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EDITORIAL

Thoracic Ultrasound – A Silent Métiere Time to Change Clinical Practice

Nadeem Ahmed Rizvi[1] and Nasir Siddique[2]

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After many long years of silent observations by physicians, thoracic ultrasound has made its way into day to day pulmonology and critical care practice all around the globe — and in fact, in all specialties where the doctor hangs a stethoscope around his neck. Ultrasound technology has enabled the pulmonologist to safely perform a wide range of thoracic procedures. It helps in early diagnosis and management of respiratory patients. It ensures that appropriate patient gets the appropriate intervention, thus streamlining the care pathway and ensuring safety.

The accessibility of portable ultrasound machines has significantly improved the management, with benefits including the absence of radiation, ease of use, and real time imaging. It can be performed at the bedside and no particular preparation is required.

The most commonly performed procedures in a respiratory ward include pleural aspiration, closed pleural biopsy, tube thoracostomy, tumour biopsies and medical thoracoscopy. The literature shows a high complication rate when these procedures are done without image guidance.

The most common complications include pneumothorax, haemorrhage, procedure failure dry tap in case of pleural aspiration, and the gravest, visceral injury. A number of causes are reported to increase the complication rate. The most widely agreed contributing factor is performing procedures without image guidance. In a large cohort study[1], post procedure pneumothorax was reported in 18% of blind pleural aspirations versus 3% in procedures performed under ultrasound guidance. Many of these mishaps were due to inappropriate site selection as shown in a cohort where 15% of sites identified without image guidance were inaccurate and would have resulted in injury to solid viscus like lung, liver, or spleen[2]. Ultrasound prevented 10% of potential organ punctures.

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Another meta-analysis[3] conducted on articles published between 1996 and 2009 showed that pneumothorax occurred in 7–15% of patients who underwent blind thoracentesis. This frequency drops to 0.5% when the procedure is performed under ultrasound guidance.

In a small study, it was shown that the causes of failed pleural procedures were wrong site selection in 38%, no pleural fluid present in 31%, loculated effusion in 11%, and consolidation or tumour in 11%.[2] All these could have been known earlier if ultrasound was performed before the procedure.

So, in everyday practice, chest ultrasound can—rather should—be utilized as a guide in interventional procedures.

Some pulmonologists are of the view that image guidance is not needed for aspirating large pleural effusions not occupying the entirety of the hemithorax. However, in this scenario of day to day clinical practice, ultrasound helps by making it possible to visualize the characteristics of the effusion, whether it is multi-septated or free—wherein for both these varieties, one would have a different interventional approach. Here, ultrasound is considered the gold standard in revealing the septations, even far better than computed tomography scanning. It will also uncover underlying abnormalities not apparent on chest x-ray like a raised diaphragm or adherent lung.

It is also recommended to use ultrasound for the correct placement of a chest tube in pleural effusion. In complicated effusions—notoriously 'difficult-to-manage' and multi-loculated, not visible at times between the folds of parenchyma adhering to the chest wall—an ultrasonic approach is absolutely mandatory. With the use of Doppler, it is feasible to approach the course of the intercostals vessels, avoiding their perforation or, more awful still, their laceration during tube insertion.

However, in the case of chest tube insertion in a pneumothorax, it is of less value since it is not easy to obtain good images, as air transmits sound waves poorly.

In the realm of medical thoracoscopy, ultrasound aids in knowing the involvement of the diaphragm, presence of masses or adherences to be avoided during trocar insertion, disease of lung parenchyma, and effusion characteristics.

Thoracic ultrasound must also be used in critical care settings where obtaining good chest x-ray images are nearly impossible. Furthermore, interpretation of supine films to diagnose pleural effusion in ICU is challenging. Of extreme significance here is the fact that thoracic ultrasound can be performed in both affluent and resource constraint settings. In today's era, thanks to the field of biotechnology, small, portable, handheld and user friendly machines are available.

Lastly, thoracic ultrasound is highly operator dependent and appropriate training in the field is necessary before performing it independently. The Joint Royal College of Physicians Training Board has included pleural ultrasound training as a mandatory module in specialty training curriculum for respiratory medicine[4]. All those providing ultrasound services in the UK are legally vulnerable if they are not adequately trained and are improbable to be able to mount a defense against a claim for negligence.[5]

It is a necessity of the present era to include thoracic ultrasound education in the curriculum of postgraduate respiratory medicine training in Pakistan and it should be made mandatory before any pleural or lung interventions.

The use of ultrasound will enhance the understanding of pleural diseases and is associated with clinical benefits that will lead to improved patient care.

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Authorship and Contributorship

Authorship credit should be based on 1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.

Acquisition of funding, collection of data, or general supervision of the research group, alone, does not justify authorship.

All persons designated as authors should qualify for authorship, and all those who qualify should be listed.

Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.

ORIGINAL ARTICLE

The Dundee Ready Education Environment Measure (DREEM): Perception of Educational Environment and its Impact on Academic Performance of Medical and Pharmacy Students

Hassan Askari[1], Naveed Mansoori[2], Muhammad Zeeshan Saeed[1], Khurram Riaz[1], Asad Mukhtar[1], Muhammad Naveed Rana[1] and Syed Muhammad Mubeen[2]

ABSTRACT

Objective: To assess the perceptions of health professions students towords educational environment and to ascertain differences among gender and faculties. The study also assesses the internal consistency of DREEM questionnaire of health profession students.

Methodology: A cross sectional, institution based study was done during March to June 2017 among students of health professions of faculty of medicine and faculty of pharmacy at Hamdard University, Karachi. Using proportionate quota sampling technique, DREEM questionnaire was administered to undergraduate students. Data was analysed by SPSS version 22. Descriptive statistics were used to calculate mean with standard deviation of overall DREEM and its five subscales. Independent sample t-test was used to identify gender and faculty related differences between perception of educational environment. Cronbach's alpha was also calculated to test the reliability of DREEM questionnaire.

Results: Out of 6oo students, fifty percent were selected from each faculty in which 327 (54.5%) were male students. Total mean score of DREEM was 130.1/200 (65%). Student's academic self-perception domain got the highest score (97.1%) and the lowest score in students' perceptions of atmosphere (47.7%). Statistically significant differences ($P < 0.05$) were found between student's social self-perception and gender. A high level of reliability was found for the total DREEM inventory with an alpha coefficient of 0.82.

Conclusion: More positive than negative educational environment of the university was found with no differences among medical and pharmacy students.

Key words: Education, Students, Environment, University

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شعبہ طب اور شعبہ ادویات کے طلبا کا تعلیمی ماحول اور اس کے تعلیمی کارکردگی پر اثرات کے بارے میں تاثر

مقصد: اس تحقیق کا مقصد صحت کے شعبے سے تعلق رکھنے والے طلبا کی تعلیمی ماحول کے بارے میں رائے اور اس میں جنس اور قابلیت کے لحاظ سے فرق کا تعین ہے اور ساتھ ساتھ (DREEM) ڈریم سوالنامے کے موثر ہونے کی تشخیص بھی اس تحقیق کا مقصد ہے۔

طریقہ کار: مارچ 2017 سے جون 2017 کے دوران تعلیمی ادارے پر مشتمل اس تحقیق میں صحت کے شعبے سے تعلق رکھنے والے طلبا کی رائے لی گئی جن کا موثر تعلق شعبہ طب اور شعبہ ادویات ہمدرد یونیورسٹی کراچی سے تھا۔ جس میں انڈر گریجویٹ طلبا سے سوالنامہ پر کروایا گیا۔ DREEM اور اس کے مزید پانچ چھوٹے پیمانوں کا اوسط اور معیاری انحراف معلوم کرنے کے لیے وضاحتی شماریات کا استعمال کیا گیا اور تعلیمی ماحول کے بارے میں رائے میں جنس اور قابلیت کے حوالے سے فرق کو جاننے کے لیے t-test کا استعمال کیا گیا۔ جبکہ سوال نامہ ڈریم کے قابل اعتماد ہونے کے لیے شماریاتی طریقہ Cronbach 's Alpha کا استعمال کیا گیا۔

نتائج: چھے سو طلبا میں سے پچاس فیصد طلبا ہر شعبے سے منتخب کیے گئے جن میں 327 یعنی 54.5 فیصد مرد طلبا تھے، ڈریم کی مجموعی اوسط 130.1/200 یعنی 65 فیصد معلوم ہوئی جبکہ طلبا کی تعلیمی خیالات کی ذاتی رائے کا تناسب سب سے زیادہ یعنی 97.1 فیصد اور طلبا کے ماحول کے لحاظ سے خیالات کا تناسب، سب سے کم یعنی 47.7 فیصد رہا۔ جبکہ، جنسی لحاظ اور معاشرتی خیال کے درمیان اہم اعداد کا فرق واضح طور سے پایا گیا اور مجموعی طور پر ڈریم سوالنامے کے قابل اعتماد ہونے کے نتائج اعلی سطح کے پائے گئے (alpha =0.82)۔

حاصل مطالعہ: اس تحقیق سے ثابت ہوا کہ یونیورسٹی میں تعلیمی ماحول مثبت پایا گیا اور شعبہ ادویات اور شعبہ طب کے درمیان کوئی فرق نہیں پایا گیا۔

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INTRODUCTION

The learning environment alludes to how the learners see the atmosphere of an institution. It includes their perception regarding infrastructure of the campus, learning opportunities, teacher's skills and attitudes,

their interaction with peers, and many other factors[1]. Educational surrounding is significant in establishing the success or failure of any institute[2] and an excellent environment is reflective of a quality curriculum. Despite the influence of the educational atmosphere on academic achievements of an institution, it is a factor which is difficult to measure, and its true status in the educational cycle remains undetermined[3]. Nevertheless, a positive environment leads to achievements, fun, and engagement in learning while a negative one would hinder their accomplishments.

Students' perceptions of the academic atmosphere is influenced by various cultural backgrounds of students, educational facilities available to them, quality of the faculty, curriculum, and student's expectations apart from other circumstances of the university[4]. An effective management of teaching and learning is supported by understanding the educational environment and incorporating appropriate changes and remedies wherever required. There is documented association between educational environment and the students' performance and their satisfaction[4].

Different tools available for learning environment assessment include Postgraduate Hospital Education Environment Measure (PHEEM)[5], Learner's Perception Survey (LPS)[6] and many others. In order to make learning environment measurable, the Dundee Ready Education Environment Measure (DREEM) was developed[7]. This is a 50-item questionnaire developed in Dundee, United Kingdom which focuses on different aspects of the learning environment to measure the undergraduate educational setting of the Health Professional Schools[7].

A study by Soliman MM et al. correlated DREEM score of students with their academic performance and has noted that high achievers have better perception of the educational climate[8]. In Pakistan, a survey at the Dow University of Health Sciences identified highest DREEM scores in student's academic self-perception, and lowest in learning perception[9]. Therefore, it is a vastly reliable and valid tool used for conducting comparison of students' perceptions of academic climate within an institution, between institutions or at totally different purpose of time within an institution[10]. Moreover, it is used to facilitate in altering the curriculum, comparing past and present curricula, and evaluating the effectiveness of an institutional programme[11].

Keeping with the trends of changing academic teaching methodology, the institution is moving from a traditional to an integrated curriculum with focus on improving the students' learning and understanding. The present study was conducted to assess the perceptions of health professional students to educational environment and to ascertain differences among gender and faculties. The study also assesses the internal consistency of DREEM questionnaire of health profession students.

METHODOLOGY

This descriptive cross-sectional study was conducted from March to June 2017 at Hamdard University, Karachi among students of health professions of faculty of medicine and faculty of pharmacy. By using proportionate quota sampling technique, a total of 600 students from first to final year who agreed to participate and gave verbal informed consent were included. Students who were not physically or mentally fit on the day of data collection were excluded. Ethical approval was taken from Hamdard College of Medicine & Dentistry, Hamdard University.

A standardized DREEM questionnaire was administered to undergraduate students of medicine and pharmacy on day and time of their choice. A 10 minutes briefing regarding the objectives of the study was given and the students were asked to provide their own views and perceptions in unbiased manner. The responses from each class were taken separately and 30 minutes free time was given to respond to the provided questionnaire in their dedicated session. It was emphasized that anonymity and confidentiality of the participants will be maintained throughout the research and it would not follow or affect their academic performances.

DREEM contains 50 statements about topics relevant to the educational climate. A Likert-type scale was used that provided each item score between 0 to 4 (4 strongly agree; 3 agree; 2 uncertain; 1 disagree; and 0 strongly disagree). However, statements 4,8,9,17,25,35, 39,48 and 50 contain negative statements and are reversely coded as 0 strongly agree; 1 agree; 2 uncertain; 3 disagree; and 4 strongly disagree. The DREEM inventory representing the ideal educational environment has a maximum score of 200. The questionnaire consists of five subdomains as

1. Students' perceptions of learning (SPOL)
2. Students' perceptions of teachers (SPOT)
3. Students' academic self-perceptions (SASP)
4. Students' perceptions of atmosphere (SPOA) and
5. Students' social self-perceptions (SSSP).

Environmental perception of students as determined by DREEM was classified as "very poor" if score was between 0 and 50, "plenty of problems" with a score of 51 to 100, "more positive than negative" if 101 and 150 and "excellent" with a score between 151 to 200.

Table 1: DREEM scores and subscales

DREEM and its subscale	Maximum score of the scale	Mean (SD)	Percentage of maximum score	Interpretation*
All items	200	130.1 (±17.0)	65	More positive than negative
Students' perceptions of learning	48	31.6 (±4.3)	65.8	More positive perception
Students' perceptions of teachers	44	27.1 (±4.1)	61.5	Moving in right direction
Students' academic self-perceptions	32	31.1 (±6.1)	97.1	Confident
Students' perceptions of atmosphere	48	22.9 (±3.9)	47.7	Many issues needs change
Students' social self-perceptions	28	17.1 (±3.0)	61.0	Not too bad

SD=Standard deviation

*McAleer S, Roff S. A practical guide to using the Dundee Ready Education Environment Measure (DREEM). Available from URL: www.gppro.co.uk/swacpo/document/dreems2.doc cited: 2016 December 10

Table 2: Faculty and Gender differences for perception of educational environment

DREEM and its subscale	Medical Mean (SD)	Pharmacy Mean (SD)	P-value	Male mean (SD)	Female mean (SD)	P-value
All items	129.9 (±17.1)	130.2 (±17.0)	0.85	128.9 (±17.1)	131.5 (±17.3)	0.05
Students' perceptions of learning	31.3 (±4.37)	31.9 (±4.32)	0.06	31.4 (±4.27)	31.8 (±4.45)	0.23
Students' perceptions of teachers	27.0 (±4.01)	27.3 (±4.32)	0.32	26.9 (±4.23)	27.4 (±4.08)	0.10
Students' academic self-perceptions	23.0 (±3.89)	22.8 (±3.94)	0.73	22.8 (±3.78)	23.0 (±4.07)	0.42
Students' perceptions of atmosphere	31.2 (±6.09)	31.0 (±6.11)	0.69	30.8 (±6.19)	31.5 (±5.97)	0.14
Students' social self-perceptions	17.3 (±3.18)	16.9 (±2.91)	0.09	16.8 (±2.98)	17.5 (±3.11)	0.007

The data was entered and analysed using software SPSS version 22. Descriptive statistics was used to calculate mean and standard deviation of over all DREEM and its five subscales. Independent sample-t test was used to identify faculty and gender related differences between perception of educational environment. Cronbach's alpha was calculated to test the reliability of DREEM questionnaire. P-value less than 0.05 was considered as statistically significant.

