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AIMS & SCOPE

HMDJ is the journal of HITEC Institute of Medical Sciences (HITEC-IMS), Taxila. It is an open access, peer-reviewed, bi-annual journal that aims to keep the medical & dental health professionals updated with the latest information relevant to their fields.

HMDJ welcomes scholarly work from medical, dental and allied subjects (basic & clinical), community health issues and medical education. It publishes original research, review articles, case reports, editorials, letters to editor, short communication, book reviews, recent advances, new techniques, debates, adverse drug reports, current practices, and conference reports. All publications of HMDJ are peer reviewed by subject specialists from Pakistan and abroad.

OBJECTIVES

1. To publish original, peer reviewed clinical and basic sciences articles.
2. To promote research culture in HITEC-IMS and beyond, by inculcating the habit of medical writing in doctors.
3. To assist physicians to stay informed about the developments in their own & related fields.
4. To support knowledge & experience sharing among the health professionals for the benefit of the patients.
5. To attain top-notch ethical medical journalism by delivering credible and reader-friendly publications.

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WHERE DO YOU FALL ON AUTHOR SPECTRUM?

Bushra Anwar[1]

[1]Director BMY Health, Canada

Research publications are the currency to buy promotion for medical doctors and ranking for medical institutions. To win the race, healthcare professionals often fall into unethical practices including buying ready-made articles, using fake data, getting their name in co-workers' publications without making actual contributions, by merely offering to pay their journal fee or using other coercive or manipulative approaches, and offering gift authorship to favor colleagues in the hope of other benefits[1]. The trend of unethical practices in publication is rising as the world continues to increase its race of publications[2]. An analysis of the Public Library of Science (PLOS) journals showed an increase in publications from 200 in 2006 to 30,000 per year now[3]. In Pakistan also the gain in research output is significant, according to a report by Web of Science data analytics in 2018, which showed a 300% growth in the number of publications in Pakistan[4]. However, it is important to assess if this gain is not achieved at the cost of compromising ethics and quality in publications.

A survey published in 2018 showed that many authors in Scopus had as many as 72 publications in a year, most commonly from United States (US), Germany, Japan, Malaysia, and Saudi Arabia. Some of these authors were inquired about how often they fulfilled the International Committee of Medical Journal Editors (ICMJE) criteria for authorship, and most of the respondents said they did not fulfill it in more than 25% of the publications[1].

Some entities that run paper mills for selling ready-made papers to professionals have further made this easy for researchers to earn undeserved credits. These paper mills offer authorship on sale, for soon-to-be-published papers, demanding a fee ranging from hundreds of dollars to around five thousand US dollars[5].

Figure 1A&B show Google trends for the search related to use of such offers by paper mills. It was observed that this trend is higher in some specific countries as shown in the figures, with highest intensity in the US.

Such trends even in developed countries suggest an overall unregulated and unfair environment in research, raising questions on the authenticity of scientific literature being produced. An estimate suggests scientific fraud to be as common as 20% of the medical literature, with falsified data[2]. Another study of the published clinical trials reported that one quarter of the data seemed to be fake or fatally flawed upon examination of raw data[6].

The badge of high number of publications, the doctors earn, is becoming more unreliable, yet it remains as one of the most important criteria for rewards and promotions[7]. Employers offer promotion to professionals by merely seeing their authorship in an article, where the employer cannot assess what type of authorship was gained in that publication, which may range from original author, to gift author, guest author, ghost author,

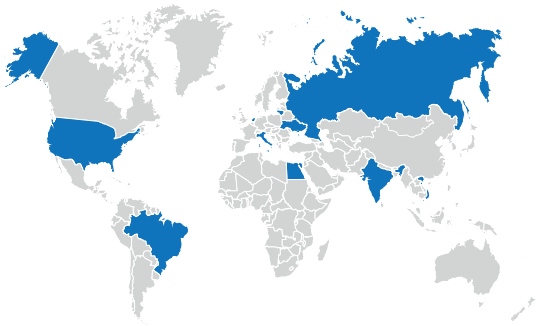

Figure 1A: Global trend for search term "Buy research papers": This term suggests buying ready made articles for publication (unethical)/ buying published articles for reading (ethical)

Figure 1B: Global trend for search term "Buy research papers no plagiarism cheap": This term suggests only buying ready made articles online for publication (unethical)

Figure 1A&B : Regional Trends for Google Search for buying research papers online in last 10 years (2/11/14 to 2/11/23); For a term in Google Trends, you see a map showing areas where your term is popular. Darker shades indicate where your term has a higher probability of being searched.

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coercive author, and mutual support authors, collectively forming what we refer to as 'Author Spectrum'. The dilemma arises from the inability to ascertain where an author stands on the Author Spectrum, leading to unverified benefits. This trend of unfair acknowledgment of original authors undermines the motivation and spoils the research culture, developing an unreliable environment in the field of science.

Also, there is no appreciation for other roles in research besides authorship. Though intellectual contributions are mostly made by the main research team (authors), but there's also some intellectual role of reviewers such as Institutional Review Board (IRBs) and journal reviewers. However, their role is under-appreciated, and non-compensated, which may result in low quality reviews. As research has no monetary incentives, we suggest some practices for developing a fair system that encourages support of every role in research for enhancing their motivation and incentivize honest contributions:

Valuing non-author contribution:

1. Apart from authorship, other significant roles such as reviewers (IRB, journal reviewers), and data collectors (those not fulfilling authorship criteria) should also be valued and counted in CV for research positions, whenever the contribution is significant. Currently only author role is appreciated and hence there's a race for getting a name as an author sometimes by data collectors or IRB reviewers, who may find a space in paper through coercion or manipulation of research team.

2. The names of main reviewers in IRB, and journal reviewer may be acknowledged in the paper, not as authors, but as reviewers. An alternative of intellectual appreciation is the monetary appreciation of these roles. Journals and IRBs can offer monetary incentives to well trained and qualified reviewers. Such incentives may encourage reviewers for quality reviews, especially for the reviewers who are well trained and have invested their time and money in research ethics and review training.

Verifying author contribution:

1. Journals should verify the authorship to avoid the chance of gift authorship, ghost authorship and other unethical authorships on spectrum. For this purpose, journals can perform audits and check any official records of research collaboration and activity, such as emails/ any official workspace communication records. Such policies will encourage researchers to communicate officially for research work, using emails and other official modes of communication and documentation. Such policies will encourage researchers to communicate officially for research work, using emails and other official modes of communication and documentation. In such a transparent environment, there are very low chances of any misconduct, or undeserved credits, and the researchers can easily accept journal audits.

2. For the journal to afford audits, it should be charging some amount of article processing fee to offer incentive to the auditors. Adding this step will raise the journal credibility as well as the credibility of authors publishing in it.

3. In case of low budget, journal can perform audit of a random sample from the submitted publications. As the data suggests the estimated prevalence of scientific misconduct to be around 20-25% in various studies,[1,2,6] a goal of screening up to 25% papers can be set in limited resources. Employers looking to authenticate authorship credentials for hiring or promotion can also leverage this figure. They can verify a random sample of 25% of the publications listed in the Curriculum vitae (CV) by interviewing the person or reviewing records.

4. Journals can use some red flags also to select manuscripts for audits, e.g., Sabel's tool can be used which has two criteria: authors with private, noninstitutional email addresses and authors affiliated with hospitals. This criterion is effective in identifying fraudulent papers with 90% accuracy; however, it also has a high false positive rate of 44%, often misclassifying real papers as fake[8].

5. Journals can also make use of honor pledges which are used by some universities as a moral barrier to misconduct. The author, submitting work, affirms the integrity in work and this helps reduce chances of fake work to some extent[9].

CAPSULE SUMMARY

- The trend of unethical practices in publication is rising with increasing publications, which remain one of the most important criteria for rewards and promotions.
- Type of authorship may range from original author to gift author, guest author, ghost author, coercive author, and mutual support authors, collectively denoting the Author Spectrum.
- Moreover, reviewers' role is under-appreciated and non-compensated which results in low quality reviews.
- Some practices are suggested here for developing a fair system that encourages support of every role in research for enhancing their motivation and incentivize honest contributions.

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ORIGINAL ARTICLE

FREQUENCY OF BODY IMAGE PERCEPTION IN THE ERA OF COSMETIC PROCEDURES

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ABSTRACT

Background: The proliferation of cosmetic procedures, ranging from minimally invasive treatments to complex surgical interventions, has redefined beauty ideas and beauty norms.

Objective: To determine the frequency of body image perception in the individuals having normal skin, with no history of cosmetic procedures, and to explore the coping mechanisms utilized in the context of a growing prevalence of cosmetic interventions.

Study Design: Cross-sectional study.

Place and Duration of Study: Combined Military Hospital, Peshawar. 03 months (May 2023-August 2023).

Patients and Methods: Total 213 individuals, between 18 and 60 years of age, who had normal skin and had not undergone any cosmetic procedure, were included. Those with preexisting skin issues or a history of cosmetic procedures were excluded. Participants were asked to fill a questionnaire, including the Social Appearance Anxiety Scale (SAAS), comprising 16 self-reporting items. Responses were entered on a 5-point scale. Cumulative scores ranged from 16 to 80; categorized as mild (16-32), moderate (33-48), severe (49-64) and very severe (64-80). Coping Inventory for Stressful Situations (CISS-21) was used to evaluate participants' coping strategies which was categorized into three types: Emotion-oriented, Task-oriented and Avoidant, each consisting of seven points.

Results: Mean age of participants was 27.80±8.82 years. The mean SAAS score was 37.83±16.67. A significant association was found between SAAS and employment status (p-value = 0.045). However, no significant associations were seen between SAAS score and age, gender, marital status, and education. Regarding the CISS-21 scale, 56.4% adopted a task-oriented approach, 42.6% utilized an avoidant approach and in 16.4% emotional coping was observed.

Conclusion: This research provides an insight into social appearance anxiety among normal individuals, enriching the discourse on body image and mental health in the current era of cosmetic advancements.

Key words: *Coping Inventory for stressful situations (CISS-21), Cosmetic procedures, Social Appearance Anxiety Scale (SAAS).*

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INTRODUCTION

In the age, marked by unprecedented advancements in cosmetic procedures and an ever-increasing emphasis on physical appearance, the concept of beauty and its societal implications have undergone a profound transformation[1]. Cosmetic enhancements, once a niche pursuit, have become more accessible and culturally pervasive than ever before. In this era of readily available cosmetic interventions, the intersection of self-perception, body image and social dynamics has come under intense scrutiny[2].

Contemporary society finds itself at the crossroads of self-image and self-worth. The proliferation of cosmetic procedures, ranging from minimally invasive treatments to complex surgical interventions has redefined beauty ideals and body norms[3]. While these procedures offer opportunities for self-expression and empowerment, they simultaneously engender an environment where appearance can be artificially crafted, leading to potential disparities in self-perception[4].

At the heart of this shifting paradigm lies the phenomenon of social appearance anxiety, a complex emotional response to societal expectations regarding one's physical appearance. This form of anxiety extends beyond clinical body dysmorphic disorder and can affect individuals across diverse demographic and cultural spectra. However, our understanding of social appearance anxiety predominantly hinges on its association with cosmetic interventions, leaving a critical gap in comprehending its prevalence and implications among those who have not chosen such procedures[5].

Zhong Y's survey of 367 female college participants unveils a significant correlation between internalizing "ideal beauty" and body image disturbance ($p < 0.001$). This connection highlights the influence of beauty standards on body image perceptions [6].

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He Y underscores the impact of appearance anxiety on adolescents' mental health, emphasizing the role of family, education and societal influences. Recommendations focus on promoting correct values, enhancing psychological support, incorporating aesthetic education and advocating diverse aesthetics to combat appearance anxiety rooted in misguided values[7].

This study delves into a crucial aspect of this evolving landscape: the prevalence and impact of social appearance anxiety among individuals who have not undergone cosmetic procedures. As the boundaries of conventional beauty standards expand and blur, it is essential to understand how these changes affect the psyche and social interactions of individuals who have not pursued such enhancements.

While the existing literature explores social appearance anxiety in populations who have undergone cosmetic procedures, fewer studies have examined this phenomenon among individuals who have not undergone any. This research aims to bridge this gap by shedding light on the experiences, anxieties and coping mechanisms of "normal" individuals in an environment characterized by cosmetic advancements.

CAPSULE SUMMARY

- This study provides insight into social appearance anxiety among normal people, highlighting the discourse of body image and mental health within the current era of cosmetic breakthroughs.
- Frequency of body image perception in normal individuals was determined and the coping mechanisms were explored.
- A significant association was found between SAAS score and employment status.
- Majority adopted a task-oriented coping strategy, emotional coping was the least employed.

