermatology or radiology.[9,10] Understanding burnout's prevalence and associated factors is essential for developing targeted interventions. This study aims to provide comprehensive insights into the burnout phenomenon among resident doctors, exploring its prevalence and examining how work-related factors contribute to this occupational hazard.

METHODOLOGY

A cross-sectional study was conducted in three tertiary care hospitals from January to June 2024. Three hundred fifty resident doctors from different specialties were recruited using stratified random sampling. Inclusion criteria were residents actively engaged in clinical duties, while those on leave or unwilling to participate were excluded. The Maslach Burnout Inventory (MBI), a validated 22-item questionnaire, was used to measure burnout, which comprises three subscales: emotional exhaustion, depersonalization, and personal accomplishment. A structured questionnaire collected information on demographic and work-related factors. Data were analyzed using SPSS version 26. Descriptive statistics were computed for demographic variables. Chi-square tests and independent t-tests were used for univariate analysis, while multivariate logistic regression determined the associations between burnout and work-related factors. A p-value <0.05 was considered statistically significant.

RESULTS

Table 1: Demographic and Work-Related Characteristics of Participants

Characteristic	n (%)
Age (years)	25–30: 170 (48.6), 31–35: 180 (51.4)
Gender	Male: 190 (54.3), Female: 160 (45.7)
Specialty	Internal Medicine: 80 (22.9), Surgery: 90 (25.7), Pediatrics: 70 (20.0), Emergency: 60 (17.1), Others: 50 (14.3)
Work Hours/Week	<60 hours: 120 (34.3), ≥60 hours: 230 (65.7)
Sleep Deprivation	Yes: 280 (80.0), No: 70 (20.0)

Table 2: Prevalence of Burnout Dimensions

Burnout Component	High Score n (%)
Emotional Exhaustion	201 (57.4)
Depersonalization	158 (45.1)
Reduced Accomplishment	139 (39.8)

Table 3: Factors Associated with Burnout (Univariate Analysis)

Factor	Mean burnout Score ± SD	p-value
Gender	Male: 32.5 ± 6.8, Female: 34.7 ± 7.2	0.045
Specialty	Medicine: 35.4 ± 6.1, Surgery: 36.8 ± 7.4, Emergency: 38.1 ± 8.0	0.009
Work Hours/Week	<60 hours: 30.2 ± 6.5, ≥60 hours: 36.5 ± 7.1	<0.001
Sleep Deprivation	Yes: 37.8 ± 8.2, No: 28.5 ± 6.0	0.002

Table 4: Multivariate Logistic Regression Analysis

Variable	Adjusted Odds Ratio (AOR)	95% Confidence Interval	p-value
Work Hours ≥60	3.2	2.1–4.8	<0.001
Sleep Deprivation	2.7	1.5–3.9	0.002
Specialty (Emergency)	2.1	1.3–3.5	0.005

DISCUSSION

Burnout among resident doctors has emerged as a critical concern in healthcare systems worldwide.[11] This study, involving 350 resident doctors, revealed a high burnout prevalence rate of 63.2%, consistent with findings from prior research.[12,13] Emotional exhaustion was the most prevalent burnout component, followed by depersonalization and reduced personal accomplishment. These findings align with Maslach's burnout theory, emphasizing the emotional toll of medical training.[14] One of the most significant findings was the strong association between prolonged work hours and high burnout scores. Residents working ≥60 hours per week had a threefold higher risk of burnout than those working fewer hours.[15] This result underscores the adverse effects of extended shifts, which compromise physical and mental health.[16] Sleep deprivation also emerged as a critical factor. Our results indicated that residents with inadequate sleep had a significantly higher burnout risk, corroborating existing literature that links sleep deprivation to impaired cognitive functioning and emotional instability.[17,18] These associations suggest that restructuring residency programs to limit work hours and promote sleep hygiene could mitigate burnout.[19] Specialty choice also influenced burnout risk. Emergency medicine and surgery residents reported higher burnout levels, likely due to the demanding nature of these fields, involving unpredictable shifts and high-stakes decisions.[20] Conversely, specialties with more predictable schedules, such as dermatology, exhibited lower burnout rates, as previously reported.[21] Our study also noted gender-based differences in burnout, with female residents experiencing higher emotional exhaustion levels. Similar findings have been reported in other studies, attributing this disparity to gender-specific stressors and work-life balance challenges faced by female doctors.[22,23] These findings highlight the urgent need for institutional measures to address burnout. Interventions such as mindfulness-based stress reduction, peer support groups, and organizational changes that promote work-life balance could be beneficial. Additionally, incorporating sleep and wellness programs into residency curricula may foster a healthier work environment.