RESULTS

A total of 600 students completed the DREEM with an equal distribution of students; 300 (50%) from each faculty of medicine and faculty of pharmacy. The faculty of medicine included medical and dental students. Among all, 327 (54.5%) were male and 273 (45.5%) were female students.

Table 1 shows the maximum score of total DREEM inventory and its five subscales, mean, standard deviation, and percentage of all domains with its interpretation. Total score of DREEM was 130.1/200 (65%), SPOL 31.6/48 (65.8%), SPOT 27.1/44 (61.5%), SASP 31.1/32 (97.1%), SPOA 22.9/48 (47.7%) and SSSP 17.1/28 (61%).

Table 2 shows the faculty and gender differences in perception of educational environment. Statistically significant differences were not observed between faculty of medicine and pharmacy whereas statistically significant differences were observed between male and female students' social self-perception (P-value <0.05).

Internal consistency findings are shown in Table 3. The total DREEM inventory was found to have a high level of reliability, with an alpha coefficient of 0.82. The Cronbach's alpha for the 5 subscales also shows high level of internal consistency. The value of coefficient of SPOL was 0.75, SPOT 0.76, SASP 0.76, SPOA 0.73 and SSSP 0.79.

Table 3: Reliability of DREEM questionnaire

DREEM and its subscale	n (items)	Cronbach's alpha (α)
All items	50	0.82
Students' perceptions of learning	12	0.75
Students' perceptions of teachers	11	0.76
Students' academic self-perceptions	8	0.76
Students' perceptions of atmosphere	12	0.73
Students' social self-perceptions	7	0.79

DISCUSSION

The educational setting has a considerable impact on the performance of students in medical institutions. The recent advancement in research has shown that the analysis of the educational environment should form part of the appropriate educational practices developed by any institution and can be made possible by using DREEM scale[12,13]. This study provided an overview of undergraduate students of health professions (medical and pharmacy) regarding educational environment in a private sector university.

The over all mean score of DREEM inventory was 130/200 (65%) that shows that the academic environment of the university is more positive than negative. The subscale analysis showed high confidence with student's academic self-perception with 97.1% whereas lowest in domain of student's perception of atmosphere with 47.7%. The findings of the present study are similar with other studies done in Pakistan. A recently published study[14] showed the over all mean score of 113.6/200. Another study done by Jawaid et al[9] reported the overall mean score of 114.4/200, while a study done in public and private medical colleges and another in a private medical college reported a slightly lower mean score of 125.7/200 and 125/200 respectively compared to this study[15,16]. Other studies from Asian countries reported over all mean DREEM score ranging between 104 and 118[17-20].

On comparison of medical with pharmacy students, scores from both the faculties were similar hence both the faculties perceived their environment positively. The over all DREEM score and subscale scores of female students were slightly higher than male students. Our results are consistent with findings from other studies conducted in different medical colleges of Pakistan[9,16]. A study conducted at six medical institutions in Pakistan also reported similar results[21]. Studies done in Athens[22], India[23], Australia[24], Malaysia[25] showed better-quality self-perception of academic environment among undergraduate female medical students. Although DREEM is used to assess the educational environment of the institute but it does not provide us the underlying reasons for the same.

The Cronbach alpha (internal consistency reliability) was 0.82 in the present study which is higher than the 0.7 or 0.8 thresholds generally considered acceptable for scales[26]. The Cronbach's alpha values for the five subscales also showed adequate level of internal consistency in measuring the five aspects of student's perception of educational climate. Similar studies also showed Cronbach's alpha values as 0.89[9], 0.91[27] and 0.93[28] that suggested that an instrument with high internal consistency was used.

CONCLUSION

DREEM is found to be an effective and reliable instrument for measuring the academic environment of the present institute. The over all DREEM score was 65% with the highest score (97%) found in the domain of students' academic self-perception while the lowest (47.7%) in students' perception of atmosphere. These results can be used for further enhancement of the educational environment of the institute. This study reflects a positive perception of educational environment at the university among medical and pharmacy students.

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ORIGINAL ARTICLE

Social Networking and its Impact on Academic, Social and Family Lives of Medical Students in Karachi, Pakistan

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ABSTRACT

Objective: To assess the impact of social networking on academic, social, and family lives of medical students in Karachi, Pakistan

Methodology: A multi-center cross-sectional study was conducted in four medical colleges of Karachi, Pakistan. A questionnaire-based representative multi-stage cluster survey was conducted. A total of 728 students were inquired about the impact of social networking on their academic, family, and social lives. Based on time spent on social networking in hours per week, participants were categorized into three groups including those who spent 1-7 hours per week, 8-14 hours per week, and 15 hours and above. Comparisons in differences among three groups on their perceptions of academic, family and social impact were statistically analyzed using the Chi-square test.

Results: The mean age of the students was 21.02 years and 78% were females. Almost all of them (94.2%) had access to Wi-Fi connectivity at home and 71.7% used SMART phone as a primary tool of connecting to Social Networking Sites. Top five sites used included Facebook (99.3%), Skype (60.3%), Whatsapp (44.4%), Viber (30.6%), and Twitter (28.6%). In comparison to those who spent 1-7 hours a week on SN activities, those who spent 8-14 hours per week and 15 hours and above were significantly less likely to have A-one or A grades in exams (p=0.029) and engage in physical activity or sports (p=0.024). Both groups were also significantly more likely to report pending assignments (p=0.032), decrease in concentration (p=<0.001),
sleeping late at night (p=<0.001), and affected performance the next day (p=0.003).

Conclusion: The students perceived that social networking had negative impact on their education and physical activity. Awareness interventions on healthy uses of social networking sites should be designed. Medical universities should also focus on engaging students in sports activities which may help in reducing the unnecessary excessive time spent on social networking.

Key words: Social Networking, Internet Use, Medical Students, Academic, Family

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پاکستان کے شہر کراچی میں شعبہ طب سے تعلق رکھنے والے طلبا کا سماجی رابطوں کی ویب سائٹ کے استعمال سے تعلیمی، معاشرتی اور خاندانی زندگی پر اثرات کا جائزہ

مقصد: اس تحقیق کا مقصد کراچی کے شعبہ طب کے طلبا کا سماجی رابطوں کی ویب سائٹس کے استعمال سے تعلیمی، معاشرتی اور خاندانی زندگی پر اثرات کا تعین کرنا ہے

طریقہ: یہ تحقیق کراچی، پاکستان کے شہر کے چار میڈیکل کالجز پر کی گئی۔ متعدد حصّوں پر مشتمل ایک سوالنامہ کی شکل میں جائزہ لیا گیا۔ جس میں مجموعی طور پر 728 طلبا سے ان کے تعلیمی، خاندانی اور ذاتی زندگی پر سوشل نیٹ ورکنگ کے اثرات کی معلومات لی گئی۔ سوشل نیٹ ورکنگ پر وقت صرف کرنے کے لحاظ سے تحقیق میں تعاون کرنے والے طلبا کو تین گروہوں میں تقسیم کیا گیا۔ جو ایک سے سات گھنٹے فی ہفتہ، آٹھ سے چودہ گھنٹے فی ہفتہ، اور پندرہ یا اس سے زیادہ گھنٹے فی ہفتہ، سوشل نیٹ ورکنگ پر صرف کرتے ہیں۔ تینوں گروہوں کے فرق کا موازنہ کرنے کے لیے شماریاتی طریقہ تجزیہ Chi -square کو ٹیسٹ کا استعمال کیا گیا۔

نتائج: تحقیق میں طلبہ کی اوسط عمریں تقریباً 21 سال تھیں۔ ان میں 70 فیصد طالبات تھیں۔ جن میں سے تقریباً سبھی کے (94.2) فیصد کے گھر وائی فائی کی سہولت موجود تھی۔ اور تقریباً 71 فیصد کے پاس ان کا اسمارٹ فون، سوشل نیٹ ورکنگ کی سائٹ تک رسائی کا بنیادی ذریعہ تھا۔ سب سے زیادہ استعمال کی جانے والی پانچ سائٹس میں فیس بک، (99.3) فیصد، اسکائپ (60.3) فیصد، واٹس ایپ (44.4) فیصد، وائبر (30.6) فیصد اور ٹوئٹر (28.6) فیصد استعمال کیا جاتا ہے۔ موازنہ نے ثابت کیا کہ وہ طلبا جو ایک سے سات گھنٹے فی ہفتہ سوشل نیٹ ورکنگ پر گزارتے ہیں ان کے مقابلے میں ایک سے چودہ اور پندرہ سے زائد گھنٹے فی ہفتہ سوشل نیٹ ورکنگ پر صرف کرنے والے طلبا A اور A1 گریڈ لینے میں واضح طور پر پیچھے رہے۔ جبکہ جسمانی اور کھیل کود کی سرگرمیوں میں بھی یہ طلبہ کم مشغول پائے گئے۔ اور اپنے گذشتہ اسائنمنٹس جمع کرانے کا رجحان بھی ان دو گروہوں میں کم پایا گیا جبکہ توجہ کی کمی، رات کو دیر سے سونا اور اگلے دن کی کارکردگی پر برا اثر بھی ان دو گروہوں میں ہی پایا گیا

حاصل مطالعہ: طلبا اس بات سے متفق ہوئے کہ سوشل نیٹ ورکنگ ان کی تعلیمی اور جسمانی سرگرمیوں پر منفی اثرات مرتب کرتی ہے۔ سوشل نیٹ ورکنگ کے صحتمندانہ استعمال کے لیے آگاہی ضروری ہے اور طبی جامعات کو یہ بھی چاہیئے کہ طلبا کو کھیل کود کی سرگرمیاں میں مصروف رکھیں تا کہ وہ اپنے وقت کو غیر ضروری طور پر سوشل نیٹ ورکنگ کے استعمال میں ضایع نہ کریں۔

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INTRODUCTION

Social networking has expanded immeasurably, wrapping itself around every head that wants to stay connected in the modern era. More than 1 billion people use social media or social networking sites worldwide today[1]. As of September 2014, 71% of online adults used Facebook; 23% used Twitter; 28% used Pinterest; 26% used Instagram, and 28% used LinkedIn[2]. Use of these sites has gradually spread all over the world with increasing trends also observed in developing countries[3]. Pakistan has over nine million users ranked at 27th among countries that use Facebook[4]. Highest number of users lies in the age group of 18–24 (the economically productive ages). With all these facts in mind, it is important to study the impact that this new found form of communication has on the daily lives of people. Previous studies suggest that excessive involvement in social networking leads to poor academic performances of students and their satisfaction with life significantly declines due to cognitive immersion into social media[5,6]. This digital technology has also been associated with self-absorption, narcissism, and isolation[7]. On the contrary, some studies have found Social Networking Sites valuable in strengthening interpersonal relationships and building learning communities[8].

With the ever growing use of Social Networking Sites, their impact on daily life needs to be studied in understanding the positive and negative influences of this modern communication on the students. Only one study has previously explored the effects of Facebook on medical students[10] and local literature regarding academic, social, and family life is scarce. The objective of this study was to assess the impact of social networks on a Pakistani medical student's academic, social, and family life.

METHODOLOGY

A cross-sectional survey was conducted among medical students of four medical colleges of Karachi in the province of Sindh, Pakistan between October 2014 and March 2015.

Sample size was calculated using the software "Open Epi software for epidemiologic statistics". Using the expected frequencies of 61% for adverse effect on studies and 37% for adverse effect on social and family lives from previous studies[9,10], the highest sample size i.e. 359 came at expected frequency of 61% at confidence level of 95% and bound on the error of 5% which after adjusting for design effect of 2 was 718. Multi-stage cluster sampling technique was used to select medical students using social networks. Four medical colleges (two public and two private) were taken as clusters and the number of students from each college were obtained. Sample size of 718 was proportionately distributed into four colleges based on size (number of students) in each college. Within colleges, the units of clusters (i.e. students) were stratified into five batches to capture the junior as well as senior medical students. Equal number of medical students was randomly selected from each batch. All medical students using any social networking site in the selected medical colleges were invited to participate in the study.

Questionnaire was self-designed and compared with variables of other similar studies. Section 1 obtained information about socio-demographic characteristics including age, gender, household monthly income, college, and year in which the student was studying. Section 2 inquired about predominant Social Networking Sites (SNS's) used, average hours spent on social networking, main reasons for using Social Networking Sites and primary tool of connection and availability of Wi-Fi. Section 3 comprised 10 items related to impact of Social Networking Sites on academic life which included grade obtained in the last semester, average hours spent on studies, perception on nature of impact of SNS's on studies, whether grades have declined after involvement in SNS's, whether assignments stay pending due to SNS's, impact on concentration, need for deactivating accounts during exams, habit of sleeping late at night due to using SNS's, thinking about comments given while social networking and nature of effect on next day's performance. Section 4 inquired about impact on family and social lives using 12 questions including enjoying the company of family, speaking less at home, getting irritated when any family member sits around during social networking, taking meals with family, skipping meals due to social networking, whether parents complain of excessive use of SNS's, feeling lonely, involvement in sports or physical exercise, participation in social gatherings, getting depressed if internet is not working, and finding it easier to express feelings using SNS's.

Data collection process was supervised by the Principal Investigator. Data was collected by the medical students. Field testing of the final questionnaire was done. Forms were checked for completeness daily. Data was entered twice and then cleaned for any missing variables.

Statistical Analysis: Data was analyzed using SPSS version 16. The results were presented in percentages for categorical variables while mean and standard deviation were computed for discrete or continuous variables. Based on time spent on social networking in hours per week, participants were categorized into three groups including those who spent 1–7 hours per week, 8–14 hours per week and 15 hours and above.

