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The objective of this journal is to publish studies in the aforementioned aspects and subjects. These studies will be extremely essential in bolstering awareness and comprehension of the influence of therapeutic strategies on human health advancement. Both national and international scholars are encouraged to submit research on these topics. It will empower all of us to collaborate as a global team to do something for the greater good.

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Abbreviations
If there are any abbreviations in the article they have to be mentioned.

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Provide a context or background for the study (i.e., the nature of the problem and its significance). State the specific purpose or research objective of, or hypothesis tested by, the study or observation; the research objective is often more sharply focused when stated as a question. Both the main and secondary objectives should be made clear, and any pre-specified subgroup analyses should be described. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

METHODS
The Methods section should include only information that was available at the time the or plan of the protocol. All information gathered during the conduct of study should be included in the result section.
Study Design, Inclusion / Exclusion Criteria, Data collection procedure, Statistical analysis.

RESULTS
Present your results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first.

Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. When data are summarized in the results section, give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical methods used to analyze them. Table font should be 10 and caption should be below table and figure.

Data should not be duplicated in both figures and tables. The maximum limit of tables and figures should not exceed more than 4. Mention the findings of the study in paragraph, while mentioning figure and table number in text in sequential order.

TABLE

Table should not be copy pasted or in picture form

DISCUSSION

Discuss your findings by comparing your results with other literature

REFERENCES

References should not be less than 20.
In text references should be in number style. For Example [1]
Follow the Pubmed Referencing style
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Example: Cook NR, Rosner BA, Hankinson SE, Colditz GA. Mammographic screening and risk factors for breast cancer. American Journal of Epidemiology. 2009 Dec;170(11):1422-32. doi: 10.1093/aje/kwp304.

If there are more than six authors, write *et al*. after the first six names.

CONCLUSION(S)

Conclusion should elucidate how the results communicate to the theory presented as the basis of the study and provide a concise explanation of the allegation of the findings.

ACKNOWLEDGEMENT

Provide the list of individuals who contributed in the work and grant details where applicable

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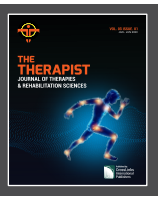

Advancements in Dermatological Therapies

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Dermatology has witnessed remarkable advancements in therapeutic approaches, revolutionizing the field and transforming the landscape of skin health. From innovative treatment modalities to novel drug discoveries, the realm of dermatological therapies has expanded exponentially, offering new hope and improved outcomes for patients. These advancements have not only revolutionized the way we address various skin conditions but have also opened doors to personalized and targeted treatments. Exploring and embracing these advancements is crucial for dermatologists to provide the highest level of care and enhance the quality of life for their patients. The advent of biologics and targeted therapies has been a game-changer in dermatology. Conditions such as psoriasis, atopic dermatitis, and various autoimmune disorders now have targeted treatment options that specifically address the underlying mechanisms of the disease. Biologics, including monoclonal antibodies and immune modulators, have shown exceptional efficacy in managing these conditions, providing long-lasting relief and reducing disease burden for patients. Additionally, advancements in molecular research and genetic profiling have paved the way for personalized medicine in dermatology, allowing for tailored treatment plans based on an individual's unique genetic makeup and characteristics.

Furthermore, technological innovations have brought forth significant advancements in dermatological therapies. Laser and light-based treatments have revolutionized the management of various skin conditions, including acne scars, vascular lesions, and unwanted pigmentation. These non-invasive procedures offer precise targeting and minimal downtime, delivering remarkable results with reduced risks. Moreover, the integration of artificial intelligence and digital health technologies has enhanced diagnostic accuracy and improved treatment outcomes. From teledermatology to image analysis algorithms, these technologies streamline patient care, facilitate remote consultations, and enable efficient data-driven decision-making.

Collaborative efforts between dermatologists and pharmaceutical companies have also led to the development of novel therapeutic agents. New drug discoveries, formulations, and delivery systems have expanded treatment options for conditions such as skin cancer, fungal infections, and chronic inflammatory disorders. Researchers continue to explore innovative pathways, including immunotherapies and microbiome-targeted therapies, opening doors to further advancements in the field. Advancements in dermatological therapies have ushered in a new era of precision and effectiveness in the management of various skin conditions. From targeted biologics to technological innovations, these breakthroughs have transformed the way dermatologists approach patient care. Embracing these advancements and staying abreast of the latest developments is essential for dermatologists to provide the best possible care and improve patient outcomes. As the field continues to evolve, ongoing research, collaboration, and technological integration will shape the future of dermatological therapies, empowering both clinicians and patients in their pursuit of optimal skin health.