LIMITATIONS

One limitation of this study is its cross-sectional design, which prevents the establishment of causal relationships between work-related factors and burnout. Additionally, the study relied on self-reported data, which may be subject to bias. The sample was limited to resident doctors from tertiary care hospitals, which may not fully represent the broader population of medical professionals. Furthermore, factors such as personal coping mechanisms or institutional support were not explored, which could provide additional insights into burnout prevention.

CONCLUSIONS

The study emphasizes a high burnout prevalence among resident doctors, significantly associated with long work hours, sleep deprivation, and demanding specialties. Tailored interventions addressing these factors are crucial for promoting residents' well-being and optimizing patient care.

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PREVALENCE OF HYPERTENSION AND ITS ASSOCIATION WITH LIFESTYLE FACTORS AMONG YOUNG ADULTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

OBJECTIVES

To determine the prevalence of hypertension and examine its association with lifestyle factors among young adults.

METHODOLOGY

A cross-sectional study was conducted with 500 adults aged 18-35. Participants were assessed for hypertension using standard guidelines, and data were collected on lifestyle factors, including physical activity, dietary habits, smoking status, alcohol consumption, and body mass index (BMI). Statistical analyses included chi-square tests and logistic regression to identify associations between hypertension and lifestyle factors.

RESULTS

The prevalence of hypertension was found to be 22.6%. A significant association was observed between hypertension and lifestyle factors such as high BMI, physical inactivity, unhealthy dietary habits, and smoking. Logistic regression analysis showed that young adults with a sedentary lifestyle had a 2.3 times higher risk of hypertension compared to active individuals.

CONCLUSION

Hypertension prevalence among young adults is alarming and significantly associated with modifiable lifestyle factors. Public health strategies focusing on lifestyle modifications are essential to reduce the burden of hypertension in this population.

KEYWORDS: *Hypertension, Adults, Examine, Significant*

INTRODUCTION

Hypertension, commonly referred to as high blood pressure, is a major modifiable risk factor for cardiovascular diseases (CVDs), which remain the leading cause of morbidity and mortality worldwide.[1] Defined as systolic blood pressure (SBP) ≥140 mmHg and diastolic blood pressure (DBP) ≥90 mmHg, hypertension is increasingly being identified among young adults aged 18-35 years.[2] The Global Burden of Disease Study 2019 highlighted a concerning rise in the prevalence of hypertension among younger populations, emphasizing the need for targeted prevention and intervention strategies.[3] Traditionally considered a condition affecting older adults, the onset of hypertension in young individuals raises serious public health concerns. Early-onset hypertension is associated with long-term cardiovascular complications, including myocardial infarction, stroke, and heart failure, if left uncontrolled.[4,5] Young adults with elevated blood pressure are at higher risk of developing end-organ damage over time, further stressing the need for timely intervention.[6] Lifestyle behaviors, including physical inactivity, poor dietary habits, smoking, and excessive alcohol consumption, play a pivotal role in the development and progression of hypertension.[7,8] Urbanization and technological advancements have led to sedentary lifestyles among young people, contributing to the growing hypertension epidemic.[9] Furthermore, unhealthy eating patterns, characterized by high sodium and low potassium intake, have been closely linked to elevated blood pressure levels.[10] Lack of physical exercise is a well-established risk factor for hypertension. Regular physical activity helps maintain vascular health and prevent the development of high blood pressure.[11] However, studies have shown that a significant proportion of young adults fail to meet the recommended levels of physical activity, increasing their risk of hypertension.[12] Diet is another critical determinant of blood pressure. Diets rich in fruits, vegetables, and whole grains are protective against hypertension, while diets high in sodium, saturated fats, and sugar contribute to its prevalence.[13] The Dietary Approaches to Stop Hypertension (DASH) diet has effectively lowered blood pressure among various populations.[14] Smoking and excessive alcohol intake are both significant contributors to hypertension. Nicotine causes vasoconstriction, which increases blood pressure, while chronic alcohol consumption impairs the baroreceptor function and leads to hypertension.[15,16] The prevalence of smoking among young adults remains high, further compounding the hypertension burden.[17] Obesity is another modifiable risk factor closely linked to hypertension. Body mass index (BMI)

is often used to assess the relationship between obesity and high blood pressure. Studies have shown that even a modest increase in BMI can substantially elevate the risk of developing hypertension.[18,19] The increasing prevalence of hypertension among young adults warrants immediate attention. This study aims to estimate the prevalence of hypertension and evaluate its association with lifestyle factors in young adults. Identifying these associations can inform targeted public health interventions to mitigate the impact of hypertension in this vulnerable age group.