Comparisons in differences among three groups on their perceptions of academic, family, and social impact were statistically analyzed using the Chi-square test for categorical variables and ANOVA for discrete or continuous variables. P-value of <0.05 was considered significant.

Ethical Considerations: Permission from administration of all the medical colleges was taken . The names of the institutions have been kept confidential in the final analysis. Informed Consent was obtained from all the participating students. Ethical approval of the research was obtained from the Institutional Review Board of Jinnah Sind Medical University.

RESULTS

A total of 728 medical students were interviewed. Table 1 shows the descriptive characteristics of the study participants. The mean age of the participants was 21.02 years. More than three-fourths of the participants (78%) were females. 70.1% of medical students were from public sector medical colleges. Almost all of them (94.2%) had access to Wi-Fi connectivity at home. Almost three fourths (71.7%) among the students used SMART phone as a primary tool of connecting to Social Networking Sites. On an average, students spent 11.59 hours (SD=6.92) per week on using Social Networking Sites.

Table 1: Descriptive characteristics of research participants in four medical colleges of Karachi (n=728)

Age	Mean= 21.02 SD= 1.73
Gender	
Male	22% (160)
Female	78% (568)
College	
Public	70.1% (510)
Private	29.9% (218)
Graduation Year	
First year	20.6% (150)
Second Year	18.8% (137)
Third Year	20.9% (152)
Fourth Year	19.8% (144)
Final Year	19.9% (145)
Monthly Income	
<1 Lac	49.2% (358)
1 Lac and above	50.8% (370)
Family Size	Mean= 5.42 SD= 1.54
2-4	65.7% (478)
5 and above	34.3% (250)
Availability of Wifi at home	94.2% (686)
Primary tool of connecting to Social Networking Sites	
Smart Phone	71.7% (522)
Laptop or Tablet	18.3% (133)
Personal Computer	10% (73)
Average time spent on Social Networking (hours per week)	Mean 11.59 SD 6.92
1-7 hours per week	34.9% (254)
8-14 hours per week	43% (313)
15 hours and above	22.1% (161)

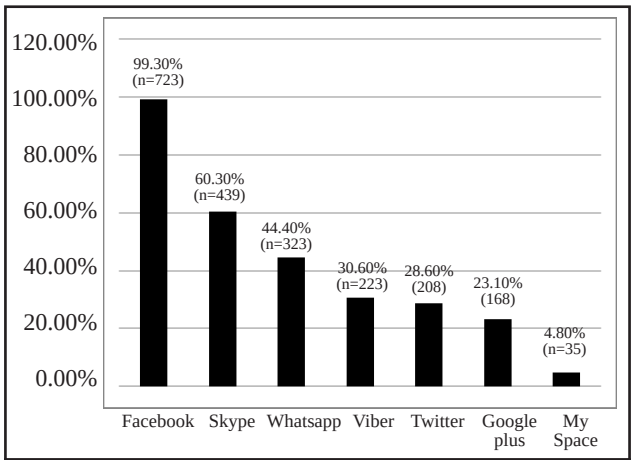

Fig. 1: Predominant Social Networking Sites used by the students of four medical colleges of Karachi (n=728)

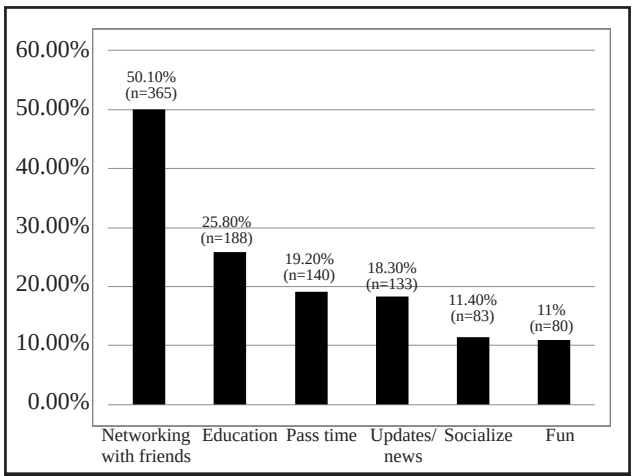

Fig. 2: Main reasons for using Social Networking Sites among students in four medical colleges of Karachi (n=728)

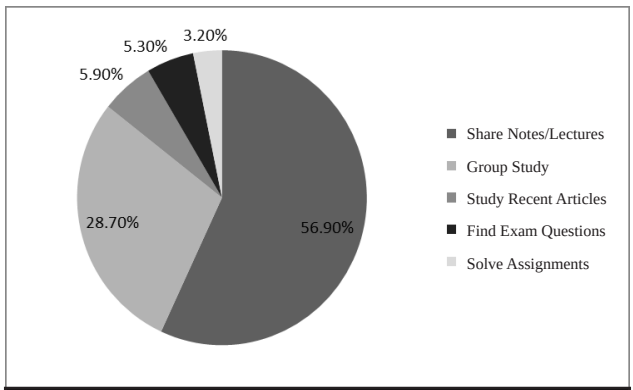

Fig. 3: Predominant academic purpose for using Social Networking Sites among students in four medical colleges of Karachi (n=188)

Fig. 1 shows the predominant Social Networking Sites used by the students. Top five sites included Facebook (99.3%), Skype (60.3%), Whatsapp (44.4%), Viber (30.6%) and Twitter (28.6%). Among the main reasons (Fig. 2), half of the students (50.1%) used these sites for networking with friends and family. Only about one fourth (25.8%) used them for academic purpose. Other reasons mentioned included Passing Time (19.2%), News Updates (18.3%), to Socialize (11.4%) and Just for Fun (11%). Among those who used these sites for academic purposes (Fig. 3), more than half shared notes or lectures (56.9%) and about one fourth (28.7%) did group study. Less common academic activities included studying recent articles (5.9%), finding exam questions (5.3%) and solving assignments (3.2%).

Less than one fifth of students (18.1%) thought that it had a positive impact on their education. Another one fifth (20.3%) reported decline in grades due to its increasing use. Assignment of more than half of the students (58.1) stayed pending because they spent time on social networking. Almost two thirds (65.1%) reported decreased concentration during studies due to social networking. More than half (54.8%) also slept late at night because of it while 41.1 % thought that its use affected their next day performance. In comparison to those who spent 1-7 hours a week on SN activities, those who spent 8-14 hours per week and 15 hours and above were significantly less likely to have A-one or A grade in exams (p=0.029) and report positive impact on education (p=0.005). Both groups were also significantly more likely to report pending assignment (p=0.032), decrease in concentration (p=<0.001), sleeping late at night (p=<0.001) and affected performance next day (p=0.003).

Table 2: Perceptions of students about impact of Social Networking sites on academic in four medical colleges of Karachi (n=728)

	Overall	Spend 1-7 hours/ week n=254	Spend 8-14 hours/ week n=313	Spend 15 Hours and above n=161	p-value
Grades *A-one and A*	40.1%(292)	45.7%(116)	34.8%(109)	41.6%(67)	0.029
Average hours/day on Studies	2.19+-1.19	2.30+-1.24	2.06+-1.12	2.25+-1.12	0.045
Positive Impact on education	18.1%(132)	23.6%(60)	17.3%(54)	11.2% (18)	0.005
Grade declined in last one year	20.3%(148)	16.5%(42)	20.8%(65)	25.5%(41)	0.086
Assignments stay pending	58.1%(423)	52.4%(133)	59.1%(185)	65.2%(105)	0.032
Decreased concentration	65.1%(474)	55.1%(140)	68.4%(214)	74.5%(120)	<0.001
Account deactivated during Exams	47%(342)	43.3%(110)	48.2%(151)	50.3%(81)	0.318
Think of Comments during Study	59.6%(434)	54.7%(139)	61.3(192)	64%(103)	0.124
Sleep late at night	54.8%(399)	45.7%(116)	56.5%(177)	65.8%(106)	<0.001
Affects Next Day Performance	41.1%(299)	32.7%(83)	44.7%(140)	47.2%(76)	0.003

Table 3: Perceptions of students about impact of Social Networking Sites on family and social lives in four medical colleges of Karachi (n=728)

	Overall	Spend 1-7 hours/ week N=254	Spend 8-14 hours/ week N=313	Spend 15 Hours & above N=161	p-value
Enjoy family company	95.6%(696)	95.3%(242)	96.8%(303)	93.8%(151)	0.301
Speak less at home	39%(284)	37%(94)	37.7%(118)	44.7%(72)	0.239
Get irritated when parent sits	43%(313)	39.8%(101)	41.9%(131)	50.3%(81)	0.092
Besides while networking take meals with family	91.6%(667)	93.3%(237)	91.4%(286)	89.4%(144)	0.375
Help family in household chores	81.7%(595)	82.3%(209)	80.2%(251)	83.9%(135)	0.597
Skip meals	14.3%(104)	13%(33)	13.4%(42)	18%(29)	0.306
Parents complain of excessive use	34.3%(250)	23.6%(60)	38%(119)	44.1%(71)	<0.001
Feel alone	29.9%(218)	24.4%(62)	34.8%(109)	29.2% (47)	0.026
Time spent playing sports	17.9%(130)	21.7%(55)	13.4%(42)	20.5% (33)	0.024
Participate in social gatherings	73.6%(536)	72.8%(185)	72.2%(226)	77.6%(125)	0.418
Depressed when internet does not work	39.6%	38.6%(98)	36.7%(115)	46.6%(75)	0.107
Easier to share and express feelings	75.5%(550)	71.7%(182)	78%(244)	77%(124)	0.196

Table 3 shows the perceptions of students about impact of social networking on their family and social lives. Majority reported enjoying time with family (95.6%), taking meals with family (91.6%), and helping family in household chores (81.7%). 43% of students did not want their parents to sit beside them while they were networking, 39% thought they spoke less at home, and 39.6% felt depressed when internet did not work. Parents of one third students (34.3%) complained to them about excessive use of SNS's. Only 17.9% spent any time playing sports. Almost three fourths (73.6%) participated actively in social gatherings. 75.5% also thought that they found it easier to express and share their feelings on internet. In comparison to those who spent 1–7 hours a week on SN activities, those who spent 8–14 hours per week and 15 hours and above were significantly less likely to participate in sports (p=0.024). Both groups were also significantly more likely to feel lonely (p=0.026).

DISCUSSION

The access to internet and social networking sites has increased remarkably as reflected by very high percentage of students having access to Wi-Fi connectivity and SMART phones. This finding is contrary to a previous study done in Saudi Arabia where primary tool of connectivity was personal laptop[11]. Average time spent on social networking ranged from 1–2 hours per day and the main reason of simply to keep in touch with friends and relatives is consistent with findings of previous studies[12,13]. Therefore, it is not surprising to see that only one fourth of the students used these sites for any academic purposes like sharing notes and lectures, group studies, reading articles, and solving assignments. A similar study done two years ago in a medical university in Pakistan showed that 18.9% students used Facebook for educational purpose[10]. This shows that utility of Social Networking Sites for educational purpose among medical students has remained stagnant.

The findings show a clear negative impact on academic life with high percentage of students reporting pending assignments, decreased concentration on studies and sleeping late at night due to social networking activities. Also these effects showed progressive increase as the more time was spent on these activities. Those who spent less time on social networking also showed more probability of giving more time to their studies and acquiring Grade A or A-one . This finding is consistent with previous studies done on the effects of using Facebook on academic grades[15,14].

Family and social lives of the medical students remained less affected with high percentage of students enjoying time with family, taking meals with family, helping family in household chores, and participating actively in social gatherings. Previous findings on effects of social networking on family and social lives are contradictory. A study from Ireland reports that media technologies within the home are leading to increased social isolation and a privatization of people's lives within the household[15]. On the contrary, a study from Australia found majority of respondents did not feel that social networking reduced the amount of time spent speaking to friends and family[16]. This is also consistent with previous study done in Pakistan[10]. In addition, another study also indicates increased social trust and civic engagement as a result of using social networking sites[17]. In the context of Pakistan, minimum impact on family and social life could be explained by the fact that family units are still closely knit in Pakistan. Moreover, almost four fifths of participants were girls who tend to be more involved in family activities as compared to boys.

However, area of great concern was overall low levels of student's participation in sports or other physical activities and its progressive decrease with increasing time spent on social networking activities. This finding is consistent with the finding of two such studies on medical students in Delhi and Karachi which have reported physical activity levels of 30.1% and 18% respectively[18,19]. Moreover, excessive use of social networking sites was also associated with feelings of loneliness. A high percentage of students also found it easier to express and share their feeling on internet. A similar study has also reported that social networking sites give shy people a way to socialize[10]. Another study also suggests that students with higher levels of internet addiction are more likely to be low in psychological well-being[20].

Strengths and Limitations: The strength of our study lies in it being multi-center involving medical students from four medical colleges and adequate sample size. While other studies have attempted to study the effects of Facebook only, this study has attempted to understand the effects of social networking as a whole. One major limitation of our study is that we developed the questionnaire adapting it from previous studies. However, reliability analysis shows cronbach alpha of <0.3 among items chosen for impact on academic, family, and social life.

CONCLUSION

The study concludes that the responding students belonging to four medical colleges in Karachi were largely aware of the impact of the use of SNS on their

family and academic lives. Negative impact on academic performance is directly related to the number of hours spent on using SNS. However, physical activities of young people have been the most negatively impacted because of the time taken up by social networking activities. Students perceive any adverse effect on family life as minimal.

Future researches should focus on attempting more reliable tools to assess impact of social networking on these aspects as well as other aspects like health. Awareness interventions on healthy uses of social networking sites should be designed and their impact studied in future. Medical Universities should also focus on engaging students in sports activities which may help in reducing the unnecessary excessive time spent on social networking.

Competing Interest: The authors declare no competing interest

Author Contributions: SS, FA and SRZ conceptualized, developed the proposal, and wrote the discussion of the paper. MO, ZR and SA did data collection, entry, analysis, and contributed to literature search for background and discussion. All the authors read and approved the final manuscript.

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ORIGINAL ARTICLE

Clinical Spectrum of Admitted Severely Acute Malnourished Children at The Indus Hospital Karachi: An Evaluation of One Year's Experience

Unaisa Kazi[1], Sana Tariq[2], Sarosh Saleem[2] and Muhammad Fareeduddin[1]

ABSTRACT

Malnutrition is a major health problem and causes deaths of nearly one million infants and children across the globe, annually. A large population of children in Pakistan suffers from malnutrition.

Objective: The study aims to review the clinical disease spectrum of admitted paediatric patients at The Indus Hospital (TIH), Karachi

Methodology: A retrospective audit review of admitted paediatric patients with diagnosis of Severe Acute Malnutrition (SAM) during June 2014 to June 2015 was performed. The electronic medical records of all malnourished children under five years of age were included in the review.