PATIENTS AND METHODS

This cross-sectional, observational study was carried out at Combined Military Hospital, Peshawar, between a period from May to August 2023, encompassing attendants of the patients who visited various departments of the hospital. The sample size was determined utilizing the World Health Organization, calculator, considering a 17% prevalence rate of social appearance anxiety[8], a 95% confidence interval and a precision rate of 5%. This study included 213 individuals, between 18 and 60 years of age, who had normal skin and had never undergone any cosmetic procedures. We utilized a convenience sampling method to select our participants, excluding those with preexisting skin issues or a history of cosmetic procedures. To ensure the ethical conduct of our research, informed consent emphasizing the voluntary nature of participation and the confidentiality of responses was obtained from all participants. Moreover, the ethical approval from the institutional review board was diligently sought.

Demographic data (gender, age, marital status, employment status and education) were meticulously recorded on a structured proforma. Participants were asked to complete self-administered questionnaires, including Social Appearance Anxiety Scale (SAAS) [9]. This instrument gauged the participants' level of social appearance anxiety through a validated scale. Comprising 16 self-reporting items, study participants were asked to assess their anxiety levels in various scenarios where their appearances might be subject to evaluation. Responses were recorded on a 5-point scale, ranging from 1 (not at all) to 5 (extremely). The cumulative scores from these 16 items provided a total SAAS score ranging from 16 to 80. The higher the score, the heightened level of social appearance anxiety experienced by the person: categorized as mild (16-32), moderate (33-48), severe (49-64) and very severe (65-80). To evaluate the participants' coping strategies, we employed the validated inventory, Coping Inventory for Stressful Situations (CISS-21)[10]. This inventory, offers a four-factor model for comprehending peoples' coping with the adversities of life. Coping strategies are categorized into three types: Emotion-oriented, Task-oriented and Avoidant, each consisting of seven points.

Data Analysis: SPSS version 28 was used for data analysis. Descriptive statistics, including means and frequencies, were employed to present demographic data. The relationships between age, marital status, education and employment status with SAAS scores were examined using Chi-square. A p-value of < 0.05 was considered statistically significant.

RESULTS

This research comprised 213 participants, aged 13-60 years, with a mean age of 27.80±8.82 years. Gender distribution was 46.4% male (n=99) and 53.5% female (n=114). The mean SAAS score was 37.83±16.67. Demographic details of the participants are shown in Table 1.

A significant association was found between SAAS score and employment status (p-value = 0.045). However, no significance was seen between SAAS score and age, gender, marital status and education as shown in Table 2.

Examining the coping strategies, using the CISS-21 scale, majority (n=120, 56.4%) adopted a task-oriented approach (2. Focus on the problem and consider how to solve it). Subsequently, 42.6% utilized an avoidant approach, choosing strategies like taking some time off from the situation (1. Take some time off and get away from the situation) and with 34.4% seeking solace by visiting a friend (7. Visit a friend). In contrast, emotional coping was the least employed, reported by only 16.4% and 17.9% for strategies like blaming oneself for the situation (3. Blame myself for having gotten into this situation) and becoming very upset (12. Become very upset) as shown in Table 3.

Table 1: Sociodemographic Variables of Participants (n=213)

Variable	Percentage n (%)
Age	
Group A=13-28 years	130 (61.03)
Group B=29-44 years	70 (23.86)
Group C=45-60 years	13 (6.10)
Gender	
Male	99 (46.4)
Female	114 (53.5)
Marital status	
Married	73 (34.2)
Unmarried	140 (65.7)
Employment status	
Employed	94 (44.13)
Housewife	14 (6.57)
Others	11 (5.16)
Student	73 (34.2)
Unemployed	21 (9.85)
Education	
Under-matric	5 (2.3)
Matric	4 (1.87)
FSC/FA	51 (23.9)
Bachelor	68 (31.9)
Masters & above	85 (39.9)

DISCUSSION

In this study, a diverse cohort of 213 participants, aged 13 to 60 with a mean age of 27.80±8.82, was examined. The sample exhibited a varied demographic composition, comprising 46.4% (n=99) males and 53.5% (n=114) females, encompassing different marital statuses, with 34.2% (n=73) married and 65.7% (n=140) unmarried. A majority of 44.13% (n=94) were employed, and 39.9% (n=85) held a Master's or a higher degree. In contrast to several prior studies that focused predominantly on university and college students, limiting the scope of their research, our study broadened its participant base, thereby enhancing the generalizability of findings and deepening our understanding of the subject.

On the academic front, other studies contributed valuable insights. Pan et al surveyed 101 college students, identifying factors that contribute to appearance anxiety, including social media's impact on ideal beauty standards, job market pressures, low self-confidence, and perceived physical flaws. They proposed solutions to help college students manage anxiety and foster positive societal development[8]. Additionally, Çepikkurt et al's research on 191 university students demonstrated a negative correlation between the "hope for perfection" and "comfort with appearance" subscales ($r = -0.31$; $p < 0.05$), as well as a positive correlation with the "expectation of negative evaluation" subscale ($r = 0.16$; $p < 0.05$). Furthermore, no

Table 2: Association of Sociodemographic Variables with Social Appearance Anxiety Score

Sociodemographic Variable	Social Appearance Anxiety Score				
	Mild n(%)	Moderate n(%)	Severe n(%)	Very severe n(%)	p-value
Age (years)					
Group A=13-28	54 (41.53)	39 (30)	28 (21.53)	9 (6.92)	0.275
Group B=29-44	29 (41.42)	26 (37.14)	9 (12.85)	6 (8.57)	
Group C=45-60	9 (69.23)	1 (7.69)	2 (15.38)	1 (7.69)	
Gender					
Female	43(37.71)	36(31.57)	26(22.80)	9(7.89)	0.214
Male	49(49.49)	30(30.30)	13(13.13)	7(7.07)	
Marital status					
Married	36(49.31)	19(26.02)	13(17.80)	5(6.84)	0.588
Unmarried	56(40.00)	47(33.57)	26(18.57)	11(7.85)	
Employment status					
Employed	49(52.12)	31(32.97)	8(8.51)	6(6.38)	0.045
Housewife	4(28.57)	5(35.71)	5(35.71)	0(0.00)	
Other	6(54.54)	2(18.18)	1(9.09)	2(18.18)	
Student	25(34.24)	22(30.13)	21(28.76)	5(6.84)	
Unemployed	8(38.09)	6(28.57)	4(19.04)	3(14.28)	
Education					
Under-matric	0(0.00)	2(40)	2(40)	1(20)	0.294
Matric	1(25)	2(50)	1(25)	0(0.00)	
FSC/FA	22(43.13)	14(27.45)	11(21.56)	4(7.84)	
Bachelor	29(42.64)	27(39.70)	10(14.70)	2(2.94)	
Masters & above	40(47.05)	21(24.74)	14(16.47)	9(10.58)	

Table 3: Coping Inventory for Stressful Situations Strategies adopted by the participants

Coping Strategies	n (%)
1. Take some time off and get away from the situation (A)	83 (42.6)
2. Focus on the problem and see how I can solve (T)	110 (56.4)
3. Blame myself for having gotten into this situation (E)	32 (16.4)
4. Treat myself to a favorite food or snack (A)	46 (23.6)
5. Feel anxious about not being able to cope (E)	36 (16.9)
6. Think about how I solved similar problems (T)	66 (33.8)
7. Visit a friend (A)	67 (34.4)
8. Determine a course of action and follow it (T)	45 (23.1)
9. Buy myself something (A)	36 (18.5)
10. Blame myself for being too emotional about the situation (E)	35 (17.9)
11. Work to understand the situation (T)	67 (34.4)
12. Become very upset (E)	35 (17.9)
13. Take corrective action immediately (T)	46 (23.6)
14. Blame myself for not knowing what to do (E)	28 (14.4)
15. Spend time with a special person (A)	56 (28.7)
16. Think about the event and learn from my mistakes (T)	60 (30.8)
17. Wish that I could change what had happened or how I felt (E)	48 (24.6)
18. Go out for a snack or meal (A)	39 (20.0)
19. Analyze my problem before reacting (T)	61 (31.3)
20. Focus on my general inadequacies (E)	45 (23.1)
21. Phone a friend (A)	51 (26.2)

significant gender-based differences in mean SAAS scores were observed in our study, which aligns with their findings[11].

Our study's mean SAAS score of 37.83±16.67 was notably close to the mean SAAS score of 31.42 reported by Aktağ. Aktağ's study, conducted in Turkey with 2383 high school students, revealed significant gender-based differences in the levels of Social Appearance Anxiety (SAA) and Leisure Time Exercise (LTE), with vocational high school students reporting higher SAA and LTE levels compared to their peers in Science and Anatolian high schools. Additionally, 12th grade students exhibited the lowest LTE levels and the highest SAA levels[12].

Our research uncovered a significant association between employment status and SAAS score (p-value = 0.045), while age, gender, marital status and education showed no noteworthy associations. Interestingly, Çepikkurt et al and Kowalski et al's work pointed to a higher prevalence of SAAS score among females compared to males[11,13]. Additionally, the study by Yang et al, focusing on high school girls in China, emphasized the role of social factors such as social comparison, conformity and social media in driving appearance anxiety, underscoring the significance of internal perceptions over actual discrimination experiences. Despite their efforts to manage this anxiety through makeup and dressing up, students often grapple with its persistence, maintaining a neutral attitude toward their appearance-related concerns[14].

Moreover, Karaoglan et al explored the interplay between social appearance anxiety, smartphone addiction, nomophobia, and depression in a study involving 473 college students, revealing substantial relationships. Notably, nomophobia was found to directly influence smartphone addiction, while social appearance anxiety impacted both smartphone addiction and nomophobia and depression played a role in shaping social appearance anxiety[15].

Furthermore, Üngüren et al's survey of 719 respondents from nine universities in Turkey shed light on the consequences of social disconnectedness, demonstrating that it leads to increased social media addiction, subsequently exacerbating social appearance anxiety and diminishing students' career aspirations in the tourism sector[16].

Lastly, regarding coping strategies in our study, the majority (56.4%) adopted a task-oriented approach, while 42.6% favored an avoidant approach and emotional coping methods were the least frequently utilized with only 16.4% and 17.9% of participants employing such strategies, consistent with the observations of Antonietti et al and Kowalski et al[17,13]. This adds valuable insights to the existing literature on the topic.

While this study aimed to provide insights into social appearance anxiety, it had inherent limitations. These included the potential for recall bias in self-reported data, the cross-sectional nature of

the study, and the use of convenience sampling, which might have limited the generalizability of the findings.

CONCLUSION

This study illuminates the underexplored landscape of social appearance anxiety among individuals who have not undergone cosmetic procedures, shedding light on their experiences and coping mechanisms. The dynamic interplay of societal beauty standards and self-perception presents challenges that extend beyond clinical body dysmorphic disorder and affect diverse demographics. Understanding the nuances of social appearance anxiety in this context is essential for promoting mental well-being and self-acceptance in an ever-evolving societal framework.

AUTHORS' CONTRIBUTION

Aqsa Naheed	Drafting the Article
Aqsa Naheed	Analysis and interpretation of data
Tehseen Naveed	Conception and design
Quratulain Ejaz	Acquisition of data
Mehwish Sultan	Critical revision

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ORIGINAL ARTICLE

ASSESSMENT OF STRESS AND ITS ASSOCIATED FACTORS AMONG UNDERGRADUATE STUDENTS OF A DENTAL COLLEGE, ISLAMABAD

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ABSTRACT

Background: Dental practice and education are associated with stress that usually affects the wellbeing of the students. It is crucial to manage stress effectively since it can lead to psychological morbidity and health-damaging behaviors. The purpose of this research was to determine the frequency of stress along with its contributing factors and coping strategies among undergraduate dental students of HBS Medical and Dental College, Islamabad.

Objective: To determine the frequency of stress along with its contributing factors and coping strategies among the undergraduate dental students of HBS Medical and Dental College, Islamabad.

Study Design: Cross-sectional study.

Place and Duration of Study: HBS Medical and Dental College, Islamabad. 03 months (November 2022-Feb 2023).

Materials and Methods: This study was conducted using a self-administered questionnaire that was shared with students via link for online submission. PSS-10 (Cohen's Perceived stress scale) was used to assess the level of stress. SPSS 21 was used for data analysis.

Results: There were 26.1% males and 73.8% females in this study. Total 86% dental students reported with moderate level stress while 9% with high level stress. The main causes of the stress among dental students were frequent exams/ tests (85.4%), insomnia, (65.7%) studies pressure (56%) and home environment (49.1%). Sleeping (49%) and spiritual practices (34%) were the most prevalent coping strategies to reduce stress among students.

Conclusion: Dentistry is taken as a stressful profession among health careers. Though stress cannot be eradicated among students, but it can be managed through suitable measures. The results of this research will help the clinical and non-clinical staff and administration to make changes in the academic schedule and build a learning environment that would be more constructive for the students. Dental schools should create stress management programs, as well as measures to increase psychological support services that would either reduce stress or improve stress coping skills among students.