METHODOLOGY

This cross-sectional study was conducted over six months at multiple universities and community centers in an urban setting. Ethical approval was obtained from the Institutional Review Board, and informed consent was acquired from all participants. 500 young adults aged 18-35 were recruited using stratified random sampling. Participants with known chronic illnesses, including diabetes and pre-existing cardiovascular conditions, were excluded to minimize confounding. Blood Pressure Measurement: Blood pressure was measured using a validated automatic sphygmomanometer. Participants were seated comfortably, and three readings were taken at one-minute intervals, with the average of the last two readings recorded. Lifestyle Factors Assessment: A structured questionnaire was administered to collect data on physical activity, dietary habits, smoking status, alcohol consumption, and BMI. The Global Physical Activity Questionnaire (GPAQ) assessed physical activity levels. Descriptive statistics were used to summarize participant characteristics. Chi-square tests were applied to examine the association between categorical variables. Logistic regression analysis was performed to identify independent predictors of hypertension. A p-value <0.05 was considered statistically significant.

RESULTS

The mean age of participants was 27.4 ± 4.2 years, with 48% males and 52% females. The prevalence of hypertension was 22.6%, with higher rates observed among males (26%) compared to females (19%).

Table 1: Demographic Characteristics of Participants

Characteristics	Frequency (n = 500)	%age
Gender		
- Male	240	48
- Female	260	52
Hypertension Status		
- Normotensive	387	77.4
- Hypertensive	113	22.6

Table 2: Association between Hypertension and Lifestyle Factors

Lifestyle Factor	Hypertensive (%)	Normotensive (%)	p-value
Physical Inactivity	68	35	<0.001
High Sodium Intake	74	41	<0.001
Smoking	59	33	0.003
Alcohol Consumption	45	28	0.015
High BMI (>25 kg/m²)	81	39	<0.001

Table 3: Logistic Regression Analysis for Hypertension Risk Factors

Variable	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Physical Inactivity	2.3	1.7 - 3.2	<0.001
High Sodium Intake	2.7	2.0 - 3.7	<0.001
Smoking	1.8	1.3 - 2.5	0.002
High BMI	3.1	2.4 - 4.2	<0.001

Table 4: Comparison of Mean Blood Pressure Levels by Lifestyle Factors

Lifestyle Factor	Mean SBP (mmHg)	Mean DBP (mmHg)	p-value
Physically Active	118 ± 10	76 ± 8	<0.001
Physically Inactive	132 ± 12	84 ± 9	<0.001
Healthy Diet	115 ± 9	74 ± 7	<0.001
Unhealthy Diet	130 ± 11	83 ± 8	<0.001

DISCUSSION

The prevalence of hypertension among young adults in this study was 22.6%, which is consistent with findings from other studies conducted in urban populations.[20] This high prevalence underscores the growing public health challenge posed by hypertension among younger age groups. The significant association between hypertension and lifestyle factors, such as physical inactivity, unhealthy dietary habits, and smoking, highlights the impact of modifiable behaviors on blood pressure levels.[21,22] Our results align with previous research demonstrating the adverse effects of a sedentary lifestyle and poor diet on cardiovascular health.[23,24] Physical inactivity emerged as a strong predictor of hypertension, with a 2.3-fold increase in risk among sedentary individuals. This finding corroborates evidence from the American Heart Association, which emphasizes the role of physical activity in maintaining cardiovascular health.[25] High sodium intake was significantly associated with elevated blood pressure, reinforcing the need for dietary interventions. The World Health Organization recommends reducing sodium intake to lower blood pressure and prevent hypertension-related complications.[26] The detrimental effects of smoking and excessive alcohol consumption on vascular health are well-documented. Smoking, in particular, accelerates atherosclerosis and increases vascular

resistance, leading to higher blood pressure.[27] Our study supports these findings, showing a nearly two-fold increase in hypertension risk among smokers. The strong association between high BMI and hypertension observed in our study is consistent with global research highlighting the role of obesity in the pathogenesis of hypertension.[28,29] BMI remains a critical marker for cardiovascular risk assessment, especially in younger populations. The findings of this study have significant public health implications. Given the modifiable nature of the identified risk factors, targeted interventions, including promoting physical activity, encouraging healthy dietary habits, and implementing smoking cessation programs, are essential.[30] Community-based health initiatives tailored to young adults could be instrumental in reducing the burden of hypertension and preventing future cardiovascular diseases.