Results: A total of 341 children with average age of 2.2 years was admitted at The Indus Hospital, Karachi. In all, 54.5 percent (n=186) children were female while the rest of them were male. The mean weight of children subjected to SAM was 5.42 kgs. The majority of the children had Marasmus malnutrition (96.3%) while the Kwashiorkor was observed in only 3.7%. The common morbidities found were different infections (n=313), electrolyte imbalances (n=112), and Congenital/Chromosomal/Hormonal disorders (n=45). Anemia was found in most (95.38%) of the children with SAM.

Conclusion: The (SAM) is associated with different clinical presentations and metabolic as well as congenital abnormalities. Due to the weak immune system and low levels of nutrients in the body, children with SAM are synergistically associated with high mortality rate. Further studies from Pakistan are required to gather data from different regions and to develop policies and strategies to effectively manage malnutrition in Pakistan.

Key words: Acute Malnutrition; Childhood Malnutrition; Marasmus; Childhood Morbidity

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انڈس ہسپتال کراچی میں شدید غذائیت کی کمی کے شکار زیر علاج بچوں کا طبی زاویوں سے جائزہ

خلاصہ: غذائیت کی کمی دنیا بھر میں سالانہ تقریباً دس لاکھ بچوں اور نومولود کی صحت کے مسائل اور موت کی ایک وجہ ہیں۔ جبکہ پاکستان میں ایک بڑی آبادی غذائیت کی کمی کا شکار ہے۔

مقصد: اس تحقیق کا مقصد کراچی کے انڈس ہسپتال میں زیر علاج بچوں کے طبی امراض کے مختلف زاویوں سے نظر ثانی کرنا ہے۔

طریقہ: ہسپتال میں زیر علاج شدید غذائی کمی کا شکار بچوں کا جون 2014 سے جون 2015 کے ریکارڈ کا جائزہ لیا گیا۔ جس میں پانچ سال سے کم عمر غذائیت کی کمی کا شکار بچوں کے حوالے سے تمام طبی اور برقی ریکارڈ شامل ہیں۔

نتائج: اوسطاً 2.2 سال کی عمر کے 341 بچے اسپتال میں زیر علاج تھے، جن میں سے 54.5 فیصد (n=186) لڑکیاں اور باقی لڑکے تھے۔ انتہائی غذائیت کی کمی کے حوالے سے بچوں کا اوسط وزن 5.42 کلو پایا گیا۔ زیادہ تر بچوں میں (96.3) فیصد Marasmus غذائیت کی کمی پائی گئی اور 3.7 فیصد میں Kwashiorkor قسم کی غذائیت کی کمی پائی گئی۔ جبکہ عام امراض میں مختلف قسم کے وبائی امراض 313 بچوں میں، electrolyte imbalance 112 بچوں میں اور ہارمونز کی بدنظمی 45 بچوں میں پائی گئی۔ ساتھ ساتھ شدید غذائیت کی کمی کے شکار زیادہ تر بچوں میں یعنی 95.38 فیصد میں خون کی کمی کی بیماری پائی گئی۔

حاصل مطالعہ:: شدید غذائیت کی کمی کا تعلق مختلف کلینیکل پریزنٹیشن تحویلی اور خلقی بے اعتدالی سے ہے جبکہ کمزور قوت مدافعت اور جسم میں غذائیت کی کمی کی وجہ سے مشترکہ طور پر سیم کے شکار بچوں کی شرح اموات میں اضافے کا باعث ہیں۔ جبکہ سیم سے بچاؤ کے لیے پاکستان میں مختلف علاقوں میں مزید تحقیق کی ضرورت ہے تاکہ ایسی حکمت عملی اور طریقہ کار استعمال کیے جائیں جن سے شدید غذائیت کی کمی کو دور کیا جا سکے۔

INTRODUCTION

Severe Acute Malnutrition (SAM) is an extreme form of undernutrition found in children under the age of 5 years. It is defined as the imbalance between demand and supply of body's nutrients and energy for its growth, maintenance, and normal functioning.[1] All around the

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world, there are about 165 million malnourished children[2]. This major health problem is a cause of nearly 1 million infant and child deaths around the world. According to a study, about 44 per cent of the Pakistani children suffer from stunted growth which makes it the third highest percentage worldwide.[3]

About 13 million children under age 5 years have SAM and the disorder is associated with 1 million to 2 million preventable child deaths each year[4]. In most developing countries, case fatality rates (CFR) in hospitals treating SAM remain at 20–30% and few of those requiring care actually access treatment[5]. Pakistan has one of the highest prevalences of SAM in South East Asia; others being India and Bangladesh, proving to be a fundamental cause of morbidity and mortality in children[2].

The Indus Hospital is a tertiary care hospital in Karachi, Pakistan that provides free of cost services and health care facilities. According to data, the hospital has managed to serve over 800,000 patients with premium healthcare. A large number of paediatric population with a variety of illnesses, including Severe Acute Malnutrition (SAM) are being managed by the Department of Paediatrics at TIH since 2008. It is important to understand the spectrum of diseases being admitted and treated in the hospital so as to anticipate and manage the wide variety of patients efficiently.

Malnutrition can disrupt future socio-economic development of the society. An updated literature on malnutrition in children under five years of age from Pakistan is needed to update management strategies.

METHODOLOGY

The electronic medical record of all SAM patients, who were admitted in the Paediatrics ward of The Indus Hospital, Karachi was included in the study. Inpatient record of patients was reviewed from June 1st 2014 to 30th June 2015. The inclusion criteria were inpatient children between the ages of 6 months and 59 months, diagnosed as severe malnutrition (according to WHO definition[6]), having Weight for Height z-score less than -3 Standard Deviation and bilateral pedal oedema. The patients with incomplete data or those not fulfilling the mentioned inclusion criteria were excluded from the study. All records were thoroughly audited for clinical manifestations, various morbidities like infections, metabolic abnormalities, congenital/ hereditary disorders and outcomes of treatment given. Laboratory findings of the patients were also analyzed. The data was collected and saved in password-protected computers that only the investigators had access to. Serial numbers were allocated to patients and patient identification parameters like name and medical record numbers were not recorded. A pre-designed data sheet was used. The data sheet included demographic details along with the attributes of illness and treatment. The collected data was analyzed on SPSS version 19.

The patients admitted in the paediatric ward of TIH were managed according to the guidelines of World Health Organizations (WHO) for severely malnourished children[7]. The aim of treatment is to prevent and treat Hypoglycemia as well as Hypothermia. Blood glucose levels are routinely checked (6-8 hourly on day 1; 12 hourly and then 24 hourly until the patient is stable), optimal temperature is maintained in order to avoid Hypothermia. Management of shock, anaemia and sepsis is simultaneously started according to standard protocols. Eye and skin care for ulcerations is an essential part of management of severe malnutrition. For patients suffering from diarrhoea or vomiting, WHO recommended ReSoMol (special rehydration solution for malnourished children) is initiated, as it contains less Sodium (Na) and more Potassium (K) in comparison with regular Oral Rehydration Solution (ORS). Feeds with WHO/UNICEF recommended special formula feed, known as F-75 (low in Na and proteins; high in Carbohydrates) is initiated (130 ml/kg/day 2-hourly in children with no or mild pedal oedema and 100 ml/kg/day if child has moderate to severe pedal oedema) as soon as possible. This feed is continued for 2-7 days, until the child is stabilized. After initial stabilization, a catch-up formula feed (F-100) is initiated to rebuild wasted tissues of child as it has higher number of calories. The aim is to increase the calories up to 220 kcal/kg/day, gradually. These patients are given Vitamin A, Folic Acid and other vitamins along with Vitamin D, if needed, because these patients have poor immunity secondary to malnutrition.

The discharge criteria includes: weight gain of at least 15%; resolved pedal oedema (if present); Achievement of -1 SD or -2 SD on weight for height chart, according to age and gender.

A designated nutrition nurse and attendant *(Aya)* is assigned for preparation of the WHO recommended formula feeds, training of mothers, record keeping and ensuring regular follow up visits on discharge from TIH. The parents of these patients are advised to follow up, one week after discharge, in nutrition clinic. They are also facilitated visits to nutrition clinic and anthropometric record keeping, 1-3 monthly.

RESULTS

In this study, a total of 341 children was enrolled in Indus Hospital, Karachi. Out of this, females were 54.5 percent (n=186) while rest of them n=155 were male. The median age of patients was 2.2 years with the Interquartile range (IQR) of 1.45-2.90 years. The mean weight in children with malnutrition was calculated as 5.42 kgs. About 1.5 per cent of the patients were readmitted to the hospital after a specific time interval.

The percentage of patients discharged on parental request (DOR) was about 9.7 percent while the patients expired (EXP) due to SAM were 2.6 percent. About 3.8 percent patients Left Against Medical Advice (LAMA), from the hospital. A total of 83 percent patients were discharged after recovery from the hospital.

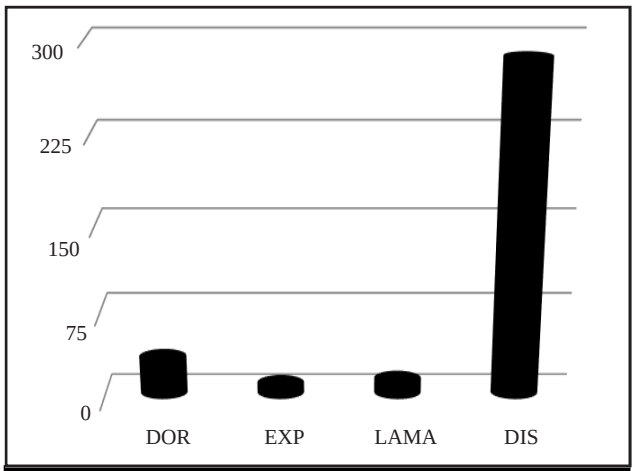

Fig. 1: Discharge status of children with SAM

Morbidities Associated with SAM:

The audit showed several morbidities in the studied patients, along with SAM. Patients were observed to suffer from co-morbidities like micronutrient deficiencies, electrolyte imbalance, and various congenital, chromosomal, and hormonal abnormalities. Infectious diseases were frequently observed and managed in children with SAM.

In total 341 patients of malnutrition, Marasmus was found to be the most common type of malnutrition as it was prevalent in 329 patients (96.3%). Kwashiorkor was observed in relatively low percentage of about 3.7 percent (n=12).

Among the infectious diseases of respiratory tract, Tuberculosis was suspected in 19.4 percent (n=66) while other Lower Respiratory Tract Iinfections (LRTI) were present in n=54 patients, which makes it 15.8 percent of the total 341 individuals. The other infectious diseases found commonly among the malnourished children were Acute Gastroenteritis (AGE) 31.4 percent, Sepsis in 15.6 percent (n=53) and Urinary Tract Infection (UTI) in 10.7 percent (n=36). About 0.9 percent (n=3) of malnourished patients had scabies and measles each. The fungal diseases found in total two malnourished children were amoebiasis and oral thrush. (Table 1)

Table 1: Prevalence of diseases in patients with SAM

	Number	Percentage
Infectious diseases		
AGE	106	31.4
LRTI	54	15.4
UTI	36	10.7
SCABIES	3	0.9
FUNGAL	2	0.6
Metabolic disorders		
Hypokalemia	159	46.6
Hyperkalemia	7	2
Hyponatremia	91	26
Hypernatremia	30	8.8
Haematological disorder		
Anaemia	325	95.3
vitamin B12 deficiency	1	0.3
Thalassemia	2	0.6
Thrombosis	4	1.2
Congenital/Chromosomal/ Hormonal disorders		
Cleft Palate	1	0.3
CP	19	4.6
Chédiak–Higashi	1	0.3
Nephrotic syndrome	1	0.3
Neurogenic bladder	6	1.8
Down's syndrome	1	0.3
PDA	3	0.9
Other illness and symptoms		
Rectal prolapse	7	2.1
Renal stones	9	2.8
Rickets	16	4.7
Diarrhoea	42	12.9

The metabolic disorders characterized by electrolyte imbalances were commonly observed. Hypokalemia was the most common metabolic disorder found in 46.66 (n=159) percent of the malnourished children. However, Hyperkalemia was found in only 2 percent (n=7) patients. Hyponatremia was found in 26 percent patients (n=91) whereas, Hypernatremia was observed in 8.8 percent (n=30) malnourished children.

The most common hematological disorder was found to be anaemia with a percentage of 95.3 percent (n=325) of all malnourished children. The deficiency of vitamin B12, thalassemia and thrombosis was found in 0.3, 0.6, and 1.2 percent patients, respectively.

Among the other (congenital/chromosomal/hormonal) disorders found in malnourished children, the cerebral palsy (CP) was the most common with the highest percentage of 4.6 percent (n=19) children. Neurogenic bladder was found in 1.8 percent (n=6) patients. While cleft palate, chédiak–higashi, nephrotic syndrome and down's syndrome were prevalent in n=1 patient each. However, the only Congenital Heart Disease (CHD) found was Patent Ductus Arteriosus (PDA) in n=3 patients. Other common morbidities found to be present with malnutrition were, rectal prolapse, renal stones and rickets in 2.1 percent (n=7), 2.9 percent (n=10) and 4.7 percent (n=16), respectively.

DISCUSSION

In this study of children under the age of five years with SAM, the average age group was observed to be 2.2 years. A literature review from Pakistan shows that children younger than 2 years of age have considerably high prevalence of malnourishment[2].

The majority of children had Marasmus type of malnutrition which is also termed as SAM, whereas, Kwashiorkor, also known as edematous malnutrition was found in lesser number of patients in this study. Similar percentages were found in studies reported from Karachi, Pakistan by Sameen *et al.* in 2014 where severe wasting was observed in 80.8%, while edematous malnutrition was present only in 19.2% cases[8]. A study from African countries indicated that the percentage of stunting was higher than severe wasting. Stunting was found in 42.5 percent of children while the severely wasted and underweight children were merely 12.1 and 32.7 percent respectively[9]. The figures reported form eighteen studies from Ethiopia where stunting, underweight and wasting was observed as 42.0 percent, 33.0 percent and 15.0 percent respectively.[10]

The malnourished children are more prone to infectious diseases. Lower Respiratory Tract Infections (LRTI), such as pneumonia, were observed in our study with almost the same statistics as found in another study from Karachi, Pakistan where pneumonia was found in 20 percent of the malnourished children[4]. Another common infectious disease we found in our study (30.3%) was also found in the earlier mentioned study from Karachi, where they found even higher rates of AGE, nearly in 51 percent of patients with SAM. We observed sepsis in more children (>15%) as compared to the values reported in WHO reports[11].