Key words: *Contributing factors, Coping strategies, Dental student, Stress.*

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INTRODUCTION

Stress is defined as an organism's pattern of specific and nonspecific responses to stimuli that disrupt its equilibrium and surpass its ability to cope[1,2]. Stress has been associated with anxiety, depression and psychological symptoms plausibly having a negative impact on students' academic performance[3]. Academics, examination, clinical practice, financial resources, fear of failure, anxiety of facing parents after failure and distress of unemployment after studies are the major causes associated with stress in students[4]. Evidence shows that dental practice and education are associated with stress that usually affects the wellbeing of students[5]. Dentistry is taken as a stressful profession among health careers[6].

A multi-centred survey in Europe concluded that academic burden may have a negative effect on students' overall heath[7]. A study conducted in Malaysia revealed that heightened levels of stress can lead to psychological issues among dental students. This research emphasized that by identifying factors that contribute to stress among students, should be adjusted to enhance the overall well-being of dental students[8]. The results of a research in Nishtar Medical College, Multan showed elevated levels of anxiety and depression in medical students[9]. The findings of a research indicated that first-year dental and medical students are more susceptible to depression, stress, and anxiety. Similarly, this research indicated that females are more predisposed to stress than males[10].

A research among Australian dental students exhibit elevated

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levels of depression and stress than the general population. Examinations, rivalry for grades and worry about failing the year were shown to be the primary academic stressors among dental college students in a number of studies. The most significant sources of stress are academic; as a result, focused stress-reduction strategies are required in medical and dental colleges[11]. It is crucial to manage the stress effectively since it can lead to psychological morbidity and health-damaging behaviours[12]. A research[13] concluded that students who chose dentistry as their first choice had less stress than those whose first priority was not dentistry.

Evidence shows that dental schools have highly stressful learning environment. Dental students have higher level of stress than general population[14]. This shows that it is very important to determine the factors causing stress among undergraduate dental students. The results of this research will help the administration and clinical & non-clinical staff to make changes in academic schedule and build an learning environment that would be more beneficial for the students.

CAPSULE SUMMARY

- Frequency of stress & its contributing factors along with the coping strategies were determined among the undergraduate dental students.
- A large number of students had moderate-level stress.
- Frequent exams, insomnia and home environment were the main causes of stress and the major coping strategies to reduce stress were sleeping and spiritual practices.
- Dental schools should create stress management programs for the students

The purpose of this research was to determine the frequency of stress along with its associated factors. This research also determined the coping methods of stress in undergraduate dental students of HBS Medical and Dental College, Islamabad.

MATERIAL AND METHODS

This cross-sectional study was conducted in HBS Dental College, Islamabad. This study was approved by the ethical review board (ERB) of HBS Medical and Dental College, Islamabad. Students from first to final year (4th) BDS were invited to participate in this research by submitting responses through an online survey. The participation in this study was voluntary and anonymous. The total population size was 185. The sample size was calculated by taking anticipated frequency of 50% and computed using OpenEpi version 3.03 at a 90% confidence interval[15]. The sample size was 111. Convenient sampling technique was used. The questionnaire was shared with students via link in their official WhatsApp groups for online submission. Informed consent was obtained from the students, who were willing to participate.

PSS-10 (Cohen's Perceived stress scale) was used to assess the level of stress[16]. A self-constructed questionnaire was designed to address the demographics of participants, items about factors associated with stress and their coping methods. The questionnaire was pretested to check its validity in a similar setting. The reliability of the questionnaire was checked by using Cronbach's alpha. The value of Cronbach's alpha was 0.705.

Perceived stress scale (PSS-10):

The Perceived Stress Scale is a stress assessment tool with the following Likert scale response options: 0= Never, 1=Almost never, 2= Sometimes, 3= Fairly often, 4= Very often. For determining PSS score, firstly, reverse your scores for questions 4, 5, 7, and 8 like this: 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0. Then sum up your scores for each item to get a total. The range of scores on PSS is from 0 - 40. The stress level[17] is categorized as low (0-12), moderate (13-19) and high (≥20) on PSS-10.

Data Analysis: SPSS 21 was used for data analysis. Summary statistics for continuous variables and frequency and percentages were calculated for categorical variables. The mean scores of the entire sample's responses on the items of the PSS-10 were calculated and organized in a table. Additionally, the level of stress (low, moderate, high) was determined using frequency method. The response of the positively stated items (item 4, 5, 7 and 8) of PSS-10 is reversed i.e. 0=4, 1=3, 2=2, 3=1 and 4=0. After that the score of all scale items is summed to determine the stress level. 13 score on PSS is taken as average[18].

RESULTS

There were 26.1% males and 73.8% females in this study. Most of the study participants were from 20–22 years age group as shown in Table 1. Mostly students were from 2nd year BDS. Descriptive statistics of the Perceived Stress Scale-10 (PSS-10) among undergraduate dental Students have been given in below Table 2.

Table 1: Characteristics of the study population (n=111)

Variable	n (%)
Gender	
Male	29(26.1)
Female	82(73.8)
Age (Yrs.)	
17-19	14(12.6)
20-22	85(76.5)
23-25	12(10.8)
Year in Dental School	
1st	12(10.8)
2nd	47(42.3)
3rd	37(33.3)
4th (final)	15(13.5)

Figure1 given below states the prevalence of perceived stress among undergraduate dental students. There was 9% high level stress, 86% moderate level stress while 5% low level stress. Table3 given below describes the different factors associated with stress among study participants. Total 85.4% students were stressed due to frequent exams/ tests, 65.7% mentioned insomnia, 56% named studies pressure, 49.1% were stressed due to home environment while 37% students told that they were stressed due to hectic routine. The financial issue contributing to stress was 17.5%. Total 75.2% dental students agreed that stress affected their mental health. Only 5.6% students indicated that they were using some medicine for their stress.

Figure 2 below displays the coping methods among dental students to manage their stress. The most common coping method was sleeping (49%), while 34.2% students believed in spiritual practices to cope with their stress. The role of parental help to reduce stress was very low i.e. 7% only.

DISCUSSION

The main concept behind this research was to determine the prevalence of stress among undergraduate dental students. The novel idea of our study was to explore different factors that are responsible for stress. Thirdly, our research also

Table 2: Descriptive Statistics of the Perceived Stress Scale-10 (PSS-10) among the undergraduate dental Students

Scale items	Mean ±SD	% Distribution of item score				
		0	1	2	3	4
1. How often have you been upset because of something that happened unexpectedly?	2.27±1.03	8.3	7.4	44.4	28.7	11.1
2. How often do you feel that you are unable to control the important things in your life?	2.11±1.13	13	9.3	41.7	25.9	10.2
3. How often do you feel nervous and stressed?	2.23±.892	3.7	10.2	54.6	22.2	9.3
4. How often do you feel confident about your ability to handle your personal problems?	2.54±1.02	1.9	13.9	33.3	30.6	20.4
5. How often do you feel that things are going your way?	2.07±1.07	9.3	16.7	40.7	24.1	9.3
6. How often have you found that you could not cope with all the things that you had to do?	1.99±.891	7.4	13.0	57.4	17.6	4.6
7. How often have you been able to control irritations in your life?	2.15±.975	6.5	13.9	45.4	26.9	7.4
8. How often do you feel that you are on top of things?	1.79±1.00	13.9	17.6	48.1	16.7	3.7
9. How often have you been angered because of things that are outside of your control?	2.03±.952	6.5	18.5	46.3	23.1	5.6
10. How often do you feel difficulties are piling up so high that you could not overcome them?	1.86±.961	11.1	15.7	53.7	14.8	4.6

Note: The table 2 presents the items of Perceived stress scale. The respective columns are Mean±SD show the data central tendency & spread, Item scores given in percentages where Likert scale response options were as follow 0= Never, 1=Almost never, 2= Sometimes, 3= Fairly often, 4= Very often.

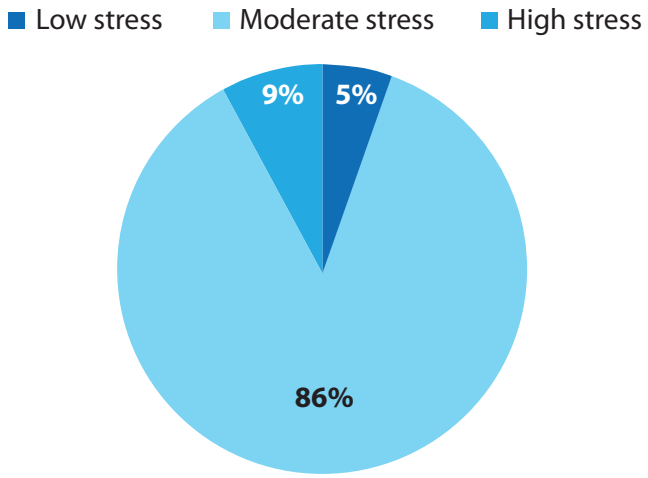

Figure 1: Prevalence of Perceived stress among dental students (n = 111)

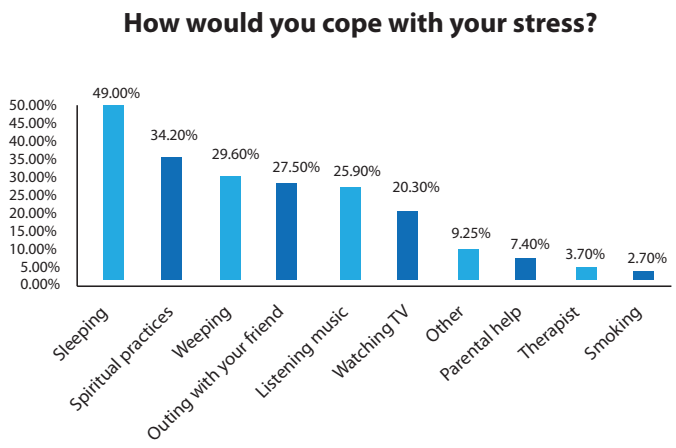

Figure 2: Coping mechanisms to manage stress

Table 3: Factors associated with stress among undergraduate dental Students at HBS Dental College, Islamabad

Scale items	Response in percentage (%)
What is the main cause of stress in dental college?	
Studies pressure	56
Hectic routine	37
Strict rules and regulations	32
Financial issues	17.5
Peers' attitude	14
Teachers' attitude	10
Homesickness	36.1
Basic needs (water, food, electricity)	30.5
Hostel environment	27.7
Financial issues	19.4
Issues related to room-mate	10.1
Do you feel stress due to your home environment?	49.1
Do you feel any stress regarding faculty members?	20.4
Do you feel stress due to insomnia?	65.7
Do you feel any stress due to frequent exams/ tests?	85.4
Does stress affect your health?	
Mental health	75.2
Physical Health	51.8
Social Health	31.4
Have you ever used any medicine for your stress management?	
Yes	12
No	88
Are you currently using any medicine for your stress?	
Yes	5.6
No	94.4
Have you ever visited to any therapist (psychologist/psychiatrist) for your stress?	
Yes	8.3
No	91.7

investigated the coping mechanisms among dental students to manage their stress. Our study indicated 86% moderate level of stress while 9% of dental students were suffering from high level of stress. These results are a bit different from a study conducted in Karachi among dental surgeons, which showed that 44.59% dental surgeons were suffering from high level stress while 41.4% were affected from moderate level stress[17]. The results of another research were consistent with our study reported moderate level of stress in the dental students of Syria University[19].

Frequent exams/ tests (85.4%) were the main cause of stress among undergraduate dental students in the present study. These results are consistent to a research conducted by Saipanish presented that the most prevalent cause of stress was the test/examination[20]. All the dental students agreed that stress affected their health. Total 75% students linked stress with mental health issues while 51.8% added that physical health was also affected by stress. Some dental students believed that social life is also disturbed due to stress and depression. These results are consistent with a study done in Malaysia among undergraduate dental students[8].

In the present study, sleeping was the main coping technique to relieve their stress. Other relaxing techniques shared by dental students to manage their stress and anxiety were spiritual practices (34.2%), outing with friends (27.50%) and listening to music (25.90%). Another research done in Karachi also shown mediation/ praying (64.4%) and sleeping (63%) as stress management techniques[21]. A study by Ahmad MS et al presented "Talking to friends" as the top stress reduction method for the students[8]. Another research conducted by Paudel S et al mentioned "Listening to music" the most effective strategy for stress reduction. The other methods for stress reduction like our study were talking to friends, sleeping and watching movies[22].

It is very important to address all the factors associated with stress among undergraduate dental students. Students from one dental college of Islamabad participated in this study so results cannot be generalized to all undergraduate dental students in Islamabad. A multicenter design would be the recommendation for future research.

CONCLUSION

Dentistry is taken as a stressful profession among health careers. Though stress cannot be eradicated among students, but it can be managed through appropriate measures. The results of this research will help the clinical and non-clinical staff and administration to make changes in academic schedule and build a learning environment that would be more constructive for the students. Dental schools should create stress management programs as well as measures to increase psychological support services that would either reduce the stress or improve stress coping skills among students.