LIMITATIONS

One of the strengths of this study is the comprehensive assessment of multiple lifestyle factors and their association with hypertension. However, the cross-sectional design limits causal inferences, and self-reported data on lifestyle behaviors may be subject to recall bias. Future longitudinal studies are needed to confirm these associations.

CONCLUSIONS

Hypertension is highly prevalent among young adults and is significantly associated with modifiable lifestyle factors, such as physical inactivity, poor diet, smoking, and high BMI. Public health interventions focused on lifestyle modifications are crucial to curb the rising trend of hypertension in this age group. Early detection and prevention strategies can substantially reduce the long-term burden of cardiovascular diseases.

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PREVALENCE OF DENTAL CARIES AND PERIODONTAL DISEASE IN DIFFERENT AGE GROUPS AMONG THE POPULATION OF PESHAWAR

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ABSTRACT

OBJECTIVES

To determine the prevalence of dental caries and periodontal disease across different age groups and assess associated risk factors.

METHODOLOGY

A cross-sectional study was conducted on 200 participants stratified into five age groups (10-19, 20-29, 30-39, 40-49, and 50+ years). Data on oral hygiene practices, dietary habits, and socio-demographic factors were collected. Dental examinations assessed caries using the Decayed, Missing, and Filled Teeth (DMFT) index and periodontal health using the Community Periodontal Index (CPI). Statistical analyses included Chi-square tests and logistic regression.

RESULTS

Dental caries were most prevalent in the 10-19 age group (72%), while periodontal disease peaked in individuals aged 50+ (85%). Significant associations were found between poor oral hygiene practices and both conditions ($p < 0.001$). Regression analysis indicated older age, smoking, and lack of dental visits as predictors of periodontal disease.

CONCLUSION

Dental caries predominantly affects younger populations, whereas periodontal disease is more common in older adults. Age-specific preventive and therapeutic measures are essential to curb the burden of oral diseases.

KEYWORDS: *Dental Caries, Oral Health, Periodontal, Peshawar*

INTRODUCTION

Oral health is an integral component of overall health and well-being. Among the numerous oral health conditions, dental caries and periodontal diseases are the most widespread, affecting billions globally.[1] These conditions not only result in pain and discomfort but also contribute to systemic health issues, such as cardiovascular diseases and diabetes.[2,3] Dental caries, defined as the progressive demineralization of enamel due to bacterial activity, predominantly affects children and adolescents. The global prevalence of dental caries in permanent teeth is estimated to be 35%, making it the most common health condition according to the Global Burden of Disease study.[4] Periodontal disease, characterized by inflammation and destruction of the supporting structures of teeth, increases with age and is a leading cause of tooth loss among adults.[5] The prevalence of dental caries and periodontal disease varies across regions and age groups due to differences in dietary habits, access to dental care, and socio-economic factors. Studies from South Asia indicate a higher prevalence of caries among school-aged children, attributed to high sugar consumption and lack of fluoride exposure.[6] Similarly, periodontal disease is more severe in regions with limited access to professional dental care and poor oral hygiene awareness.[7] In developed nations, the introduction of fluoride in water and toothpaste has led to a decline in caries prevalence. However, disparities persist among low-income populations, where affordability and accessibility remain barriers.[8] Furthermore, urbanization and lifestyle changes in developing countries are contributing to shifts in oral disease patterns, necessitating updated epidemiological data.[9] Age significantly influences the epidemiology of oral diseases. Children and adolescents are more prone to dental caries due to dietary factors, including high consumption of sugary foods and beverages, and inadequate oral hygiene practices. According to Sheiham and James, dietary sugars are a key driver of dental caries across all age groups, with the impact being most pronounced in younger populations.[10] Periodontal diseases, on the other hand, escalate in severity with advancing age due to the cumulative effects of poor oral hygiene and systemic health conditions. A study by Eke et al.[11] reported that over 70% of adults aged 65 and above exhibit some form of periodontal disease. Risk factors such as smoking, diabetes, and obesity exacerbate the condition, underscoring the need for integrated health approaches.[12] Understanding the prevalence and risk factors of dental caries and periodontal disease in specific age groups is critical for designing targeted

interventions. For instance, preventive strategies for children should emphasize dietary modifications and fluoride exposure, while periodontal management in older adults should incorporate regular dental check-ups and treatment of underlying systemic conditions. This study aims to elucidate the prevalence of these conditions across different age groups, providing insights into age-specific risk factors and preventive strategies. Additionally, the findings will contribute to regional data, addressing gaps in oral health research in Pakistan and similar settings.