High prevalence of iron deficient anaemia was observed in our study which is an important risk factor for children all over Pakistan. Similar stats were observed in other studies where Sameen *et al*. and Ejaz *et al*. reported 88.4 and 80 percent of Iron deficient anaemia respectively[6,12]. The other most common micronutrient deficiency was found to be of vitamin D, which is responsible for causing rickets in malnourished children. Ejaz *et al*. reported 35.7 percent cases of malnourished children with rickets. The study from Sameen *et al*. on the other hand observed a lower (7.7 percent) of vitamin D deficient children which is much similar to our study. The congenital or chromosomal disorders were seen as total 8.5 percent in our study while the congenital or chromosomal disorders reported by Sameen *et al*. were 16.51 percent[6].

High percentage of hypokalemia, which serves as one of the major risk factors for mortality, was found in our study. Contrary to our findings (46.6%), Sameen *et al*. reported hypokalemia in 13.7 percent of the malnourished children in National Institute of Child Health (NICH). However, Hyponatremia was found in similar percentages to our study i.e. 22.6 percent.

Limitations:

The data collected in our study comes from only one tertiary care hospital of Karachi, The Indus Hospital (TIH). It is worth mentioning that even though TIH serves a large population of Karachi, it is a free of cost hospital and therefore, patients from low socio-economic status are more commonly cared for in this hospital. The data, however, is not representative of population of Pakistan or Karachi for that matter. The retrospective data was collected for the purposes of audit and improving the facilities available for children suffering from SAM. It being a retrospective inquiry, we were dependent on the documentation and data available. This data cannot be extrapolated or concluded for the morbidity patterns found in malnourished children all over Pakistan.

CONCLUSION

SAM is a major cause of morbidity and mortality in children under the age of five years. It is usually associated with high rates of co-morbidities like life threatening infections and metabolic disorders. WHO recommended protocol provides prompt and effective results while managing these sick children. However, factors that require in-depth evaluation include factors leading to malnutrition in children, explanations of failure to access healthcare assistance earlier by parents, lack of early identification, intervention and follow up visits. Further studies from Pakistan are required to

gather data from different regions and to develop policies and strategies to effectively manage malnutrition in Pakistan.

Authors' contributions:

Dr. Unaisa Kazi conceived the idea, worked on literature search, data collection, data analysis and review, and worked on the introduction. Dr. Sana Tariq worked on literature search, results, and discussion. Dr. Sarosh Saleem reviewed the literature, worked on discussion, and edited the manuscript. Dr. Muhammad Fareeduddin reviewed the article. All authors discussed the results and contributed to the final manuscript.

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Authorship for Multi-center Study

When a large, multi-center group has conducted the work, the group should identify the individuals who accept direct responsibility for the manuscript (3). These individuals should fully meet the criteria for authorship defined above and editors will ask these individuals to complete journal-specific author and conflict of interest disclosure forms. When submitting a group author manuscript, the corresponding author should clearly indicate the preferred citation and should clearly identify all individual authors as well as the group name. Journals will generally list other members of the group in the acknowledgements. The National Library of Medicine indexes the group name and the names of individuals the group has identified as being directly responsible for the manuscript.

ORIGINAL ARTICLE

An Evaluation of Dental Amalgam Waste Disposal Practices in Dental Teaching Hospitals and Private Clinics of Islamabad

Kefi Iqbal[1], Shehriar Husain[1], Usman Mahmood[2] and Rizwan Ullah[1]

ABSTRACT

Objective: To highlight the extent of implementation and current waste dental amalgam disposal procedures in dental teaching hospitals and private practices in Islamabad and Punjab province, Pakistan; according to International Standard Organizations' (ISO) guidelines.
Methodology: A customized questionnaire was dispatched to various teaching hospitals, dental outpatient departments (OPDs), and private clinics located in urban and semi-urban parts of Islamabad, Lahore, and Rawalpindi districts. The overall response rate was close to 90%. Out of 300 forms dispatched to the above mentioned urban and semi-urban zones; a total of 261 respondents returned the filled questionnaires.
Results: Majority of respondents in both the hospitals and private clinics resorted to non-ISO compliant methods of disposing off waste dental amalgam such as the waste bin—teaching hospitals (75%) and private practice (61%)). Handmixing technique or manual trituration was reported around 37.5% as compared to ideal method of encapsulated amalgam manipulation (58.6%).
Conclusion: In order to improve handling of waste amalgam in the dental practice, effective implementation of Best Management Guidelines at the regional and national level, such as regular continuous dental educational activities at dental learning centers for staff and practitioners, would help towards creating a better understanding amongst all stakeholders with respect to the biological and environmental impact of generating unregulated dental amalgam by products.

Key words: dental amalgam, dental waste, mercury

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صوبہ پنجاب اور اسلام آباد میں دانتوں کی تدریس کے ہسپتالوں اور نجی کلینکس میں دانتوں کے تیاری کے ملغوبے کو تلف کرنے کے عمل کی تشخیص

خلاصہ:

مقصد: (ISO) آئی ایس او کی مروجہ ہدایات کے مطابق صوبہ پنجاب اور اسلام آباد میں دانتوں کی تدریس کے ہسپتالوں اور نجی کلینکس میں دانتوں کی تیاری کے ملغوبے کو تلف کرنے کے مروجہ طریقہ کار پر روشنی ڈالنے کے لیے تحقیق کی گئی

طریقہ کار: ایک سوالنامہ راولپنڈی، اسلام آباد، لاہور کے شہری اور نیم شہری علاقوں میں واقع مختلف تدریسی ہسپتالوں اور او پی ڈیز میں بھیجا گیا۔ جس کا مجموعی طور پر نوے فیصد افراد نے جواب دیا۔ کل تین سو سوالناموں میں سے 261 سوالناموں کے جوابات موصول ہوئے۔

نتائج: جواب دہندگان کی بڑی تعداد نے دانتوں کی تیاری کے ملغوبے کو تلف کرنے کے ISO کے مخالف طریقہ کار کو اپنایا ہوا ہے۔ تدریسی ہسپتالوں میں 75 فیصد اور نجی کلینکس میں 61 فیصد نے کوڑے دان کا استعمال رپورٹ کیا۔ ہاتھوں سے ملانے کا طریقہ کار 37.5 فیصد لوگ استعمال کرتے ہیں جبکہ مسلک ملغوبے کو ملائے جانے کے مثالی طریقے 58.6 فیصد میں عام تھے۔

حاصل مطالعہ: دانتوں کے معالجوں میں ملغوبے کے فضلے کی بہتر انداز میں تلفی کے لیے صوبائی اور قومی سطح پر اداروں کی ہدایات پر موثر عمل درآمد ضروری ہے جیسے کہ دانتوں کے ہسپتالوں میں ملازمین اور معالجین کے لیے دانتوں کی حفاظت کے حوالے سے تربیتی سرگرمیاں منعقد کی جائیں ایسا کرنے سے حیاتیاتی اور ماحولیاتی اثرات کے حوالے سے دانتوں کے ملغوبے کی تلفی کے بارے میں ان کی معلومات میں بہتری آئے گی۔

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INTRODUCTION

The use of Mercury (Hg) as a constituent in the formulation of dental amalgam goes back to at least more than 17 decades[1-3]. Suffice it to say dental amalgam is one of the oldest restorative materials in the armoury of dentistry still in use today[4]. The powder component of dental amalgam is primarily composed

of silver, tin, zinc and copper, which is mixed with approximately 50% mercury to form a plastic mass that lends itself to easy manipulation and subsequent placement inside a prepared cavity, where, upon setting, it will exhibit sufficient hardness and durability in the oral environment suited for long term performance. The United States based Environmental Protection Agency (EPA) has placed restrictions on the mercury levels considered as safe to 10µg/day[5]. Dental amalgam is the most utilized direct restorative material in dentistry. This is due to its ease of placement (in and around the confines of the prepared tooth structure), good wear resistance, excellent values of compressive strength, low creep, minimal dimensional changes over a long time period and cost effectiveness. Moreover, a good marginal seal at the tooth-restoration interface courtesy corrosion product build up[3,6] coupled with placement in wet fields (for the less experienced clinician and difficult to isolate restorative zones), places dental amalgam in a unique position in the direct restorative material inventory of the clinic. However, the issue of biocompatibility of dental amalgam and minimum tolerable level of toxicity has always been a pressing and hotly debated matter in medical and public fora alike[7].

The testing of amalgam separators is done according to the guidelines put forth by the International Standards Organization (ISO). They are specified in ISO standard and number 11143—which effectively assesses the efficiency of removal in terms of the reduction in the number of amalgam particles entering the sewer system[8,9]. Until such time that the complete phase down of dental amalgam in everyday dental use worldwide is complete, it is paramount that disposal protocols of waste amalgam generated at chairside are handled with extreme caution in line with international protocols, so as to minimize the adverse effects of mercury exposure and subsequently limit the exposure of dental personnel and patients[10]. A significant burden of waste dental amalgam becomes part of oceanic environmental niches and subsequently assimilated by marine life (inevitably ingested by humans). This also creates the premise of a lead up towards the contamination of public drinking water.

International guidelines such as the Hazardous Waste Directive (91/689/EEC) developed in the European Union, specifies that any amalgam that is generated in the dental out-patient department (OPD) or in the hospital setting, must be disposedof in such a manner that there is no foreseeable danger to human health and/or the environment. Without proper ISO procedures to control amalgam waste at chairside, it is inevitable that multiple-sized particles of amalgam (during the filling process) would end up discarded and enter the standard waste stream via the chairside suction device. The process whereby wastes of multiple origins make their entry into water systems is recognized as 'waste water discharge'. This is subject to a number of controls and regulations in many western countries. Since healthcare workers in particular and organizations in general are actively involved in a number of activities pertaining to generating dental/medical waste such as dental amalgam, it is only logical to strictly regulate the manipulation of amalgam and its waste products at the national level. In spite of rampant and un-regulated use of dental amalgam in many regions around the world owing to its high durability, low technique sensitivity during placement and cost effectiveness when compared to aesthetic resin based direct restorative materials; global levels of awareness and subsequent realization of the impact of mercury discharge from dental surgeries and hospitals on the environment are on the rise. There are a few high income nations that have sought to impose a ban on dental amalgam use due to the relatively easier availability, accessibility, on par (and in some cases superior) clinical performance coupled with a higher biological and environmental safety index of tooth coloured restorative dental materials[11].

Dental amalgam remains, to date, the mainstay direct restorative material in the operative dentistry armamentarium for the better part of 150 years in many countries. This has especially been the case in countries like Pakistan and the United Kingdom (UK). In the case of the UK; large segments of dental care that fall within the domain of the National Health Service (NHS) have been traditionally associated with the use of dental amalgam[12]— this trend can be allocated for the economic and performance reasons stated above. The large number of aged dentate patients that were at the receiving end of multiple and extensive amalgam restorations are now living with unaesthetic and mechanically retained dental amalgam fillings with considerably weakened surrounding tooth structure. Moreover, the demand for complete replacement of sound dental amalgam restorations with resin based alternatives for purely aesthetic reasons is predicted to rise in the backdrop of increased life spans.

This study aims to catalogue and evaluate the various dental amalgam disposal methods utilized by dental hospitals and private clinics across the territories of Islamabad and Punjab province, Pakistan.

METHODOLOGY

A questionnaire with items documenting the waste management practices of dental amalgam was dispatched to dental hospitals and private clinics in Islamabad, Rawalpindi, Lahore, Multan, Sheikhapura, Sharaqpur, and Sialkot districts. The respondents were

dentists and house officers working at teaching hospitals and private clinics in the districts mentioned. They were asked to fill questionnaires detailing daily practices pertaining to waste disposal, amalgam dispensation and the number of restorations performed and removed by the dental practitioners. In addition to these, the questionnaire was supplemented with queries about the nature of dental practice and the locality in which the private practice and/or hospital was located.

The over all response rate was close to 90%. Out of 300 forms dispatched via courier service to the above mentioned urban and semi-urban zones; a total of 261 respondents returned the filled questionnaires. Sample size was calculated on the basis of amalgam waste that is 9.9% with margin of error 4% on 95% confidence level[13]. SPSS software (version 20.0) was used to tabulate and organize the data and reproduce the findings.

RESULTS

Most of the participants (around 65%) were based in the hospital setting (Figure 1). Dispensing methods showed an increased use of the encapsulated form of dental amalgam across both urban and semi-urban regions in Punjab at almost 60% (Table 1). The survey revealed that 75% of the respondents working in hospitals and 61% respondents in the private clinics chose the waste bin as their preferred method of discarding excess/waste dental amalgam and 12% of the respondents resorted to the sink as the go to disposal method. While 8% of the respondents claimed that they followed the proper recycling protocols for dealing with waste dental amalgam at chairside. Recycling rates fared slightly better in private clinics, with 13% of the participants claiming that they follow proper recycling protocols. Use of a photographic fixer solution appeared to be the least popular method for storing waste dental amalgam in both the hospital and clinic (Table 2). Moreover, the findings revealed that approximately 70% of the respondents performed an average of 20 amalgam restorations or less in a month (Figure 2). More than 80% of the respondents reported removing an average of 10 or less amalgam restorations per month (Figure 3).