AUTHORS' CONTRIBUTION

Naveen Farooq, Fouzia Aslam	Drafting the Article
Naveen Farooq	Analysis and interpretation of data
Naveen Farooq, Izza Rubab, Khadija	Conception and design
Naveen Farooq, Izza Rubab, Khadija, Misbah Maryam	Acquisition of data
Naveen Farooq, Fouzia Aslam	Critical revision

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ORIGINAL ARTICLE

TEMPORAL ANALYSIS OF RESEARCH AWARENESS AND INTEREST: A COMPARATIVE STUDY ACROSS VARIOUS ACADEMIC YEARS AT FOUNDATION UNIVERSITY MEDICAL COLLEGE, ISLAMABAD, PAKISTAN

Nosheen Zaidi[1], Attia Habib Afsar[2], Ayesha Amjad[3], Sawera Allahdad[4], Mahnoor Tariq Awan[5], Muhammad Ali Bin Jabir[6], Abdul Rauf[7], Abdul Rasheed Talha[8], Abdul Rehman[9]

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ABSTRACT

Objective: To compare the awareness and interest of research among different years of MBBS students at Foundation University Medical College, Islamabad, Pakistan.

Study Design: Cross-sectional study.

Place and Duration of Study: Foundation University Medical College (FUMC), 04 months (March-July 2023).

Materials and Methods: Ethical Approval was obtained by the ethical review committee of FUMC. A self-structured, pre-tested questionnaire was used for data collection from 255 students through a random stratified sampling technique. Awareness or knowledge was classified into two groups: good and poor knowledge expressed in percentages while attitude or interest in research was measured on a Likert scale and scores were categorized accordingly. A Chi-square test was applied in order to determine the association of awareness and interest in research among different academic years of MBBS.

Results: Total 255 MBBS students participated in the research, 51 from each academic year. Out of them, 135 were female and 120 were male. The interest of students in research significantly increased with increasing levels of academic year with a maximum number of students interested in research from the final year (78%) followed by second year (73%); (p=0.001). The awareness of students in research significantly improved with increasing levels of academic year with a maximum awareness shown by fourth year students (92%) followed by fifth year (78%); (p=0.001).

Conclusion: More than half of the students had good understanding of research and they displayed a positive attitude towards it. This is a promising finding as it suggests that students were not only knowledgeable about research but also had a positive outlook towards it. However, despite the positive attitude towards research, there may be several factors that prevented many students from conducting research. The majority of the students who participated in research projects were from the fourth and final year of because it was a mandatory part of their academic curriculum.

Key words: *Attitude, Knowledge, Practice, Research.*

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INTRODUCTION

Medical research has always been a crucial and basic component of advancing science, uncovering new knowledge[1,2]. Health-related research is constantly expanding and evolving into a more diverse field of study[3]. Research activity has been integrated as an essential part of the educational programs of medical universities in which it is mandatory for every medical student to carry out one research project throughout their academic years[4,5]. The medical students of under-developed countries have little knowledge and awareness in the field of exploration and analysis[6]. Studies have shown that by introduction of research oriented medical education in undergraduate's curriculum will nurture their research skills, giving them an insight into research methodology and exploration of biomedical research covering every aspect of clinical sciences. This will enhance their evolvement in research at postgraduate level[4,7]. Research means working in a scientific way to search for the truth of any problem. It is a step-by-step process involving; identification of problem, literature review, collection and analysis of the data, and presentation of a scientific solution [8].

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PubMed listed paper analysis showed that America had 68% contribution in global research whereas Europe, Asia and Africa had 19%, 13% and 0% respectively. Multiple investigations were conducted to examine how medical students perceived, approached and took interest in research[6]. Medical students from Ontario, Canada's third and fourth academic years exhibited a noticeable variation in their behaviors and interests regarding research[9]. According to a survey conducted at Gothenburg Medical Science University, Sweden, with response rate of 42%, 16% of students were involved in active research projects and 36% showed interest in conducting research during medical studies[10]. Another study conducted in Canada showed that despite 87% of respondent's involvement in research project to some extent prior to attending college of Medicine, 24% of medical students indicated that they harbored little interest in participating in research activities, and 43% stated they had not been engaged in much of it throughout their curriculum[9]. A study, conducted in Poland, showed significant level of students' interest and attitude toward research and their engagement in investigational projects and intention to continue[3]. Lack of sufficient training, time, and research opportunities were identified to be the perceived hurdles in the way to research for the students[11]. According to a study conducted in Kolkata, West Bengal, India, students had a strong understanding of research need but lacked the knowledge about how and in what manner it is conducted[7]. Students at a Saudi Arabian University showed some strong enthusiasm for research with a higher percentage of females[12]. A study conducted at Ayub medical college, Pakistan showed that although 62.3% of students were aware of the importance of research, the biggest obstacles in doing research were lack of funding and student engagement[6]. Another study conducted at Dow medical college, Karachi, showed approximately 2/3rd of students having good attitude and participation in medical investigation solely because of getting admission into a residency program. The most cited barriers towards research were shortage of time, inadequate supervision and little opportunities and chances offered in medical setups[1]. Medical students believed that research is useful and related to their daily life but at the same time they regarded it stressful and not worthwhile to pursue it as a career[13].

With this context, we evaluated and compared the knowledge and interests of medical students of Foundation University Medical College (FUMC), Islamabad.

CAPSULE SUMMARY

- Awareness and interest of research among different years of MBBS students from one medical college were compared.
- More than half of the students had good understanding of research and displayed a positive attitude towards it.
- Some factors prevented students from conducting research.
- Most of the students participated in research projects because it was a mandatory part of their academic curriculum.

MATERIAL AND METHODS

A quantitative, cross-sectional study was conducted among medical students of FUMC, Islamabad from March to July 2023. Ethical Approval was obtained on 20th March 2023 by the ethical review Committee of Foundation University Medical College (FUMC).

The sample size was calculated to be 255 using Rao Software, with an estimated total population of 750 MBBS students, considering an anticipated frequency of 50%, keeping the margin of error of 5% and the confidence level of 95%.

Sample collection was done, using the stratified random sampling technique and was divided into 5 strata according to academic years of study. Each stratum consisted of 51 participants selected from their respective academic years of the MBBS program. Verbal informed consent was taken for the study. Confidentiality of data was ensured.

All medical students who had more than 60% attendance were included in the study. All medical students who were not willing to participate were excluded.

A thorough literature search was done to develop a questionnaire, incorporating different questions related to the knowledge and interest of students in research. The questionnaire included demographic information (gender and academic year of study) and two sections; section-1 contained multiple choice questions related to knowledge of research and practice while section-2 consisted of questions based on a Likert scale to assess students' interest towards research. After content validity was done by three subject specialists, the questionnaire was pre-tested on a group of students aiming to identify the questions that best aligned with our research objectives. To evaluate the reliability of our questionnaire we conducted an analysis using Cronbach's alpha scale which was 0.80.

Data Analysis: The data was analyzed using SPSS version 21. Frequency & percentages were calculated for the categorical variables including gender, academic year of study, interest and knowledge of students in research. Chi-square test was applied to determine the association of knowledge and interest towards research among students of different academic years.

RESULTS

The total number of participants in the research was 255, (51 from each class). Out of them, 135 (53%) were females and 120 (47%) were males.

Concerning "Interest in Research", in 1st academic year, out of 51 students, 41% were interested in research. In the 2nd year, 73% of students showed their research interest. In the 3rd year, 67% of students were interested in research. In the 4th year, 65% students were interested. Finally, in the 5th year, the research interest among students rose to 78%. Comparative analysis showed that the interest of students in research significantly increased along with increasing academic year with a maximum number of students interested in research from the 5th year followed by the 2nd year; (p=0.001) (Figure 1).

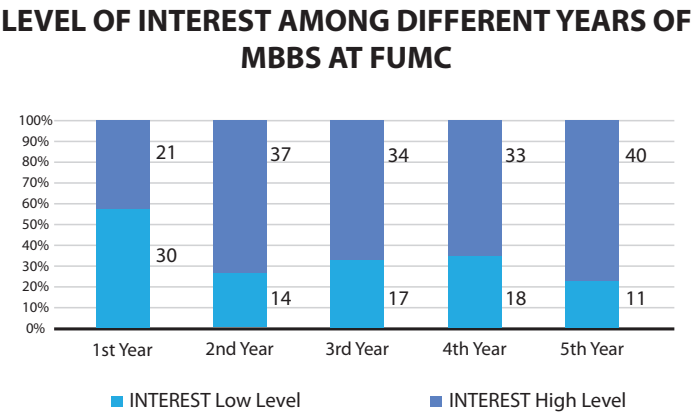

Figure 1: Level of interest in research among different academic years of students of MBBS

Regarding awareness of research, in the 1st academic year of MBBS, out of 51 students, 21% had good awareness. In the 2nd year, 35% had good awareness. Moreover, in the 3rd and 4th years, awareness regarding research rose to 51% and 92% respectively Lastly, in the 5th year, 78% of students had good awareness. Comparative analysis revealed that the awareness of research in students significantly increased along with increasing levels of class with a maximum awareness showed by 4th year students followed by the 5th year. (p=0.001) (Figure 2).

DISCUSSION

Knowledge and attitude are crucial for research[12]. Research training in Pakistan has not yet been sufficiently addressed. This study aimed to assess the comparison of interest and awareness regarding research among the medical students of FUMC, Islamabad.

In our findings the total knowledge score regarding research among medical students was not very satisfactory (52%).This was found comparable to a study conducted at the Agha Khan university, Pakistan, which also did not report a good level of knowledge towards research (49%)[2]. This finding was in contrast to a study in India that showed a good knowledge of the undergraduates regarding research[14].Our research knowledge scores were consistent with the research conducted at the Brookfield school of Medicine, Ireland, in which the students had a lesser understanding of the concept of medical research[5].

Regarding the attitude of the medical students towards research, in our study 25.5% of the students stated that participating in a research activity was only a waste of time. This attitude could relate to another research carried out at the Dow University, Karachi Pakistan, that revealed a mean attitude regarding research score of undergraduate students, better in comparison with the postgraduate ones and that the advancing age & education level had a negative impact on the knowledge & attitude towards research. This was probably due to the workload of further studies decreasing the inspiration and available time thus leading to the belief that research had a little role in their careers[15]. More than half (59.2%) of the students agreed that they would like to participate in research whether it was compulsory for their academic year or not. This result was similar to the result obtained at a medical college in India where majority of the students recognized the significance of research in clinical practice[14]. A high number (86%) of the respondents agreed that every medical student should be having knowledge of the scientific method of research. This

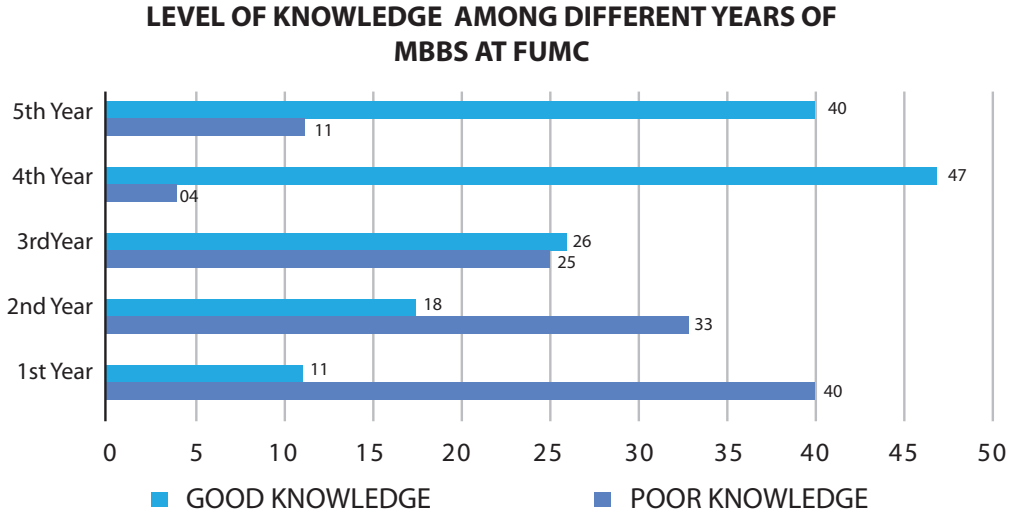

Figure 2: Level of knowledge of research among different academic years of students of MBBS

is in accordance with a study conducted at the Nottingham medical school, UK, which also found that 86% of the students realized that research exposure was very beneficial for medical students[16]. A UK based study revealed that taking up of research opportunities by undergraduates was dissatisfying[17]. Our research findings, however, showed the average attitude score of undergrads to be evidently higher. Encouragingly in our study, out of 255 medical students, good attitude towards medical research has been shown in 69.5% of the students. This result was in consistence with the research carried out in Saudi Arabia where good attitude towards research was shown by 70% of the medical students[12].