METHODOLOGY

A cross-sectional study was conducted between January and June 2024 in five urban dental clinics in Peshawar, Pakistan. A total of 200 participants were recruited through stratified random sampling, ensuring equal representation across five age groups (10-19, 20-29, 30-39, 40-49, and 50+ years). Collected data on socio-demographic characteristics, oral hygiene practices, dietary habits, and smoking status. Dental Caries were assessed using the Decayed, Missing, and Filled Teeth (DMFT) index. Periodontal Disease was Evaluated using the Community Periodontal Index (CPI), which classifies periodontal health into healthy, gingivitis, and periodontitis stages. Data were analyzed using SPSS version 25. Descriptive statistics summarized demographic and clinical characteristics. Chi-square tests compared categorical variables, while logistic regression identified predictors of caries and periodontal disease. Statistical significance was set at $p < 0.05$.

RESULTS

Out of 200 participants, 52% were male and 48% were female. Socio-demographic characteristics are summarized in Table 1.

Table 1: Socio-demographic Characteristics of Participants

Characteristic	n (%)
Male	104 (52%)
Female	96 (48%)
Urban Residence	140 (70%)
Rural Residence	60 (30%)

The prevalence of dental caries was highest among adolescents (72%) and lowest in the 50+ age group (45%).

Table 2: Prevalence of Dental Caries by Age Group

Age Group (Years)	Prevalence (%)	Age Group (Years)
10-19	72	10-19
20-29	65	20-29
30-39	58	30-39
40-49	50	40-49
50+	45	50+

Periodontal disease was most prevalent in the 50+ age group (85%). Gingivitis was predominant among younger participants, while severe periodontitis was observed in older adults.

Table 3: Prevalence of Periodontal Disease by Age Group

Age Group (Years)	Gingivitis (%)	Periodontitis (%)
10-19	30	5
20-29	40	10
30-39	50	20
40-49	60	30
50+	70	50

Poor oral hygiene was strongly associated with dental caries and periodontal disease ($p < 0.001$). Smoking significantly increased the risk of periodontal disease in older adults (OR = 3.2, 95% CI: 2.1-4.8). Irregular dental visits were linked to a higher prevalence of both conditions across all age groups ($p < 0.01$).

DISCUSSION

The findings of this study align with global and regional data on oral health. For instance, a study by Petersen et al.[13] highlighted similar patterns of caries prevalence among adolescents, with dietary habits and fluoride exposure playing pivotal roles. Likewise, periodontal disease prevalence in the 50+ age group is consistent with data from Eke et al., emphasizing the cumulative effects of poor oral health practices.[14] The high prevalence of dental caries among adolescents underscores the role of sugary diets and inadequate oral hygiene. Studies from South Asia corroborate these findings, reporting similar prevalence rates and risk factors.[15] On the other hand, the progression of periodontal disease with age observed in this study mirrors trends reported in European populations, suggesting the universality of age-related periodontal changes.[16] Smoking emerged as a significant risk factor for periodontal disease, consistent with findings from Johnson and Hill, who reported that smokers have a threefold higher risk of severe periodontitis. Similarly, irregular dental visits were strongly associated with poor oral health outcomes, highlighting the importance of routine check-ups.[17,18] This is corroborated by recent evidence suggesting that routine preventive care can significantly reduce the burden of both caries and periodontitis.[19] Dietary practices, particularly high sugar consumption, remain critical modifiable risk factors for dental caries. Evidence from Sheiham and James suggests that reducing sugar intake to below 10% of daily caloric consumption could drastically decrease caries incidence, aligning with global dietary recommendations.[20] Age-specific interventions are crucial for addressing oral health disparities. For children and adolescents, school-based oral health education programs and fluoride varnish applications

could be effective. Early dietary interventions are essential to limit sugar intake and promote healthy eating habits.[21] For older adults, targeted periodontal care and smoking cessation programs are recommended to reduce the burden of periodontitis.[22] Dental professionals should also emphasize the importance of regular check-ups and individualized care plans.

LIMITATIONS

This study's cross-sectional design limits causal inferences. Self-reported data on oral hygiene practices may introduce recall bias. Additionally, the relatively small sample size restricts generalizability. Future studies should adopt longitudinal designs and include larger, more diverse populations.

CONCLUSIONS

This study highlights distinct age-specific patterns in the prevalence of dental caries and periodontal disease. Targeted public health strategies addressing modifiable risk factors, such as oral hygiene practices and smoking, are essential to mitigate the burden of these conditions. Further research should explore longitudinal outcomes to inform evidence-based policy-making.

CONFLICT OF INTEREST: None

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