DISCUSSION

The aim of this study was to highlight the waste dental amalgam management practices employed by dental hospitals and clinics in different regions of the Punjab province. The global shift away from the use of dental amalgam in the delivery of restorative oral healthcare is substituted by increasing frequency of use of alternative restorative materials. A large amount of

Table 1: Dental amalgam dispensing methods

Dispensing method	Frequency	Percent (%)
Handmix	98	37.5
Encapsulated	153	58.6
Both (Handmix+Encapsulated)	9	3.4
Total	261	100.0

Table 2: Preferred dental amalgam waste disposal and storing methods

Type of Practice	Disposal method (%)			
	Waste Bin	Sink	Recycling	Photographic Fixer
Hospital	75	12	8	4
Clinic	61	20	13	6

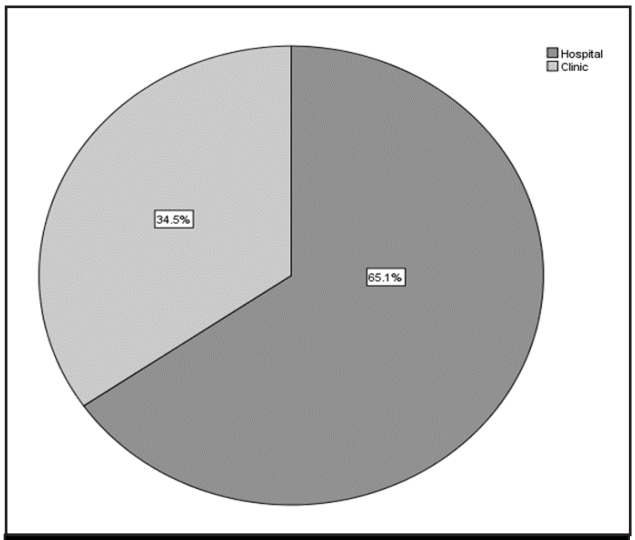

Fig. 1: Type of Dental Practice

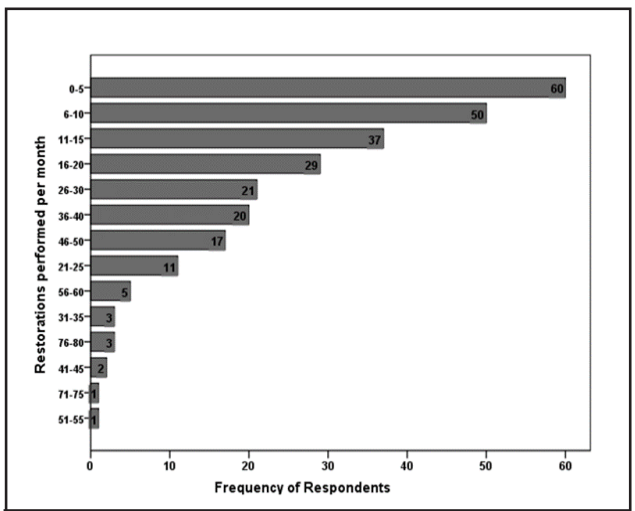

Fig. 2: Frequency of average number of dental amalgam restorations performed by respondents per month

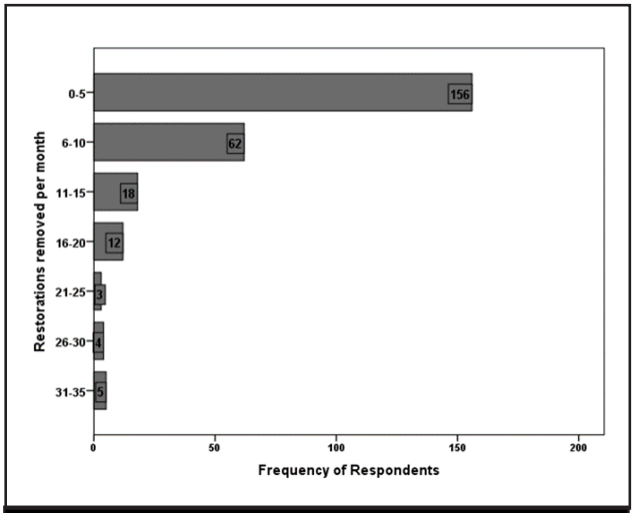

Fig. 3: Frequency of average number of dental amalgam restorations removed by respondents per month

exposure of the general population to mercury is mostly allocated to consumption of sea food (in the form of organic mercury, methyl mercury)[14] and dental amalgam[15], which may be in the form of elemental mercury and inorganic mercury[5]. The incidence of early onset dental caries and adult caries is considered a significant health affliction in both high- and low-income countries. Dental amalgam is still the mainstay dental restorative material in most regions, and efforts to implement control policies pertaining to unregulated flow of environmental Hg are ongoing[16]. A recent study by Lygre, Gunvor B., et al.[17] reported that amalgam restorations are not associated with an increased risk of attention deficit hyperactivity disorder in children exposed to dental amalgam from dental treatment of their mothers during pregnancy. However, important considerations and debates with respect to possible risk to the developing fetus as a result of amalgam restorations cannot be ignored.

Our study indicates that more amalgam restorations were placed each month as compared to restorations removed. These findings are also in agreement with our previous study in one large metropolitan city of Pakistan[18]. These differences in dental amalgam restoration and removal can partly be explained by factors such as affordability, longevity (durability), high compressive and wear resistance, ease of handling and placement of dental amalgams compared to contemporary restorative materials[19,20].

A strong response rate derived from this study pointed towards discarding of scrap amalgam in either the sink or waste bin, with minimal measures and incentives in place (in the vicinity of the practice) that could potentially encourage both staff and practitioners to follow the proper laid down protocols such as use of vacuum pumps, ISO standard compliant amalgam separators, and chairside traps for managing clinical dental amalgam waste. More importantly, these findings point to a lack of a proper waste stream and the implementation of associated best management practices guidelines (BMPs) for discarding waste dental amalgam at the provincial and national levels. This includes the absence of certified amalgam waste handling agencies and the separation of contact and non-contact amalgam from clinical waste.

The dental fraternity in Pakistan should take steps towards ensuring effective implementation of internationally laid down guidelines for a phase down of dental amalgam in light of persisting evidence backed concerns over alloy and mercury hazards to human health in particular and the environment in general. Legislations and capacity building for managing mercury waste are required at national level. Without these, a complete implementation of BMPs at the level of the end user cannot be effectively implemented. We will acknowledge here that dental amalgam is not the only source that is causing deleterious effects to environment and human health. Other main sources associated with these effects are mercury containing electronic item like batteries, switches, lamps, non-electronic measuring devices for instance sphygmomanometer, cement, and effluent from chemical industries[21]. The findings derived from this study will become part of a larger database conducted by this research group across Pakistan in other regions. Moreover, this work up forms part of the follow up investigation conducted in urban and semi urban localities of Sindh and Khyber Pakhtunkhwa. The investigations aim to map the handling and disposal practices of dental amalgam in Pakistan; as addressed in our previous works in this area[13,18].

There are some limitations of this study as the data relies on the self-reported practices of dental amalgam manipulation. Therefore, reported disposal practices and actual practices may vary. Our study reports the findings from some of the major urban and semi-urban zones in Islamabad and the Punjab province as part of an ongoing process to generate a mega study of analyses of amalgam disposal practices from other parts of Pakistan.

CONCLUSION

It was deduced that the findings revealed from this study correlate with data from our previous works in this area. Private clinics mostly discarded waste dental amalgam in the sink whereas hospitals preferred to discard excess dental amalgam in waste bins.

Respondents based in private clinic settings were slightly more inclined towards following prescribed recycling methods. The focus should be on controlling amalgam and mercury waste and optimizing the mixing and fixing of mercury with alloy, in order to minimize release of excess mercury in the environment and associated hazards.

Conflicts of Interest: The authors of this study declare no potential conflict of interest.

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ORIGINAL ARTICLE

Students Section

Frequency of Urinary Incontinence among Female Athletes of Karachi

Amna Yaseen[1], Muhammad Sarfraz Khan[1] and Rabia Rehan[2]

ABSTRACT

Background: Urinary incontinence is not only a beleaguering problem of older adult males and females but literature reveals that it is a problem for younger adults too. To the best of our knowledge, no research has been conducted in Pakistan to find out the prevalence of urinary incontinence among female athletes. Therefore, this study is conducted to find out its prevalence for the awareness of UI among female athletes, coaches, and sports physiotherapists.
Objective: To investigate the frequency of urinary incontinence among female athletes of Karachi
Methodology: A cross-sectional study to measure the prevalence of Urinary Incontinence (UI) among female athletes of Karachi. Non-probability purposive sampling technique is used. Recruitment was done from all female athletes of Karachi sports complexes including the National Coaching Centre-Pakistan Sports Board, Womens' complex, Naval Academy, The Physical Institute, Sindh Sports Board, and the Dow University of Health Sciences-Sports Complex. The duration of the study was from September 2017 to February 2018. Participants were enrolled from various sports academies of Karachi. A self-administered questionnaire was the mode of investigation.
Results: Total 373 female athletes were included in study. UI was experienced at least once by 242 (64.9%) athletes, while 131 (35.1%) had not experienced it. Out of this percentage, 12.1% had stress incontinence, 36.7% urge incontinence, and 16.1% had mixed incontinence.
Conclusion: UI frequency among athletes was found to be 64.9% which shows that UI among female athletes is a public health issue.

Key words: Stress incontinence, athletes, physical therapy

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:شہر کراچی کی خواتین کھلاڑیوں میں پیشاب پر قابو نہ ہونے کی شکایت کا جائزہ

مقصد: اس تحقیق کا مقصد کراچی کی خواتین کھلاڑیوں میں پیشاب پر قابو نہ ہونے کی شکایات کو جانچنا ہے

طریقہ کار: ستمبر 2017 سے فروری 2018 کے دوران کراچی کے مختلف کھیلوں کے ادارے بشمول نیشنل کوچنگ سینٹر، ویمن کمپلیکس، نوال اکیڈمی، دی فزیکل انسٹیٹیوٹ، سندھ اسپورٹس بورڈ اور ڈی یو ایچ ایس اسپورٹس کمپلیکس کی خواتین کھلاڑیوں کو تحقیق میں شامل کیا گیا۔ تحقیق کے لیے ایک سوالنامہ پر کروایا گیا۔ جس کی مدد سے کراچی کی خواتین کھلاڑیوں میں پیشاب پر قابو نہ ہونے کی شکایت کا جائزہ لیا گیا۔

نتیجہ: تحقیق میں مجموعی طور پر 373 خواتین کھلاڑیوں کو شامل کیا گیا جن میں سے 242 یعنی 64.9 فیصد خواتین کھلاڑیوں کو پیشاب پر قابو نہ ہونے کی شکایت کم از کم ایک بار ہوئی جبکہ 131 کو یعنی 35.1 فیصد کو یہ شکایت کبھی نہیں ہوئی۔ انھیں خواتین میں سے 12.6 فیصد کو ذہنی دباو، 36.7 فیصد کو urge incontinence اور 16.1 فیصد کو ان تمام ہی وجوہات کی بنا پر پیشاب پر قابو نہ پا سکنے کی شکایات تھیں۔

حاصل مطالعہ: خواتین کھلاڑیوں میں پیشاب پر قابو نہ پانے کی شکایت ایک عوامی صحت کا مسئلہ ہے۔

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INTRODUCTION

International continence society gives the definition of urinary incontinence (UI) as an involuntary loss of urine[1]. It is not a fatal condition but it has great psychological effects. Leakage of urine can be

comprehended by knowing its prevalence, severity, aggravating factor, impacts on social life and on the quality of life, and the preventive measures taken by a person[2].

UI can be classified into three types i.e. stress, urge, and mixed incontinence[3]. Sir Eardley Holland has expressed that stress incontinence is also known as exertional, orthostatic alternately diurnal incontinence[4]. Prevalence of stress urinary incontinence (SUI) is the highest compared to urge and mixed incontinence and a research reveals that its incidence increases in the 5th decade of life[5].

SUI is the involuntary leakage of urine during exertion since the intra-abdominal pressure is raised during the exertion and this elevated pressure cannot be resisted by the urethral sphincter, thus leads to urine leakage during day-to-day activities such as laughing, jumping, lifting, sneezing, etc.[1]. There are various considerable factors for SUI including aging, obesity, increase in BMI, and smoking. However, the impact of pregnancy and childbirth/parity is a conflicting cause[6]. There is a significant impact of SUI on psychosocial life of person and on the quality of life which further on leads to segregation from the society[7].

Globally, urinary incontinence is more common in females as compared to males, due to their anatomical and physiological body differences. Prevalence of UI among females is 20% to 50%[8] while in men its prevalence is only 3% to 11%[9]. UI is not just a problem of older adult females but also a distubing condition affecting young and middle-aged females too. Onset of UI is the most common in middle and late adulthood but now it is getting common in early adult females too[4]. Whilst many researchers have found an association between UI with increase in age and BMI, childbirth and mode of deliveries, hysterectomy, heart disease, asthma, arthritis/rheumatoid arthritis, and level of physical activities and sports[10-13].

Though nearly all women and many healthcare professionals consider absolute UI as a normal, however evidence suggests that UI during stressful physical activity is common among young physically active women even in the absence of known risk factors for incontinence[14].

Researchers suggest that this condition is not openly discussed by athletes and they remain hesitant to be examined by experts[1]. A research pertaining to this topic in South Africa suggests that the majority of women with urinary incontinence (86.9%) did not consult anyone for this problem. Therefore, athletes with UI manifestations utilize their own methodologies, and try to adjust their problem according to their strategies such as wearing absorbent pads, preventative urination, and avoidance of fluid intake. However, they do not usually look for medicines, proficient exhortation, or doctor suggestion. As a result, many of the athletes quit their sports activities[2].

The reported hesitation of athletes and treatment by their own methodologies has highlighted the need for more attention to be given to this problem and more information concerning women's behaviors toward incontinence should be collected by healthcare providers. More research is needed to find out the prevalence of UI among athletes while participating in their sports activities and to increase awareness of UI among them and to design interventions. Therefore, present study is aimed at investigating the prevalence of an under reported and embarrassing condition i.e. urinary incontinence among female athletes of Karachi as to the best of our knowledge no research has been conducted in this domain.

METHODOLOGY

An observational cross-sectional study design was undertaken for this research, September 2017 till February 2018 to evaluate the prevalence of UI among female athletes of Karachi. Participants were included from all the six districts of Karachi and data was collected from sports complexes including the National Coaching Centre-PSB, Women Complex, Naval Academy, The Physical Institute, Sindh Sports Board, and DUHS-Sports Complex.

Sample size of 373 was calculated through Open Epi version 3.0. The non-probability convenience sampling technique was used.

A self-administered questionnaire was the mode of information about the participants, distributed among those who fulfilled the following inclusion criteria.

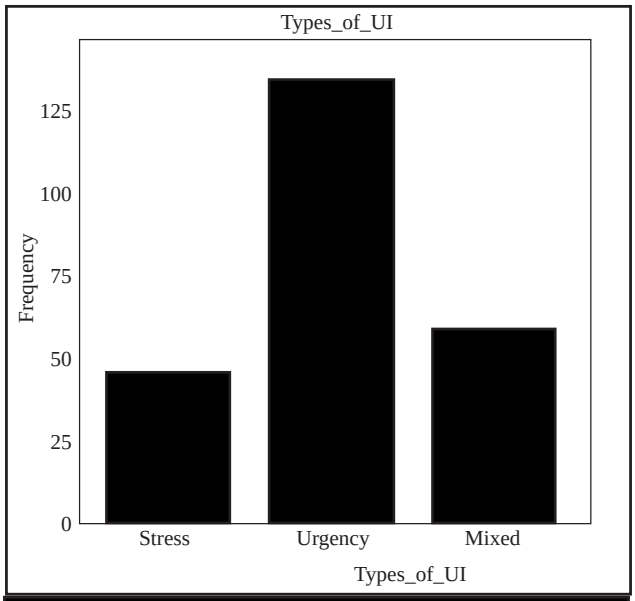
Selection Criteria:
Inclusion Criteria:
18–30 years, female athletes of Karachi

Exclusion Criteria:
.Diagnosed UI pregnant females athletes with other co-morbidities related to bladder and urinary tract system

The female athletes, who met the inclusion criteria, were asked to fill an informed consent form and then self-generated questionnaires were distributed to them.