A big number (83.9%) of the students of our study agreed that doing research was beneficial for their future career. A similar result was found in another study done in Africa by Nel et al, which showed the significance of research participation acknowledged by 74% of studied subjects, 81.6% of the participants agreed that research training should be offered to all the students in study classes[11]. This was in accordance with one of the suggestions given in the research conducted at a university in Sudan in which it was suggested that there was a requirement to educate the students about the importance of research in Medicine[18]. In our study, interest and awareness level of medical students towards research remarkably increased with the advancing undergraduate academic year. This was in consistence with the study conducted in Croatia in which Vujaklija et al stated that they had recorded an increase in the attitude score towards research as the junior students moved to senior levels[19]. Total 59% of the students stated that they would like to take part in research whether it was compulsory or not. This finding was opposed to the study conducted at a Sudanese university in which the main motive to conduct research was its compulsion in the syllabus which was also comparable with the Saudi study (78.5 %)[20]. Regarding the attitude towards research, our findings indicated that majority had a positive attitude towards research (69.5%), which is consistent with other studies , like by Vodopivec et al. and Khan et al[21,2].

According to our study, with their interest in research in the early classes, awareness of research increased massively in students of the 4th and final academic year. These research results were similar to research conducted at the Ayub Medical College in Pakistan in which it was found that barely any student had a research experience before they took part in a compulsory curriculum research in 4th academic year[6]. Also, this was consistence with the study conducted in Canada in which (43%) of the students had not made any significant research contributions[9].

CONCLUSION

This study aimed to understand the medical student's interest regarding research and their research awareness. A strong direct relationship of interest and awareness in research was observed with ascending academic years of MBBS at FUMC indicating that with advancing academic years the awareness and interest regarding research among the medical students increases.

LIMITATIONS

A smaller sample size of the study could be a limitation. Thus, the results of this study cannot be labelled for all medical students in Pakistan. Self-selection bias could also be a limitation factor because those participants who chose to take part in this study may be more familiar with the concept of research.

RECOMMENDATIONS

Future research needs to involve multiple colleges in order to evaluate the degree of generalizability of our results.

AUTHORS' CONTRIBUTION

Mahnoor Tariq Awan, Sawera Allahdad, Abdul Rehman	Drafting the Article
Muhammad Ali Bin Jabir, Abdul Rauf, Ayesha Amjad, Attia Habib Afsar,Abdul Rasheed Talha	Analysis and interpretation of data
Nosheen Zaidi, Attia Habib Afsar	Conception and design
Nosheen Zaidi, Attia Habib Afsar, Ayesha Amjad, Sawera Allahdad, Mahnoor Tariq Awan, Muhammad Ali Bin Jabir, Abdul Rauf, Abdul Rasheed Talha, Abdul Rehman	Acquisition of data
Nosheen Zaidi	Critical revision

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ORIGINAL ARTICLE

PATTERN OF CLINICAL PRESENTATION AND OUTCOME OF NEUROLOGICAL DISORDERS IN CRITICAL CARE

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ABSTRACT

Objective: Patients with neurological disorders are commonly seen in the intensive care units. There is a need to constantly monitor the pattern of their data in order to optimize their management and improve outcome. The present study targeted to appraise the pattern of neurological disorders and their outcomes in an intensive care unit.

Study Design: Retrospective Cross-sectional study.

Place and Duration of Study: Department of Critical Care Medicine (CCM), Pakistan Institute of Medical Sciences (PIMS), Islamabad. 09 years (2014-2022).

Patients and Methods: A retrospective study was carried out in the Medical Intensive Care Unit (MICU) of PIMS, a tertiary care facility in the federal capital, Islamabad. Data registers were reviewed for retrieving information regarding demographics, clinical presentation and final outcome of patients. Ethical clearance of the study was taken and administrative permission for data usage was granted by departmental head. The categorical variables were measured as frequency & percentage while the continuous numerical data as mean & standard deviation.

Results: The mean age of the patients was 33.0 ± 15.3 years, with male gender in slight majority 178 (53.9%). Guillain-Barre syndrome (GBS) in 66 (20.0%) cases, status epilepticus 57 (17.2%), encephalitis 44 (13.3%), Cerebral venous thrombosis (CVT) 41 (12.4%), tuberculous meningitis 35 (10.6%), and bacterial meningitis 18 (5.4%) were the main diagnoses. There were 92 (27.8%) deaths and 234 (70.9%) recoveries in patients with neurological disorders. Mortality was found on the rise with 34.4% deaths of neurological patients in the Intensive Care Unit (ICU) in 2022, compared with 20.8% in 2014.

Conclusion: GBS, status epilepticus, encephalitis, CVT, tuberculous meningitis and bacterial meningitis were the main neurological conditions. More than one-fourth patients died, most of them were between 20 and 40 years who had comorbid conditions like diabetes and hypertension.

Key words: *ICU*, *Neurological conditions, Outcome, Pattern.*

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INTRODUCTION

Critically ill neurological patients are a significant health issue, challenging the healthcare workers and settings. Overall, neurological disorders constitute around 20% global disease burden, the majority being in the developing world, all require critical management[1]. Neuro-critical care or intensive care for neurological disorders is a specialized field that deals with the management of life-threatening neurological disorders including identification, prevention and treatment of secondary brain injury[2].

Neuro-critical patients may suffer from severe morbidity but still a significant proportion could be saved with timely identification and targeted management. Many patients primarily having infection and respiratory failure also develop a neurological condition, these patients are more prone to mortality. Mortality rate for neurological complications is 55% when compared with 29% in those without these complications. Thus, proving that mortality in neuro-critically ill cases is very high[3,4]. Neurological complications increase both length of hospital stays as well as the chances of death. Prior to admission in the intensive care unit, the clinical examination is very crucial in terms of evaluation of patients with baseline neurological disorders. Thus, these patients need constant monitoring and evaluation in order to understand their progress during

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intensive care therapy. In this regard, the compliance of good clinical practice guidelines becomes crucial[5].

The neuro-critical care has significantly advanced in the recent past, with its primary target being the care of critically ill patients having any of the acute neurological conditions[6]. The neurological cases in the Intensive Care Unit (ICU) fall into two categories: the primary neurological case, admitted from the beginning by a neurologist/internist and secondary, a consultation for any neurological manifestation in a patient already admitted in ICU, under the care of an internist or intensivist[6,7].

There is dearth of data describing the scope of this practice as well as the epidemiological distribution of neurological cases in the Medical Intensive Care Unit (MICU)[8,9]. This study aimed to assess the trends of clinical presentation and outcome of neurological patients in the intensive care units.

CAPSULE SUMMARY

- This study identified the pattern of neurological conditions and their outcome in a medical intensive care unit.
- GBS, status epilepticus, encephalitis, CVT, tuberculous meningitis and bacterial meningitis were the main neurological conditions.
- More than one-fourth of patients died, most mortalities were between 20 and 40 years of age and those having comorbidities.
- There is a linear trend of increase in the mortality of neurological patients in critical care.

PATIENTS AND METHODS

This retrospective analysis of data from the MICU of a public tertiary care hospital i.e. Pakistan Institute of Medical Sciences (PIMS), Islamabad was collected over a span of 9 years from 2014 to 2022. The medical record of patients with neurological complications who had complete data regarding the clinical presentation and outcome was retrieved and analyzed. The ethical review board of PIMS hospital gave approval to conduct the study and data collection. Permission to use the patient record was taken from the head of department.

The eligibility criteria included critically ill patients with any neurological condition, admitted in the medical intensive care unit. Data was collected from admission registers and patients' files which included study requisite information such like age, gender, diagnosis, and final outcome during the hospital stay. The study data was collected on prescribed pro-forma designed for this study. The patients with incomplete medical record and those with non-neurological presentations were excluded from the study. Similarly, the critical cases referred from the external health facilities, who died during transportation or died on just entering the MICU on the same day, were also excluded.

The primary outcome of the study was assessed as neurological clinical presentation and the final outcome in terms of death or recovery ("complete recovery" means closure of tracheostomy and improvement in neuromuscular weakness; "partial recovery" means the patient shifted to the ward with tracheostomy and partial improvement in neuromuscular weakness). The neurological clinical presentation was labeled as an "identified diagnosis" if the neurological diagnosis was established and as a "non-specific neurological condition" if there was neuromuscular weakness without an established neurological diagnosis. The patients having respiratory failure were labeled as having "respiratory failure" Type-I or Type-II and as "impending ventilatory failure" if the failure type was not established. The data was gathered by a single physician so that continuity and quality could be maintained and selection bias be rectified.

Data Analysis: The categorical variables like gender, cause of admission, diagnosis and outcome were calculated as frequency, and percentages while the continuous numerical ones like age were measured as mean and standard deviation. The outcome was analyzed according to age and gender of the patients using Chi square test. A p-value of <0.05 was considered statistically significant.

RESULTS

Total 330 patients presented with neurological disorders to the MICU during the study period. The ages of patients were between 12-83 years with mean age 33.0 ± 15.3 years. Close to three-forth study patients were younger than 40 years. There were 84 (25.5%) of up to 20 years age, 102 (30.9%) between 21 and 30 years while 53 (16.1%) were between 31 to 40 years. Male gender was a bit predominant with 178 (53.9%) cases. When the pattern of neurological patients presenting to the MICU every year was assessed, it was witnessed that of the total 330 cases, 53 (16.1%) presented in 2014, 44 (13.3%) in 2015, 53 (16.1%) in 2016, and 42 (12.7%) in 2017. While in 2018 total 26 (7.8%), in 2019 total 27 (7.6%), and in 2021 total 16 (4.8%) neurological cases presented to the MICU. This linear trend of neurological presentation was significantly variable between years. (Table 1)

The cause of admission in majority of study cases, 124 (37.5%), was non-specific neurological condition, and poor Glasgow Coma Scale (GCS), 80 (24.2%), as well as impending ventilatory failure, 54 (16.3%). Other frequent causes were neurological emergency, 47 (14.2%), and respiratory failure in 17 (5.1%). (Figure 1)

The primary diagnosis of these patients in the intensive care unit was found out to be: Guillain-Barre syndrome (GBS) in 66 (20.0%) cases, status epilepticus 57 (17.2%), encephalitis (viral and bacterial) 44 (13.3%), cerebral venous thrombosis/arrest 41 (12.4%), tuberculous meningo-encephalitis 35 (10.6%), pyogenic bacterial meningitis 18 (5.4%), meningo-encephalitis

of non-established cause 11 (3.3%), non-thymoma AchR-Ab positive 18 (5.4%), and intracranial bleed 8 (2.4%). The common comorbidities noted were diabetes mellitus in 65 (19.7%) cases, hypertension 78 (23.6%) and Chronic Kidney Disease (CKD) 17 (5.1%). The patients with No-Known-Co-Morbid were 156 (47.3%). (Table 2)

During the study, the final outcomes were: 92 (27.8%) deaths and 234 (70.9%) complete or partial recoveries. Moreover, 4 (1.2%) patients left against medical advice. When the breakdown was checked year wise, a significant trend of increase in deaths was noted. There were 20.8% expiries in the year 2014 while the remaining cases had recovered. Similarly, 27.3% expired in 2015, 20.8% in 2016, and 25.0% in 2017. The death rate of patients rose to 46.2% in 2018, while one-third (33.3%) died in 2019. The trend of upward increase in mortality in the neurological patients continued and in the year 2020, there were 31.4% deaths, another 31.3% died in the year 2021 while in 2022, 34.4% neurological patients died in the ICU. A significant linear trend of increase in the mortality rates was witnessed between 2014 and 2022 (p-value, 0.007). (Figure 2 and Figure 3)

Furthermore, in the detailed analysis, the outcome of patients was assessed according to gender and age distribution. There was recovery in 70 (29.9%) patients aged up to 20 years while 14 (15.2%) died in this age category. The greater proportion of patients was seen between 21 to 30 years, of these 63 (26.9%) recovered while 37 (40.2%) died and this difference was observed statistically significant (p-value, 0.006). Significantly more patients died between 31 to 40 years of age (18.5% vs 15.4%) and those above 61 years (10.9% vs 4.3%) than those who recovered. There was slightly greater mortality observed in the males than females (52.2% vs 47.8%) while the recovery was also witnessed more in males than females (54.3% vs 45.7%). However, despite these proportionate variations, the difference was found out to be non-significant (p-value 0.65). (Table 3)

Table 1: Baseline characteristics (n=330)

Characteristics	No. of cases	%age
Age (Yrs)		
Mean ± SD	33.0 ± 15.3	
Range (min – max)	12 – 83	
Age categories (Yrs)		
Up to 20	84	25.5
21 to 30	102	30.9
31 to 40	53	16.1
41 to 50	43	13.0
51 to 60	27	8.2
61 or above	21	6.4
Gender		
Male	178	53.9
Female	152	46.1
Year wise distribution		
2014	53	16.1
2015	44	13.3
2016	53	16.1
2017	42	12.7
2018	26	7.9
2019	27	8.1
2020	37	11.2
2021	16	4.8
2022	32	9.6

Table 2: Clinical Manifestations (n=330)