All collected data was kept confidential.

The questionnaire included close-ended questions in three parts. Part A included demographics, and menstrual history, suggestive past medical history; part B included questions related to sports activity, involving the time duration of physical activity, drugs intake, and addictions; and part C included the questions related to urinary incontinence that if the athlete was found to have urinary incontinence, would she consider it as a problem, what are the preventive measures she may have been taking, and whether she thinks that physical therapy would be a better option of treatment. Collected data was entered and analyzed by SPSS (Statistical Package for Social Sciences) version 23. Chi-square Test is used to check the association of factors causing urinary incontinence among female athletes, P value less than 0.05 was considered as a level of significance.



Graph 1: Graphical Representation of Frequency and Types of UI

RESULT

Total 373 female athletes were included in our study. UI was experienced at least once by 242 (64.9%) athletes while 131 (35.1%) had not experienced it. The mean age was alike irrespective of the sport in which they were involved. The list of sports in which they were involved were 25 (6.7%) practicing athletes, 32 (8.6%) basketball, 32 (8.6%) volleyball, 63 (16.9%) badminton, 44 (11.8%) swimming, 21 (5.6%) table tennis, 1 (3%) tai-chi, 75 (20.1%) cricket, 24 (6.4%) indoor football, 2 (5%) throwball, 31 (8.3%) were involved in all type of sports and 23 (6.2%) were involved in some others sports.

Players who experienced UI had lower BMI.

(P=0.11) which is non-significant.(Table 1)

Table 1: Showing the significance and association among the various factors related to incontinence

	Value	p-value
Relationship Status	34.837	<0.01*
Hours of Exercise Per Week	4.777	.092
Periods Delaying Drugs	2.549	.110
Play During Mensturation	1.093	.296
Constipation	13.629	<0.01*
Think Abdomen Exercises Have a Role in UI	32.947	<0.01*
Diabetes	.230	.631
Hypertension	.550	.459
BMI	6.011	.111
Sports Activity Involves	17.601	.091
Practicing Duration	28.169	<0.01*
Mensturation Cycle	2.733	.098
Alcohol	1.088	.297
Doing Abdomen Exercises	43.402	<0.01*

Regarding the duration of practice, majority were practicing for less than or equal to five years (46.1%) while the least number (9.7%) were seen to be practicing for more than eight years. Less than or equal to one and eight years were 25.2% and 19% consecutively. Majority of athletes did not smoke (n=370; 99.2%) and (n=223; 59.8%) were single. More than half of the population did not present with constipation (n=217; 58.2%). Just 9 (2.4%) had gone through pelvic surgery. Most of the athletes (242;64.9%) suffered UI and possessed the symptoms of urgency urinary incontinence (137; 36.7%), while (47;12.1%) had stress UI, and mixed UI was experienced by 60 (16.1%). (107;28.7%) rarely experienced leakage and (51;13.7%) population experienced it sometimes. For quantity, 112 (30.0%) reported leakage of a few drops at one time, while 87 (23.3%) athletes answered only a few drops, while moistened protection (8.3%) and exceeds capacity (3.7%) was also reported. 34.7% did not respond to the question.

Most common aggravating factors for UI was coughing 27.6%, practicing sport 10.7%, sneezing 12.3%, laughing 9.1%, and heavy lifting 5.6%.

DISCUSSION

A positive relation has been found between athletes and incontinence as the frequency appears to be 64.9% according to our research. A similar study conducted by Cristina et al among Portugal's athletes revealed 41.5% prevalence of UI[1]. H.H. Thyssen, L. Clevin, S. Olesen, G. Lose et.al investigated 51.9% as the prevalence of UI among females[15] whereas the study

conducted by Zvetanka Simeonova and Calle Bengtsson gave 44% prevalence of UUI. Among those, 1/3 had SUI, 1/3 had UI and 1/3 had mixed incontinence[16]. Carrie Carls, conducted a study to find out 'the prevalence of stress urinary incontinence in high school and college-age female athletes in the Midwest: implications for education and prevention.' Studies established that young female athletes collaborating in excessive sports may be at greater risk for urinary incontinence, results indicated that more than 25% of females experienced incontinence[17]. Jessica and fellows conducted a study to find the prevalence of UI in physically active young women and factors related to it. 22.9% reported UI which occurred rarely once in a month. They found that SUI is the most common type with a prevalence of 60.7% though prevalence of UUI was 25% and MUI was 14.3%[14]. Whereas prevalence of SUI was 12.6%, UUI 36.7% and MUI was 16.1% in our study.

Women who are involved in high impact sports showed higher prevalence with a ratio of 55.5%, whilst women who were involved in low impact sports were 44.5% UI[18].

Though we found that the duration of activity had association with UI which was 15% among athletes who used to practice >8 hours per week, while 46.1% more frequent in athletes who were practicing for equal to or less than 5 years. Another study conducted by H. H. Thyssen et al reveals that 43% athletes mentioned urinary leakage while taking part in sports and 42% mentioned urinary leakage while performing their routine works. They concluded that the most common activity that provokes urinary leakage is jumping[15]. Moreover H. H. Thyssen et al studied the prevalence of UI among elite athletes and dancers. Their results suggested that UI is common among athletes during their practicing period and daily activities. They also found that during their practicing period, the most common aggravating activity is jumping, that was why gymnasts who are involved in high impact activities had a higher prevalence of UI. They further concluded that the prevalence of UI among gymnasts varied from 0 to 67% depending upon the activity in which they were involved[19].

However, our study showed that coughing triggers UI more i.e. 27.6%, while prevalence of UI triggers in practicing sports is 10.7%, sneezing 12.3%, laughing 9.1%, and heavy lifting 5.6%. In spite of all, one of the prior studies revealed that percentage of UI during training sessions is higher (95.2%) compared to competitions (51.2%). For that, higher levels of catecholamines during training were cited as a reason[20,21]. We cannot comment on it because we did not study the levels of catecholamines in our study.

Carrie Carls studied the prevalence of SUI among female athletes and found it to be very common. Among that abundance, 90% of female athletes had never shared their problem and had no understanding of preventive measures while 16% mentioned that UI impacted negatively on their lifestyles[17]. Cristina further added that females are quite hesitant to discuss this problem openly[1], a trend backed by our study which found that 34.6% female athletes had a problem of UI but they had not discussed it with anyone.

We included young population in our study therefore evident association is not present but a study was conducted by Nygaard IE et.al in 1994 showed that UI is most common in young adulthood in elite nulliparous females[22]. Another study conducted in Andorra shows the prevalence is 37% and increases with age. Moreover, incidence of UI is found to be greater in middle class females and very few consult anyone for it[23]. Moreover, Sousa M. et al. concluded that UI is more common among young elite nulliparous athletes, specifically who are engaged in high impact exercises. Study reported that 74% athletes have a problem of UI and Pelvic Floor Muscle Training strategies show effectual results and seem to be a good treatment technique[24]. The results of our research show that more than half i.e. 81.2% athletic population consider UI as a problem and 49.6% undergo physiotherapy treatment and use various strategies for treatment like, 18.2% of population was found doing Kegel exercises, 15.8% had done abdomen exercises, 12.1% had used bio feedback, 3.5% had used TENS and 3.2% had used some other techniques.

Diana Popova-Dobreva found that 28% athletes encountered UI during their athletic activity, however, after a certain level of exertion, it can occur at any age without having any associated risk factors. Studies found no significant relationship between BMI of women with the symptoms of lower urinary tract dysfunctions or without it. 59% of female athletes have some symptoms of dysfunctions of lower urinary tract, while 41% have no symptoms of dysfunctions of lower urinary tract[25]. Researchers Yngvild s hannestad et. al. in 2003 studied the relationship of UI with various factors and found that increase in BMI has a strong association with UI and high-level exercises can be a cause of UI. On the other hand, they found no association of UI with the increase in frequency of low impact exercises. Moreover, they studied that smoking is associated with UI, smoking of 20 or more cigarettes per day can be a cause. They found that tea drinkers

also had slightly higher chance of incontinence[26]. Lmdingrid Enygaard conducted a study and found a prevalence of SUI 10.9% and 2.7% urge incontinence in elite nulliparous athletes. Further they concluded that age, level of physical activity, and menopause do not have any association with UI[27] while Nygaard IE et al found jumping and high impacting activities can be a cause of UI, and they found a relationship with amenorrhea, hormonal therapy, weight, or participating time[22]. Furthermore, FDA also reports drug use of norethindrone-mestranol (mestranol, norethisterone) causes 0.0702% UI[28]. We found its percentage in our study to be 2.4% to 9.4% and no association was found between usage of periods inducing or delaying drugs with urinary incontinence.

Studies show that majority of athletes or people suffering from incontinence, limit their fluid intake as a preventive measure to avoid incontinence which can be one of the leading causes of constipation. A recent report showed that UI can be worsened by constipation[29]. Our study also showed an association between constipation and UI which is 41.8% prevalent among female athletes.

Regarding the debate between level of fluid intake and UI, cross sectional studies show that there is no association between UI and alcohol intake and between UI and coffee intake[31,32] but high levels of coffee intake cause a detrusor instability[33].

As a result of our study we concluded that the percentage of prevalence of UI among athletes is significant.

CONCLUSION

UI frequency among the athletes was found to be 64.9% which shows that UI is a public health concern among female athletes.

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Peer Review

Unbiased, independent, critical assessment is an intrinsic part of all scholarly work, including the scientific process. Peer review is the critical assessment of manuscripts submitted to journals by experts who are not part of the editorial staff. Peer review can therefore be viewed as an important extension of the scientific process. Although its actual value has been little studied, and is widely debated (4), peer review helps editors decide which manuscripts are suitable for their journals, and helps authors and editors in their efforts to improve the quality of reporting. A peerreviewed journal is one that submits most of its published research articles for outside review. The number and kind of manuscripts sent for review, the number of reviewers, the reviewing procedures, and the use made of the reviewers' opinions may vary. In the interests of transparency, each journal should publicly disclose its policies in its instructions to authors.

CASE REPORT

Squamous Cell Carcinoma of External Auditory Canal Arising from CSOM: A Rare Presentation

Syed Mohammad Tariq Rafi[1], Shafaque Mehboob[2] and Ammara Manzoor[3]

ABSTRACT

Malignant tumors of external auditory canal and of middle ear due to chronic suppurative otitis media (CSOM) are rare and complicated with the reported incidence of 1 out of 4000 cases. Since it is related to poor prognosis, therefore, early diagnosis may help the health caretakers to treat or manage this rare malignancy. In this report, we describe a clinical case of a 52-years-old male patient presenting with headache, vertigo, ear discharge with CSOM history who developed squamous cell carcinoma (SCC) of external auditory canal with temporal bone erosion and intracranial extension. This presented many challenges associated with the management of CSOM and treatment trends to make the strategy more beneficial for this particular neoplasm. The patient was managed by a combined oncological and otologic approach.

Key words: Chronic suppurative otitis media, temporal bone, squamous cell carcinoma, malignant tumors

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درمیانی کان اور بیرونی سمعی نالی میں CSOM کے باعث رسولی کا تناسب بہت کم ہے اور ایک اندازہ کے مطابق چار ہزار میں سے ایک ہے۔ چونکہ CSOM میں مکمل طور پر مرض سے شفایابی اور ہمیشہ کے لیئے اس پر قابو پانا ناممکن ہوتا ہے اس لیئے وقت پر کی گئی تشخیص معالج کے لیئے CSOM کو ابتداء میں ہی قابو پانے میں مددگار ثابت ہوسکتی ہے۔ موجودہ مقالے میں ایک باون سالہ مریض کا ذکر کیا گیا ہے جسے CSOM کے ساتھ سر درد، vertigo اور کان سے مادّے کے اخراج کی شکایت بھی تھی۔ مریض کو بیرونی سمعی نالی کا کینسر (SCC) کی تشخیص کی گئی جبکہ اسکی temporal bone بھی بری طرح متاثر تھی۔ اصل چیلنج یہ تھا کہ کیسے بیک وقت CSOM سے متاثرہ درمیانی کان کے علاج کے ساتھ ساتھ کینسر کو بھی قابو کیا جاسکتا ہے۔ اس مقصد کے لیئے مشترکہ اور بہتر oncological اور otological حکمت عملی کی ضرورت درپیش تھی۔

INTRODUCTION

Carcinoma arising from external auditory canal is a rare presentation in otological practice in which squamous cell carcinoma (SCC) is the most common type. Patients with pre-existing complications of CSOM, SCC usually present with poor prognosis but with good survival rate if diagnosed early as compared to the late stage. On the other hand, with the passage of time, hearing loss, depression and other disturbances may compromise the quality of life[1-3]. The malignancy of the temporal bone is not frequently reported, especially in the context of otitis externa which makes its treatment guidelines unclear. According to an estimation, 0.1-0.6 out of 1million population in the United States of America encounter this tumour every year but in the case of CSOM history, its prevalence rate is much lesser. Therefore, at advance stage, the challenging invasion of the mass requires combinations of technique for treatment/ management[4-5].

Several treatment protocols are reported but insufficient data and lack of randomized studies make the decision of the best modalities difficult. Usually, the most frequently employed method is surgical intervention for complications associated with CSOM after induction chemotherapy with or without radiotherapy. Other options such as intra-arterial chemotherapy can be taken under consideration. Delayed diagnosis, recurrent infections, and unclear signs and symptoms of CSOM may result in less follow up motivation which worsens the condition[6-8]. The current study presented a rare case of squamous cell carcinoma with temporal bone erosion that was initially diagnosed with CSOM in a tertiary care hospital, to highlight the diagnostic procedure and adopted therapy plan.

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Case report:

A 52-years-old patient, resident of Karachi, belonging to a poor socio-economic background was admitted in ENT ward for chronic suppurative otitis media. He presented with complaints of severe headache, fever, vertigo and nausea with a history of CSOM for over 30 years. On examination of ear pus, Proteus Mirabilis was identified as disease-causing agent that was resistant to several antibiotics such as ampicillin, gentamycin, and ceftriaxone but sensitive to amoxicillin/ clavulan, amikacin, piperacillin, and ciprofloxacin. Pure tone audiometry reflected hearing loss in left ear up to 80 dB at the frequency of 4KHz. Weight loss reached up to 10 kilograms within two months. The blood glucose level was on borderline with 13.3 g/dl haemoglobin level. The CT scan of the temporal region showed that there was sclerosis with loss of normal air lucencies involving left mastoid air cells. There was opacification of external auditory canal and middle ear cavity on left side as shown in Figure 1. Auditory ossicles were not visualized on left side. There was erosion of mastoid temporal bone and epitympanum. Findings were most likely due to left-sided acute on CSOM and otitis externa with cholesteatoma formation.

Right mastoid air cells show no evidence of mass, erosion, or sclerosis. Mild polypoidal mucosal thickening was seen in both maxillary sinuses representing sinusitis. The opacification of left mastoid air cells measured 2.2x1.1 cm in mastoid temporal bone. After the confirmation of temporal bone erosion, the patient was subjected to biopsy.

When the brain MRI with the scanning protocol of multiplanar multisequential images using usual protocols with contrast was carried out, redemonstration of abnormal signal intensity mass lesion was seen involving left temporal bone involving its petrous and squamous parts extending into mastoid air cells and showing complete obliteration of external auditory canal. It was appearing isointense on both T1W and T2W images showing significant postcontrast enhancement. The mass measured 6.3x5.0x4.0 cm (AP xTS x CC) T 4 size[9]. Medially, the mass was showing intracranial extension into the temporal lobe associated with perilesional edema. Posteromedially, the mass was seen infiltrating the temporal bone involving its petrous and squamous parts and it was extending into left cerebellopontine angle and abutting left cerebellar hemisphere. It was partially encasing petrous part of left internal carotid artery. Medially, it was partially infiltrating left pterygoid muscles and anteriorly it was reaching up to zygomatic arch.

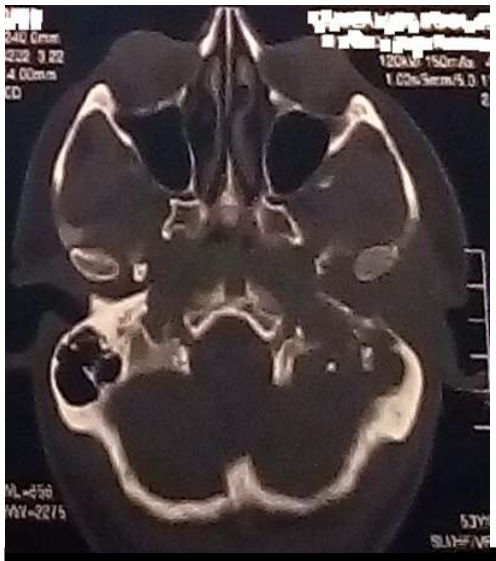

Fig. 1: Showing Sclerosis with Loss of Normal Air Lucencies Involving Left Mastoid Air Cells but Right Side Appears to be Normal

Fig. 2: Showing mass on left side

The case was referred to oncological department with diagnosis of SCC (well to moderately differentiated histology) where it was discussed in multidisciplinary tumour board and planned for induction chemotherapy with three cycles of cisplatin 100 mg/m2 iv D1 and 5 flourouracil 1000mg/m2 iv d1-d4, repeated every three weeks, followed by concurrent chemoradiotherapy to make the surgical intervention/ reconstruction easier if required, depending on patient's response.

DISCUSSION

Although malignancy of external auditory canal is not common, but most of this neoplasm is squamous cell carcinoma which contributes 60–80% of the temporal bone cancer. The signs and symptoms usually associated

with it are not reported in detail but usually represent otologic bleeding, sudden hearing loss, facial palsy, and vertigo etc. The peak reported age of this neoplasm is between 5th to 6th decade of life as happened in the case under discussion. The most challenging aspect of the treatment is the complications of CSOM especially with cholesteatoma which delays early diagnosis; therefore, suspicious cases should be subjected to biopsy.

Many risk factors associated with co-existence of CSOM and SCC are reported in different literature such as chronic suppuration, radiation, chemical carcinogens, and infections but most strongly found is recurrent infections over decades that may favour the development of malignancy. Cholesteatoma may facilitate the carcinogenesis but lack of evidence does not promote this suggestion[10].

Some studies also support the involvement of human papilloma virus in pathogenesis of tumour development in recurrent chronic inflammation[11].

Patients with a history of CSOM over decades may have granulation with internal haemorrhage and should be immediately subjected to histopathological evaluation to avoid poor prognosis as happens in advanced stages.

Surgical reconstruction for CSOM following radiotherapy and chemotherapy are usually adopted to encounter the consequences and to improve quality of life[10].

The case under discussion is reported due to its rare incidence to help the healthcare providers and policy makers to look at preventing the progression of the diseases and follow the combined therapy of possible surgical intervention with radiotherapy and chemotherapy.

Authors' contributions: Professor S.M.Tariq Rafi worked on interpretation and reviewed the manuscript. Shafaque Mehboob collected data, worked on interpretation and wrote the manuscript. Dr Ammara Manzoor worked on oncological interpretation.

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CASE REPORT

A Rare Case of Orbital Echinococcosis: A Histopathological Perspective

Nazish Jaffar[1], Saba Sattar[1], Noshaba Rahat[2], Sadaf Razzak[1], Syed Mehmood Hasan[1] and Saadia Akram[1]

ABSTRACT

Hydatid cyst of orbit is a rare disease constituting less than 1% of prevalence worldwide. It is a parasitic infestation by Echinococcus granulosus. It is prevalent in various regions of the world including South Asia. We, hereby, report a case of a 27-year-old male who was admitted to the ophthalmology ward of Jinnah Postgraduate Medical Centre. Presenting complaints were painless protrusion of left eye for the last few months progressing with time. After surgical excision, the specimen was sent to the Pathology Department, BMSI, JPMC, Karachi, for histopathological evaluation. Gross examination revealed multiple fragments of translucent, pearly-white, glistening thin wall of a cyst measuring 4x5 cm in aggregate. Histologically, features of hydatid cyst were identified with eosinophilic cyst wall, innermost germinal coat, containing attached and separated protoscolices and multiple daughter cysts, surrounded by dense fibrovascular tissue and chronic inflammatory infiltrate.

Key words: Orbital Echinococcosis, Orbital hydatid cyst, hydatid disease, HD histopathology

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Orbital Echinococcosis کی تشخیص کا غیر معمولی مریض پر جائزہ

طفیلی انفیکشن (hydatid cyst) کا مرض دنیا بھر میں ایک فیصد سے بھی کم پایا جاتا ہے۔ جو کہ Echinococcus granuloses کی وجہ سے پیدا ہوتا ہے۔ جنوبی ایشیا سمیت اس مرض کی تشخیص دنیا بھر میں پائی جاتی ہے۔ اس حوالے سے جناح پوسٹ گریجویٹ میڈیکل سینٹر کے علم امراض چشم (opthalmology) وارڈ میں ایک ستائیس سالہ مریض کو داخل کیا گیا، جس کی بائیں آنکھ میں پچھلے کچھ ماہ سے بغیر کسی درد کے ابھار کی شکایت تھی۔ آپریشن کے بعد مریض کو علم الامراض ڈپارٹمنٹ میں نسیجوں کی تبدیلی کے مشاہدے کے لیے بھیجا گیا۔ مشاہدے سے یہ بات سامنے آئی کہ دانے کی پتلی جھلی پر متعدد چار سے پانچ سینٹی میٹر کے ذرات پائے گئے جو کہ موتی کی طرح صاف تھے۔ ان میں خون کی باریک جھلی، اندرونی تہہ میں جرثوموں کی تہہ اور کئی خردسسٹ پھیلی ہوئی تھیں جن میں ریشے دار بافتیں اور سوزش بھی پائی گئی۔

INTRODUCTION

Hydatid disease (HD) or Echinococcosis and also known as hydatidosis, is a cyclo-zoonotic parasitic disease caused by taeniid cestodes; a larval stage of Echinococcus.[1,2] The parasite typically maintains a dog-sheep-dog cycle and humans are accidently infected by ingesting eggs released from dogs.[3] After ingestion, the larva gains entry into the blood circulation through intestines and seeding may occur in any part of the body, where it forms a cyst filled with fluid around itself.[4] The disease is distributed worldwide and is considered a public health problem, however the disease is prevalent in regions notable for contact with cattle and sheep like central Asia, China, Australia, South America, Africa, and South Asia.[5,6] HD commonly affects liver in 60-70% of cases and lungs in approximately 20% of cases respectively. However Orbital involvement is rare, occurs in 1–2% of the cases, and usually affects children and young adults.[7] Common clinical presentation of orbital Echinococcosis includes limited ocular movements, loss of vision, exudation, and oedema of eyelids and conjunctiva.[8]

The case with orbital Echinococcosis presented in outpatient department is reported below.

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Case Presentation:

A 27-years-old male was admitted to the ophthalmology ward of Jinnah Postgraduate Medical Centre with painless protrusion of left eye for the last few months. According to him, the size of the swelling had progressed with time. He also complained of restricted eye movements with gradual loss of vision and exudative discharge from the same eye.

On ophthalmological examination, mild forward proptosis of left eye was observed with massive chemosis. Visual acuity was reduced in the affected eye, while it was normal in the right eye. Fundoscopy revealed papilledema of the left optic disc. The extraocular examination of the left eye revealed a single, large, well demarcated, lobulated, and cystic mass in the left upper palpaberal conjunctiva. The mass was non-tender and non-pulsatile. The bulbar conjunctiva revealed marked vascular congestion. The ocular movement was restricted on left side. Rest of the general and systemic examination was normal. However, serological and radiological imaging details were not provided by the ophthalmologists.

Surgical excision of the mass was performed and the specimen was sent to the Pathology Department of Basic Medical Sciences Institute, Jinnah Postgraduate Medical Centre, Karachi for histopathological evaluation.

The Specimen was fixed in 10% buffered formalin. The gross examination revealed multiple fragments of translucent, pearly-white, glistening thin wall of a cyst measuring 4x5 cm in aggregate. Histologically, the sections exhibited features of hydatid cyst revealing eosinophilic cyst wall, with innermost germinal coat, containing attached and separated protoscolices and multiple daughter cysts, surrounded by dense fibrovascular tissue and chronic inflammatory infiltrate (Figures A and B).

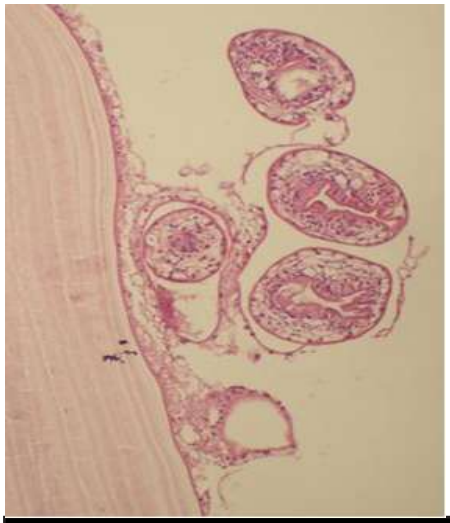

Fig. A: Photomicrograph: Hydatid cyst laminated cystic wall with attached protoscolices. H&E.10X

Fig. B: Photomicrograph: Hydatid cyst wall with daughter cysts.H&E. 40X

DISCUSSION

Hydatid disease or echinococcosis is a parasitic infestation by Echinococcus granulosus. Human is accidental host. The eggs are swallowed via water or vegetables contaminated with faeces of animals. They are then hatched within the small intestine and gain access to various organs through portal circulation. Unavailability of clean water and cattle breeding practices account mostly for this public health problem in Pakistan.[9]

To the best of our knowledge, we are presenting the first orbital hydatid cyst case in the past decade from the Pathology department, BMSI, JPMC. This disease is prevalent in younger population in endemic areas. In the present case, the patient's age was 27 years. The mean age reported in literature was found to be 25.7 years. Patients are usually farmers or cattle breeders. However, no such history was provided in our case.[10]

Hydatid disease commonly affects liver followed by lungs while other body sites are rarely involved. Orbital hydatid cyst has been reported in less than 1% cases worldwide. The patient becomes symptomatic early in case of an orbital cyst, since there is less space for the cyst to expand. Other rare locations include intracranial, spinal, musculoskeletal, and cardiovascular systems.[11]

In the present case, no laboratory or radiological findings were provided. However, CT scan and MRI have proven to be the useful diagnostic tools in case of hydatid cyst. Histopathological examination provides a confirmatory diagnosis. Certain serological tests are

also performed for establishing a diagnosis as well as screening of this disease. These include enzyme-linked immunosorbent assay (ELISA), latex agglutination and indirect hemagglutination tests, replacing Casoni's test.[12] Furthermore, on imaging, the hydatid cyst may provide variable presentation and may pose challenges for radiologists. Thus, it is essential for radiologists from endemic areas to be able to identify the dynamic features of this cyst.[13]

The treatment of choice for this lesion is surgical excision of the cyst. Utmost care is required to prevent the spillage of the cystic fluid into the surrounding tissue. In practice, the neighbouring area of the cyst is protected by 2% formalin. Cyst is punctured, fluid is aspirated, and then the walls are removed carefully.[13]

In our case, the cyst was removed and fragmented segments of the cyst wall were submitted for histopathology.

On gross examination, the cyst wall is thin, translucent, pearly-white, with glistening surface. Microscopic examination of the current case revealed the cyst wall composed of germinal layer. Protoscolices and a few daughter cysts were appreciated. Laminated membrane was also identified. Outermost layer was composed of fibrous tissue with scattered chronic inflammatory infiltrate. Similar features were reported by Nicholson *et al.* in their case series on orbital hydatid cysts.[10]

Similar to a Turkish study, in our case, no significant postoperative complications were recorded.[14]

CONCLUSION

Orbital hydatid cyst is a rare entity. It should be considered as a differential diagnosis in a cystic lesion or mass of orbit, where presenting symptoms include proptosis, chemosis, and blurred vision. Histopathologic examination is mandatory for confirmatory diagnosis. However, correlation with radiological imaging should also be taken into account.

Authors' contributions: Nazish Jaffar conceived the idea and wrote the manuscript. Saba Sattar contributed in manuscript writing. Noshaba Rahat worked on histopathological diagnosis and details. Sadaf Razzak carried out the literature search. Syed Mehmood Hasan critically reviewed the case. Saadia Akram edited and made the final review.

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Corresponding 22nd - 24th Dhul Hijjah 1440 H

International Speakers From: Malaysia, Iran, Egypt, UAE & Saudi Arabia

Last Date for Abstract Submission:
Saturday, 20th July 2019

Last Date of Registration for Workshops:
Monday, 19th August 2019

PMDC Recognized
CME Credit Hours will be awarded

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