Manifestations	No of cases	%age
Final diagnosis		
Guillain-Barre Syndrome	66	20.0
Status Epilepticus	57	17.2
Encephalitis	44	13.3
Cerebral Venous Thrombosis/Arrest	41	12.4
Tuberculous Meningitis (TBM)	35	10.6
Bacterial Meningitis	18	5.4
MG-Non Thymoma- AchR A+	18	5.4
Intracranial Haemorrhage/stroke	10	3.0
CIDP	6	1.8
Transverse Myelitis LETM	4	1.2
Hypokalemia	4	1.2
Severe Sepsis	4	1.2
ADEM	4	1.2
PRES/Eclampsia	3	0.9
Subarachanoid Hemorrhage	3	0.9
Brain abscess + glioma + mucormycosis	4	1.2
Disseminated TB	2	0.6
TTP	2	0.6
Meningioencephalitis	2	0.6
Others	3	0.9
Co-morbidities		
No Known Co-Morbids	156	47.3
Diabetes Mellitus	65	19.7
Hypertension	78	23.6
Chronic Kidney Disease	17	5.1
Psychiatric Illness	5	1.5
Rheumatoid Arthritis	4	1.2
HIV	2	0.6
Others (Covid, Kochs)	3	0.9

Table 3: Distribution of the outcome according to gender and age (n=330)

	Outcome			Total n=330(%)	p-value
	Recovered/alive n=234(%)	Expired n=92(%)	LAMA n=4(%)		
Age (years)					
Up to 20	70 (29.9)	14 (15.2)	0 (0.0)	84 (25.5)	0.006
21 to 30	63 (26.9)	37 (40.2)	2 (50.0)	102 (30.9)	
31 to 40	36 (15.4)	17 (18.5)	0 (0.0)	53 (16.1)	
41 to 50	32 (13.7)	11 (12.0)	0 (0.0)	43 (13.0)	
51 to 60	23 (9.8)	3 (3.3)	1 (25.0)	27 (8.2)	
61 or above	10 (4.3)	10 (10.9)	1 (25.0)	21 (6.4)	
Gender					
Female	107 (45.7)	44 (47.8)	1 (25.0)	152 (46.1)	0.65
Male	127 (54.3)	48 (52.2)	3 (75.0)	178 (53.9)	

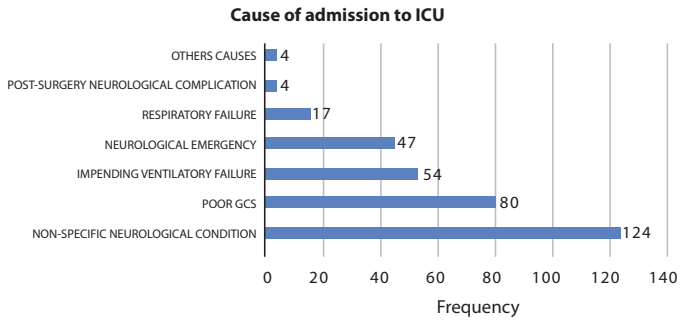

Figure 1: Distribution of causes of admission to ICU (n=330)

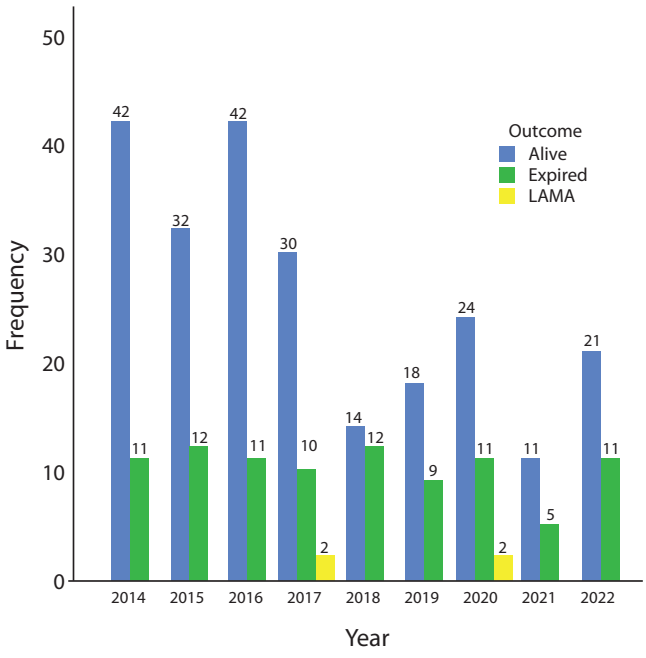

Figure 2: Outcome of patients (n=330)

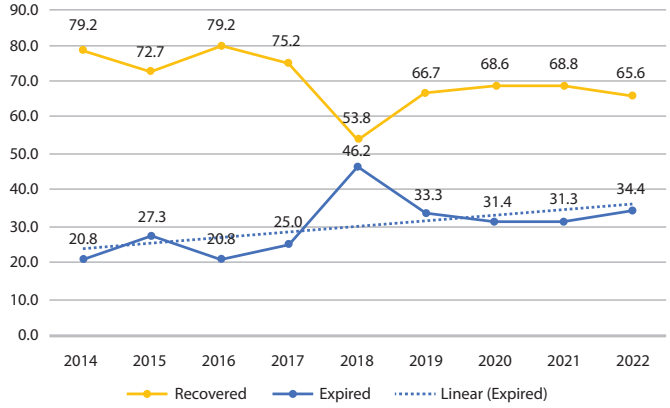

Figure 3: Trend of mortality of neurological patients (n=330)

DISCUSSION

This study found that neurological presentation in ICU varied year wise. During the Corona virus pandemic, less cases of other ailments were admitted in the intensive care. As witnessed in this study, mortality due to neuro-critical conditions had risen over the years in the MICU of PIMS between 2014 and 2022. There is a linear trend of increase in deaths which needs to be checked and targeted to minimize.

In this study, the most frequent causes of admission to MICU were non-specific neurological deficit, poor GCS, impending ventilatory failure, respiratory failure and coma/ neurological emergency. The most common clinical diagnoses were GBS and status epileptics followed by CVT, Tuberculous Meningitis (TBM) and bacterial meningitis. A previous study by Kiphuth et al. reported 60% of their patients suffering from stroke (Ischemic & Intracranial Hemorrhage, ICH),

other diagnoses were subarachnoid hemorrhage, epileptic seizures, meningoencephalitis, GBS and myasthenia gravis[10]. Comparatively, in the current study around 4.0% cases had stroke and intracranial or subarachnoid hemorrhage which was very low when compared with Kiphuth et al's findings. However, the lower number of stroke patients in our study is due to the allocation of 20 beds for stroke in the 60-bedded neurology ward and admission of surgical cases of stroke in the surgical ICU. Another study from India witnessed stroke and epilepsy as the main complications of neurological presentation[11]. Some studies from European region have witnessed epilepsy as the main indication followed by stroke[12,13]. Liu F and colleagues witnessed Myasthenic crisis (MC) followed by respiratory infections as the main cause of ICU admission as well as a combination of infections and hypokalemia[14].

In the current study the most common comorbidities noted were diabetes mellitus and hypertension as well as CKD, Choudhry RN et al also reported a similar trend of comorbidities diabetes, hypertension, ischemic heart diseases and respiratory infections. They noted that comorbidities are prone to mortality[15]. Liu F noted the patients with comorbidities more likely to die of neurological conditions[14]. Similarly, in our study, comorbidities (diabetes, hypertension and CKD) were significantly associated with death.

In the current study, there were more than one-fourth deaths while about three-fourth patients recovered. There were also few cases who left against medical advice. The trend of mortality was also on the rise in this study, noted as 20.8% in 2014 and climbing up to 34.4% in 2022. Comparatively variable rates of mortality have been reported according to developed and under developed status of the countries. From China, Liu F et al witnessed mortality in 18.6% of their neurological cases admitted to ICU[14]. In their study most of the non-surviving group was older or very old patients, this is contrast with the current study as along with a significant number of older patients (61 years or above), the majority of deaths in this study took place in patients between 20 and 40 years. However, no variation was witnessed according to gender in the present study. Ali KM reported a similar trend of mortality with 22.2% deaths in their neurological patients. They witnessed stroke, encephalitis, status epilepticus, GBS and MG as main causes of death[16]. Comparatively, in our study too status epilepticus, encephalitis, GBS, MG along with bacterial meningitis were main reasons of death. In the developed world, the death rate in ICU due to neurological issues has been noted to be ranging from 5 to 10%[12,13]. Other investigators have witnessed a very high mortality in neuro-critical patients (up to 50 to 55.0%)[7,17]. The facilities and practices vary according to developing and developed status of countries, so the difference in death rates might be due to poor nutrition, lack of budgetary allocation for health and availability of merely basic facilities in the intensive care units.

The patients with neurological deficits must be identified early and given proper treatment in time. Alongside proper compliance of TORs for the intensive care units and through avoidance of unnecessary pressures, the condition and outcome of critical care patients can be improved[18,19].

Our study has many advantages, like a significant number of intensive care patient record was selected over a long period of 09 years, which made it possible to understand the pattern of serious neurological conditions and the final outcome. Some limitations of the study include the retrospective design with its built-in biases and missing data.

In brief, considering the importance of the topic, with the suffering and the poor outcome of neurological conditions, it may be argued that avoidable conditions like meningitis could be averted. There is a need to put special focus on the increasing trend of mortality in the ICU and avoid chances of any contamination and hospital acquired infections.

CONCLUSION

This study showed that GBS, status epilepticus, encephalitis (viral and bacterial), CVT, tuberculous meningo-encephalitis and pyogenic bacterial meningitis to be the main neurological conditions. More than one-fourth of the patients died in this study, while most of the mortalities were noted between 20 and 40 years and those having comorbidities like diabetes and hypertension. There was a linear trend of increase in the mortality of neurological patients in the critical care. The data from critical units is crucial and there is a need to constantly monitor it. Further large-scale prospective trials, using meticulous scientific methods, are required to evaluate more impactful scientific evidence on this topic with a focus on partial or complete recovery along with the mortality data.

AUTHORS' CONTRIBUTION

S. Mujahid Gilani, Fazal e Rabbi	Drafting the Article
S. Muneeb Ali, Taha M.U Pasha	Analysis and interpretation of data
M. Iqbal Memon	Conception and design
S. Usama Iqbal, Aneeqa Butt	Acquisition of data
Salman S. Koul	Critical revision

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ORIGINAL ARTICLE

STUDENTS' PERCEPTION ON INTEGRATED TEACHING AT A PRIVATE DENTAL COLLEGE, PAKISTAN

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ABSTRACT

Background: Pakistan Medical and Dental Council (PM&DC) recommends integrated teaching, which enhances students' knowledge, skills and attitude, links the concepts of basic and clinical disciplines and ensures early exposure to patients to be introduced in undergraduate medical/dental education.

Objective: The current study is undertaken to identify students' perception regarding integrated teaching at a private dental college in Pakistan.

Study Design: Descriptive, Cross-sectional study.

Place and Duration of Study: HBS Dental College, 04 months (March-July 2023).

Material and Methods: All students (n=150) of the second, third and final year BDS were enrolled in the study. The response rate was 87%. A pre-validated, three-point Likert scale questionnaire was used to gather students' feedback.

Results: Total 130 undergraduate dental students participated in the study. The majority of the students gave a positive response towards the course content, teaching & learning and assessment methods in the integrated teaching. Approximately half of the students (50.7%) responded that learning resources were adequate and timetables were properly sequenced and well structured. The majority of students positively perceived that integrated teaching improves their application of knowledge (80.7%), logical thinking (77.7%), active interaction (84%), and motivation (73.8%). Besides this, most of the students also considered this method of teaching time-consuming and resource-demanding.

Conclusion: Dental students appreciated and preferred integrated teaching over traditional teaching. It is high time to incorporate integrated teaching throughout the undergraduate dental program. At a local level, this feedback and strategy can be utilized to provide an improved integrated educational experience to the students of HBS Medical & Dental College.

Key words: *Dental curriculum, Integrated teaching, Students' perception, Undergraduate dental education.*

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INTRODUCTION

In any educational system, the teaching methodology serves as a framework that specifies the objectives, standards, and strategies, for not just promoting education but also for cultural reproduction. The integrated method of teaching has been implemented across the world[1]. In 1952 it was introduced for the first time in Cleveland, United States[2]. The General Medical Council (GMC) of the United Kingdom has also adopted integrated methods of teaching for their medical institutions. This concept prompted the Pakistan Medical and Dental Council (PM&DC) to adopt an integrated teaching in Pakistan[3]. Few local studies were carried out regarding the perception of students on integrated teaching, as a result of which some suggestions evolved for further improvement[4]. PM&DC and the Higher Education Commission (HEC) now recommend interactive teaching to be adopted in undergraduate medical/dental education that will integrate the ideas of basic and clinical sciences and ensure early patient experience. This has sent a wave of curricular reforms throughout the country[5].

Integrated curriculum has a horizontal integration in which there is integration of disciplines that are taught concurrently but independently at a certain level (academic year). In order to simplify the material and facilitate assessment, these disciplines are combined into one interdisciplinary block, giving students plenty of time for self-study[6]. Combination of the clinical and basic sciences components of a curriculum is the vertical integration. Beginning with the first year of medical school, vertically integrated courses introduce basic sciences embedded in a clinical setting[7]. A coordinated blend of the instructional strategies and the best materials from several areas are used in integrated teaching to help students learn more effectively and holistically. The human body is the best illustration of integration because it has numerous interconnected systems that operate in perfect harmony with one another that can be best taught by using different teaching methodologies. In order to achieve the required criteria, PM&DC has set standards for

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integrated teaching methodology, design and management of the curriculum[8].

As with any program, feedback from the end users goes a long way for improvement. The aim of the study was to find out how students perceived integrated teaching in a private dental college.

MATERIAL & METHODS

This descriptive, cross-sectional study was conducted in HBS Dental College Islamabad from March to July 2023. Ethical approval for the study was given by the Research Ethics Committee of HBS Medical and Dental College. A non-probability purposive sampling[9] was used because targeted population was small and we wanted to gather specific data and this was an efficient and cost-effective method with limited resources.

All students (n=150) of the second, third and final year BDS were enrolled in the study. An informed consent was obtained from each participant. All these students were briefed on integrated teaching before distributing the questionnaire. The questionnaire containing 11 items, consistent with previous studies, was developed[9,10]. A three-point Likert scale (1=Agree, 2= Neutral, 3= Disagree) was used to explore student's perception. It was developed by two experts from the department of medical education HBS Medical and Dental College. Content Validity Index (CVI) for these 11 items was 0.82 with Content Reliability index (CRI)=0.88 and reliability was verified using Cronbach's alpha score which was 0.80. Permission to use the questionnaire was granted by the institutional head. The questionnaire was pretested to identify ambiguities if any. The questions were framed, keeping in mind the utility of the integration, understanding, appreciation and application of knowledge. The questionnaire contained course content, time management, teaching and learning methods along with evaluation methods. They were also asked about the perception on integrated teaching which was marked as positive and negative. Items were marked positive if found "Agree" and negative if marked as "Disagree". The participants of the study were given a timeline to complete the questionnaire. After completion of the timeline, questionnaires were gathered and data was compiled. **Data Analysis:** The descriptive data in the form of frequency distribution and percentages were analyzed using SPSS 22.

CAPSULE SUMMARY

- The study was undertaken to identify students' perception regarding integrated teaching at a private dental college in Pakistan.
- Majority of the students appreciated and preferred integrated teaching over traditional teaching.
- Integrated teaching should be incorporated throughout the undergraduate dental program.

RESULTS

Out of total 150 undergraduate dental students, the response rate was 130(87%), with an age range of participants from 19-22 years. The majority of participants were females (63.9%) with almost equal participation from the second, third and final year (Table 1).

Table:1 Demographic data of the participants (n=130)

AGE	YEARS
Mean± SD	20.18 ± 1.24 years
GENDER	n(%)
Male Female	47 (36.1) 83 (63.9)
ACADEMIC YEAR	n(%)
Second Third Final	46 (35.4) 39 (30) 45 (34.6)

The majority of the students gave positive responses towards integrated teaching. Almost 67% of participants found that the course was clear, 57.7% considered it manageable, 65.4% found it well-structured and 63.8% considered it well-balanced between theory and practical. Most of the students (73.1% and 70%) found that teaching and learning methods increased their interest and participation in learning respectively. Approximately half of the students responded that learning resources were adequate and timetables were properly sequenced and well structured. Regarding the assessment methods and their frequency & structure, majority of participants, 63.1%, 69.2% and 67% found them appropriate respectively (Table 2).

The majority of students positively perceived that integrated teaching improved their application of knowledge, logical thinking, active interaction, and motivation. Besides this, most of the students (77.7% and 75% respectively) considered this method of teaching, time-consuming and resource-demanding (Table 3).

DISCUSSION

The primary goal of implementing new integrated teaching-learning techniques is to address the shortcomings of the current dental curriculum in addition to imparting knowledge in a way that is simple for students to understand.

The results of this study showed that students valued the integrated approach to teaching and learning and thought it was great for knowledge, application, understanding, critical thinking, boosted confidence, and clear concepts. Other studies reported results similar to ours[3].

The majority of students found the course objectives clear

Table:2 Response of Students (Frequency & Percentage) regarding integrated method of Teaching

Items	Agree n(%)	Neutral n(%)	Disagree n(%)
The course objectives were clear	96 (67)	27 (20.7)	16 (12.3)
The course workload was manageable	75 (57.7)	35 (26.9)	20 (15.38)
The course was well structured to achieve the learning outcomes	85 (65.4)	25 (19.2)	20 (15.4)
The course provided appropriate balance between theory and practical	83 (63.8)	26 (20)	21 (16.2)
The teaching & learning method stimulated my interest in the subject	95 (73.1)	18 (13.8)	17 (13.1)
The teaching & learning resources were adequate	66 (50.7)	45 (34.6)	19 (14.7)
The teaching methods actively encouraged my participation and interest in the Lecture/SGD/PBL/Practical/Clinical Rotation?	91 (70)	17 (13.1)	22 (16.9)
The timetables were properly sequenced?	66 (50.7)	35 (27)	29 (22.3)
An appropriate time was assigned for the subjects offered	65 (50)	40 (30.8)	25 (19.2)
The assessment methods were appropriate to test my knowledge, aptitude & skills	82 (63.1)	29 (22.3)	19 (14.6)
The frequency of tests was appropriate	90 (69.2)	15 (11.5)	25 (19.3)
The test items properly reflected learning objectives and contents	87 (67)	27 (20.8)	16 (12.2)

Table: 3 Response Pertaining to the Positive & Negative Perception towards Integrated Teaching

	Items	Agree n(%)	Disagree n(%)
Positive Perception			
1.	It improves application of knowledge	105 (80.7)	25 (19.3)
2.	It improves logical thinking	101 (77.7)	29 (22.3)
3.	There is an active interaction and participation by all	109 (84)	21 (16)
4.	It motivates student to study	96 (73.8)	34 (26.2)
5.	It helps students to examine situations or problems holistically	98 (76)	32 (24)
6.	It reduces content duplication across subjects	92 (70.8)	38 (29.2)
7.	It is interesting	69 (53)	61 (47)
8.	It only helps small groups	34 (26.2)	96 (73.8)
Negative Perception			
9.	It is time consuming	101 (77.7)	29 (22.3)
10.	It requires more resources	97 (75)	33 (25)

Table: 4 Teaching methods to be Adopted in Integrated Teaching

	Items	Preferred n(%)	Not preferred n(%)
1.	Use of blackboard (Traditional Method)	55 (42.3)	75 (57.7)
2	Interactive sessions	101 (78)	29 (22)
3.	Group discussions	104 (80)	26 (20)
4.	Demonstrations	96 (74)	34 (26)
5.	Problem based learning	90 (69.2)	40 (37.8)
6.	Lectures	67 (51.5)	63 (48.5)
7.	Self-directed learning	98 (75.4)	32 (24.6)
8.	Workshops/symposia	92 (70.8)	38 (29.2)
9.	Hands-on/practical/Skill lab teaching	107 (82.3)	23 (17.7)

in integrated teaching than traditional teaching. This is a positive indication as learning objectives provide students with a roadmap for their academic journey and help students understand the purpose and direction of their studies, fostering a more focused and purposeful learning experience. The positive perception suggests that the integrated teaching approach effectively communicates the educational goals. Whereas, traditional teaching mainly focuses on handouts, books & notes and learning objectives are not well defined[10].

Students' opinions on the manageability of the course workload varied. While a substantial portion found it manageable, a significant number were neutral. Other studies have shown that students are dissatisfied with the burden of coursework in particular, as well as with the provision of essential amenities and services[11,12].

The students appreciated that incorporating the medical/dental topics was beneficial and interesting to them, and that improved the learning outcomes. Similar findings were recorded in other studies[8,13].

The majority agreed that there was an appropriate balance between theory and practical components in the course. This is a crucial aspect in medical and dental education, ensuring that students not only acquire theoretical knowledge but also develop practical skills. Students appreciated that integrated teaching helped them in application of knowledge and skills which they learned during practical/pre-clinical teaching. A study conducted in 2018 suggested valuing prior knowledge and experience, promoting learner responsibility through facilitating rather than directing learning, encouraging learners to test out and apply new knowledge, and using small-group work, in order to foster the elusive skills of critical thinking and reflection[14]. The balance of clinical and basic medical sciences and their integration in a manner that best serves the medical student are sure to be the focus of expected innovations in medical education which is a dynamic process requiring ongoing improvement[15]. In integrated teaching & learning method, small group discussion (SGD) is utilized to support the application of knowledge & reinforce learning. Numerous activities including problem-solving, critical thinking, self-directed learning, and brainstorming can be included in small group conversations. A significant majority of this study's participants agrees that these teaching and learning methods stimulate their interest in the subject. This is a favorable outcome, as the engaged students are more likely to be motivated, participate actively, and retain information effectively. Other studies have shown that SGD is a more successful teaching method for increasing students' memory, comprehension of concepts, and attention span[16,17].

Most of the students in this study believed that the teaching and learning resources were adequate. This indicates a positive perception but a portion of students remained neutral and some disagreed as well which suggests room for improvement. Adequate resources are fundamental to creating a conducive learning environment and for the effectiveness of the integrated program's implementation. The administration must arrange and provide well-equipped teaching and learning spaces and educational material[18,19].

Students perceived that the teaching methods like SGD, Problem base learning (PBL), Self-directed learning (SDL) actively encouraged their participation in various instructional formats. This is essential for promoting active engagement and collaborative learning. These methods encourage learning by getting students involved and connecting concepts to actual circumstances. They enhance clinical reasoning, competency, and logical thinking[20]. Another study suggested fostering creativity and innovation in teaching and learning enhances students' critical thinking abilities and fortifies their professional competence by bringing up competency, leadership, and development of skills[21].

Students also agreed that timetables were properly sequenced. Whereas, time allocation was concerned, participants had mixed opinion on whether an appropriate time was assigned for the subjects. According to one study, the short amount of time allocated to study in integrated teaching was among the issues encountered during its implementation[22].

The students believed that the assessment methods were appropriate for testing knowledge, aptitude, and skills. It entailed collaborating across disciplines to produce a single paper for both block exams and end-of-module exam. The paper's questions came from the full course that was covered in that particular module. A significant majority also agreed that the frequency of tests was appropriate.

Positive Perception: Results showed that students appreciated integrated teaching in terms of application of knowledge with a substantial agreement on the integrated teaching improving logical thinking, a foundational skill in medical and dental professions. Similar finding was recorded in another study[23]. Students perceived that active interaction and participation in integrated teaching fostered a dynamic learning environment and motivated them. It helped students examine situations or problems holistically, aligned with the integrated approach's core philosophy. The participants perceived that integrated teaching reduced content duplication and considered it interesting. More or less similar findings have been reported previously[24,25]. Their response on integrated teaching, being interesting, is noteworthy. The majority agreed that integrated teaching is not only suitable for small groups but they thought that in large groups also the benefits of the integrated approach were more pronounced in class settings.

Negative Perception: Students perceived that integrated teaching was time-consuming that warranted attention. It is crucial to understand the specific factors contributing to this perception, whether it is the volume of content, the structure of classes, or other elements. The participants also highlighted that integrated teaching required more resources, similar observations were reported previously in some studies as well[9,26].

Students in this study mentioned that they preferred interactive sessions, group discussions followed by demonstrations, to be problem-based. They also preferred self-directed learning, workshops, seminars, symposia, hands on training & practicals over the lectures/presentations and the use of blackboard (traditional method).

CONCLUSION

Dental students appreciated and preferred integrated teaching over the traditional teaching. It is high time to incorporate integrated teaching throughout the undergraduate dental program. There are some obstacles in the way of the integrated teaching to be successful in terms of implementation such as; limitation of resources and trained staff, but in our opinion, this is the best approach to produce the kind of dentists that society will require in the future.

LIMITATION

This study was conducted at one dental institution. Studies may be carried out at various dental colleges across different cities in Pakistan. It could be helpful to examine students' confidence and skills as they go through their academic careers.

RECOMMENDATION

Additional multicentered, qualitative research is recommended, involving the nearby medical institutions and assessing the integrated curriculum's long-term effects on knowledge retention.

AUTHORS' CONTRIBUTION

Sarah Ali	Drafting the Article
Sarah Ali, Fouzia Sultana, Naveed Mazhar Bhatti	Analysis and interpretation of data
Sarah Ali	Conception and design
Sarah Ali, Naveed Mazhar Bhatti	Acquisition of data
Sarah Ali, Naveed Mazhar Bhatti	Critical revision

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CASE REPORT

A MYSTICAL CASE OF DERMOID CYST IN PAROTID GLAND: A CASE REPORT

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ABSTRACT

Dermoid cysts (DC) are benign tumors that rarely occur in the parotid gland and are composed of ectodermal and mesodermal cells. Fewer cases of dermoid cysts occurring in the parotid gland have been reported so far. We report here a case of a patient who presented with slow growing tumor on the right side of his face for the past 4 years. He underwent a superficial parotidectomy with intact facial nerve post operatively. Histopathological examination of the resected tumor specimen revealed a DC.

Keywords: *Dermoid, Facial nerve, Parotid, Parotidectomy.*

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INTRODUCTION

Dermoid cysts (DC) are rare, slow-growing benign tumors that can occur anywhere in the body[1]. Less than 7% of these cysts involve head & neck region, with only 1.6% occurring in the oral cavity. They usually appear as a midline mass in the neck and rarely present in the lateral region. Very few cases of DC involving parotid gland have been reported till date[1,2]. These cysts are either congenital that arise from a rest of embryonic epithelium or acquired as a result of traumatic implanted skin in the deeper layers[2].

Incidence of DC in parotid gland is rare. About 80% occur in the orbit, floor of the mouth (FOM) and nose, FOM being the second most common region in head & neck after the lateral eyebrow[3]. Greater than 50% of cases in head & neck are detected before 6 years of age with one-third presenting at birth[1,2].

Histologically, DC is composed of tissues arising from ectoderm and mesoderm. These cysts are lined by stratified squamous epithelium containing variable number of dermal appendages such as hair follicles, hair shafts, sebaceous and sweat glands that are supported by a fibrous connective tissue wall[2,3].

Clinically these cysts are usually asymptomatic unless they grow large enough to result in cosmetic or functional defects[2]. Malignant transformation of DC is extremely rare (5%), which has been previously determined in the head & neck, ovarian, intracranial and lumbar sites[3,4].

CAPSULE SUMMARY

- Dermoid Cyst, a rare occurring in the parotid gland, is reported here.
- Histopathology gave the clear diagnosis.
- Superficial Parotidectomy, ensuring the protection of facial nerve, was done.

In this case report, we present a rare case of DC arising in the parotid gland along with its management. Consent was taken and patient is unidentifiable in the pictures.

CASE REPORT

A 39-year-old male presented to our department with a gradually enlarging, painless swelling in his right parotid gland for the last 04 years. He was medically fit and had no history of trauma, smoking or surgery. On examination there was a firm, non-tender, non-fluctuant, non-pulsatile, 3.5x2.5cm swelling that was adherent to the overlying and underlying structures (Figure 1). Facial nerve was intact. Ultrasound-guided Fine Needle Aspiration Biopsy (FNAB) was done, that was inconclusive. No other radiographic investigations were done. After pre-anaesthesia work-up, a superficial parotidectomy, with modified Blair's incision, was carried out under general anaesthesia. The lesion was exposed. It had a well-defined, thin capsule. During dissection, this capsule got ruptured and dirty cheesy material started to pool in the surgical field. Branches of the Facial nerve were identified, monitored and secured (Figure 2). Encapsulated mass was

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Figure 1: Swelling on the right side of the face.

Figure 2: Branches of the Facial nerve.

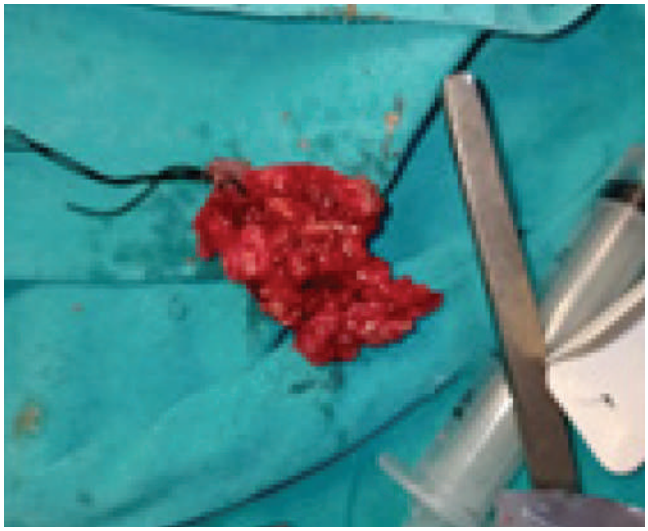

Figure 3: Excised Dermoid cyst.

Figure 4: Post-operative follow-up.

released from surrounding parotid region, it was excised (Figure 3) and sent for histopathology. Layered closure was done. A drain was placed for 24 hrs. Facial nerve examination was done, the nerve was concluded to be functional post-operatively. Mild pain was relieved with analgesics. Patient was regularly followed up. (Figure 4)

DISUCSSION

DCs are benign lesions that can affect any part of the body with availability of skin nearby. These cysts contain cells of ectodermal and mesodermal origin which become entrapped in the deeper layers of tissues during embryonic, fetal or postnatal life[1,2,3].

In the parotid gland DCs are believed to develop as a result of either entrapment of cells during the closure of embryonic branchial arches, or due to impaction of ectodermal and dermal cells into the deeper tissue layers[4,5]. When such cysts develop fully, they contain squamous cells with keratin and dermal subunits such as hair follicles, sebaceous cells or sweat glands. Approximately 1-5% of all the lesions presenting in the parotid are cystic, however DCs are comparatively rare in this location, only a handful of cases have been published so far. To best of our knowledge, total 20 DC in the 18 prior case reports have been published in the literature till date[5].

Most common complaint is a slowly growing, painless mass. On palpation it is usually fluctuant or non-fluctuant, mobile, non-tender mass[1,2,5,6].

To diagnose, several investigative tools can be utilized. Ultrasound is the most widely available, cheap, and non-invasive method and is mainly used to differentiate solid from cystic lesions and to evaluate the presence of blood vessels[5,6,7]. Differential diagnosis includes pleomorphic adenoma, lipoma, mucous retention cyst, lymphoepithelial cyst, branchial cleft cyst, suppurative infection, fibroma or neurofibroma and obstructed parotid duct[7,8,9].

Both Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) provide information regarding the morphology of the mass, along with its relation to the surrounding tissues. On CT-scan, the mass usually appears to be cystic, containing hypodense center inside the parenchyma of the parotid gland. On MRI, diagnosis of lipoma can be excluded due to the absence of fat in the mass. FNAB is another effective diagnostic method. All these diagnostic tools aid in the differential diagnosis of the cystic lesions preoperatively[3,6,9]. In our case, FNAB was inconclusive. Definitive diagnosis should always be made by histopathological examination of the resected specimen[2,3,10].

Surgical removal of the mass by partial or total parotidectomy, with complete resection of the cyst, securing facial nerve branches, is recommended[1,2,3,10]. Incomplete resection leads to recurrence. In our case the patient was treated with superficial parotidectomy with intact facial nerve[10].

CONCLUSION

DCs are benign lesions that rarely occur in the parotid gland. Histopathology gives the clear diagnosis. During parotidectomy facial nerve should be protected where possible.

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DIAGNOSTIC CHALLENGE

Check the correct answer on page 75

Case 1

Figure 1a

Figure 1b

An otherwise healthy, 8-week-old baby girl was seen for a rash, that presented as redness and ulcerations in the diaper area. Over-the-counter creams, Bacitracin, Nystatin, Hydrocortisone, Zinc Oxide, and Benzalkonium Chloride had been used by the parents but were ineffective. Examination revealed symmetrical, well-demarcated erythematous macular diaper rash on which multiple, well demarcated ulcers with central granulation and raised borders were present, both anteriorly (Figure-1a) and posteriorly in the perianal area (Figure-1b). There was no rash on any other part of the body.

1. What is your diagnosis of this case?
2. What other important things you will consider in differential diagnosis?

Case 2

Courtesy Dr. Moizza Tahir
Combined Military Hospital, Rawalpindi

Figure 1

Figure 2

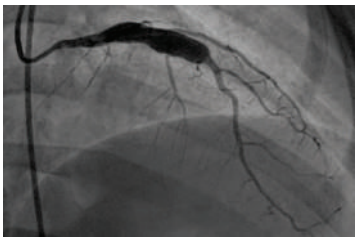

Figure 3a

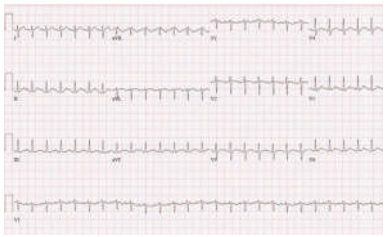

Figure 3b

A 5-year-old female child presented to dermatology clinic for evaluation of a rash along with fever of six days. The rash was maculopapular in nature, present over her face, trunk and limbs with swelling and skin-peeling over the hands (Figure 1). Oral mucosae and tongue were also involved (Figure 2). She was febrile with temperature of 99.9 °F and heart rate of 102 per minute. Lymph nodes were enlarged in the cervical region. Investigations revealed an ESR of 80 mm fall at the end of first hour, TLC 12x109 per ml and platelets 700x109 per mm. Cardiac investigations are shown in Figure 3 a & b.

1. What is your diagnosis?
2. How will you manage this case?

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DIAGNOSTIC CHALLENGE Answers

Case 1

Diagnosis

Jaquet's irritant contact napkin dermatitis.

Background

Irritant contact diaper dermatitis in the napkin area, also known as Diaper dermatitis, is the result of the combined influence of detergent remnants in the diaper, infrequent diaper change, rough toilet paper usage, feces, urine, urinary and fecal incontinence, chronic diarrhea, and secondary infection. A rare, severe form of irritant contact diaper dermatitis is Jacquet erosive diaper dermatitis, characterized by punched-out erosions or ulcerations with raised crater-like borders. Although self-healing in 4-6 months with proper management, the importance lies in its differential from other similar but serious conditions in the diaper area (Table 1).

Management of diaper dermatitis includes1) use of loose fitting diapers, made of super absorbent breathable material, which should be changed immediately after being soiled and 2) use of barrier creams. Nonetheless, Jaquet dermatitis is challenging to treat. Topical treatment with antibiotics, antifungal, and nonsteroidal anti-inflammatory drugs and Zinc Oxide has been the main stay of treatment. Use of topical 4% sucralfate may lead to partial remission. Response to treatment is slow and the lesions heal in 4-6 months if proper precautions are taken.

Our Patient

Our patient was managed on the same lines and after two months there was almost complete healing of ulcers on anterior aspect (Figure 2a) with substantial healing of perianal lesions (Figure 2b).

Differential conditions	Important Features
Granuloma gluteal infantum	A few centimeters in size erythmatous nodules, following candidial infection and use of topical corticosteroids
Perianal pseudo-verrucous papules and nodules	Few millimeter nodules and papules, with shiny, moist, bright red, flat-topped surface
Intertriginous candidiasis	Bright red plaques in the flexor area with satellite peripheral papules and pustules
Acrodermatitis enteropathica	Triad of periorificial dermatitis, alopecia, and diarrhea due to Zinc deficiency. Eczematous, scaly, or bullous lesions in the perianal region
Condylomata lata	Macerated, flat, moist, wart-like papules/plaques of secondary syphilis (possibility of child abuse)
Condyloma acuminate	Macerated, flat, moist, wart-like papules/plaques of secondary syphilis induced by genital human papilloma virus (possibility of child abuse)
Ulcerated Haemangiomas	Vascular tumors with ulceration and bleeding
Langerhans cell Histiocytosis	Persistent diaper rash; greasy, scaly plaques; erosions and ulcerations, seborrheic dermatitis-like lesions of the scalp hepato-spleenomegaly , bone lesions , pancytopenia and lymphadenopathy

Table 1: Differential diagnosis of Jaquet's irritant contact napkin dermatitis

Answers

Case 2

Figure 2a: Almost complete healing of ulcers on anterior aspect

Figure 2b: Substantial healing of perianal lesions

Diagnosis

Kawasaki disease.

Kawasaki disease affects young children. Its etiology is mostly unknown, however an uncontrolled release of cytokines as a result some bacterial antigen, acting as a super antigen has been strongly advocated. It is characterized by prolonged fever and prominent cervical lymphadenopathy. The rash is maculopapular, with prominent involvement of limbs, hands and face. Hands develop edematous swelling and peeling of skin in the later stages (Figure 1). There is marked oral involvement, with injection of mucosae and strawberry tongue with prominent villi (Figure 2). The conjunctivae are suffused. Heart may be involved, with the development of myocarditis in the early stages and coronary aneurysms later on(Figure 3a&b). High platelet count may be associated with thrombosis and ischemic heart disease. Early treatment with a single-dose, intravenous immunoglobulin (2g/kg body weight) and high-dose of Aspirin (30-50 mg /kg body weight) or any other antiplatelet agent is very helpful in alleviating these complications, thus underscoring the importance early diagnosis and institution of treatment. Coronary aneurysms have a tendency to resolve spontaneously over a few years.

Differential diagnosis includes Scarlet fever and viral exanthem. High degree of knowledge of the disease is required for early diagnosis and initiation of appropriate treatment.

Our Patient

Our patient had the classical findings of Kawasaki disease but despite immunoglobulin and high-dose aspirin, she developed cardiac aneurysms. This may occur in some cases but the intensity of this complication may be subdued because of treatment. The patient was asymptomatic at the time of discharge and later was lost to follow up.

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