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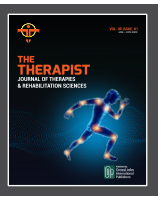

Original Article

Evaluation of Patients Satisfaction Level and Quality of Life (QOL) Receiving Physical Therapy Care for Musculoskeletal Disorders in Public and Private Hospitals

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ABSTRACT

Patients' satisfaction is the experience of an attitude and effective response that is related to beliefs that the physiotherapy service provided to patient must have adequate component and dimension. **Objective:** To measure the satisfaction level and quality of life of patients in both public and private hospitals of Faisalabad. **Methods:** It was a comparative cross-sectional study with sample size of 278. A simple random sampling technique was used to collect data from patients receiving physical therapy care in both the public and private sectors. The outcome measures of the study were the multidimensional "Queen Mary's Satisfaction Survey" and the "SF-36 Questionnaire" to check level of satisfaction and overall QOL. The collected data were then analyzed by SPSS version-22. **Results:** About 6.5% patients from government and 35% from private hospitals were highly satisfied from the physiotherapy services.46% patients from government and 64% from private reported to have an excellent quality of life. Independent t-test revealed that p value was less than 0.05 for both satisfaction level and quality of life in patients receiving physiotherapy from private and government sectors of Faisalabad. **Conclusions:** A significant difference was found between quality of life and satisfaction level of patients receiving physiotherapy from private and government hospitals of Faisalabad. Patients of private hospital reported higher level of satisfaction and QOL as compared to the government hospitals.

INTRODUCTION

Musculoskeletal problems are the leading cause of disability [1]. These problems may result in severe discomfort, swelling that makes the movement difficult, and leads to poor mobility [2]. Musculoskeletal disorder occurs due to sudden exertion, awkward posture, micro trauma and repetitive motion [3]. Musculoskeletal and orthopedic problems affect the entire body and severely limit the patients' ability to perform daily activities [4]. These problems are costly and expensive and require significant care and time to cure them [5]. Patients with these muscle-related problems frequently have trouble in doing their office work and other employments, which makes it difficult for them to make money and ultimately results in financial issues [6]. Physiotherapy play an

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important role in relieving pain, restoring functioning, and improving quality of life [7]. The severity of their signs and symptoms and interference with ADLs influence their decision to use physiotherapy services [8]. Physical therapy appointments recommended by doctors typically aid patients in resolving their bone and muscle problems [9]. It is crucial to make sure patients are satisfied while receiving physical therapy for skeletal and muscular problems. Clinical staff and physical therapists must be skilled at identifying and addressing each patient's unique needs [10]. By meticulously measuring and evaluating patient satisfaction levels, pain assessments, and activities of daily living, healthcare professionals are empowered to identify areas for enhancement and refine their approaches accordingly [11]. Quality of life is a broad multi-dimensional concept, refers to how well we live, i.e., the general well-being of people and societies [12]. It is the standard of happiness, comfort, and health of that individual or group outcome. A patient's satisfaction level with physiotherapy is critical to determining whether the care he received is appropriate or not. It mimics a significant indicator that lets us know how well issues are resolving. By comprehensively examining satisfaction levels alongside key factors such as quality of life, pain management, and activities of daily living, across diverse healthcare settings, valuable insights can be gleaned to inform and guide the refinement of treatment approaches. Ultimately, this endeavor strives to enhance patient well-being and optimize the delivery of physiotherapy services [13]. A qualitative inquiry was undertaken to investigate the subjective experiences of individuals afflicted with enduring musculoskeletal pain undergoing physiotherapeutic intervention. The sample comprised eleven participants presenting with pain localized in the dorsal, cervical, or scapular regions. Data were gathered through semi-structured interviews and subjected to qualitative content analysis for interpretation and understanding. The establishment of a trusting therapeutic alliance and ongoing dialogue with the physiotherapist emerged as crucial elements. The active engagement of both participants and physiotherapists in personalized exercises, activities, and other therapeutic approaches resulted in advantageous modifications in behavior, as well as the acquisition of novel knowledge and heightened bodily consciousness. The findings highlight the efficacy of physiotherapy in primary care for individuals coping with persistent pain [14]. The purpose of the study was to evaluate the quality of life (QOL) and patient's satisfaction level receiving physical therapy for musculoskeletal disorders in both public and private hospitals. The existing literature has limited research focusing on patient satisfaction and QOL specifically related to physical therapy interventions in different healthcare settings. This study aimed to fill a research gap by investigating how well physical therapy works for skeletal and muscular problems. Study focused to learn about how well patients feel and how well physical therapy improves their lives. Identifying patient's satisfaction and their quality of life can aid in the development of better treatments and better healthcare system. The study findings help the therapist to improve the overall well-being of patients and help healthcare professionals to use more effective approaches.

METHODS

It was a comparative cross-sectional study with sample size of 278. A simple random sampling technique was used to collect data from patients receiving physical therapy care in both the public and private sectors of Faisalabad. Sample size was calculated by open epitool software. A total of 278 participants, from both public and private sectors, were included in the study, according to the defined selection criteria. Inclusion criteria of the study were patients with age between 35 and 75 years, who had been receiving physiotherapy care for MSDs from a minimum duration of one week. The exclusion criteria entailed the exclusion of participants without any musculoskeletal disorders, those afflicted by psychological conditions, as well as individuals displaying cognitive or behavioral imbalances. The required data from the study participants was collected through, Queen Mary's Outpatient Physiotherapy patient satisfaction survey which is specifically designed to assess patients' satisfaction and SF-36 questionnaire. The SF-36 questionnaire is used to evaluate quality of life, which includes eight QOL domains, was developed and validated as a generic short-form tool for assessing quality of life, and it was extensively used in the Medical Outcomes Study to evaluate significant QOL domains [15]. Previous research showed Test-retest reliability (r>0.70) and internal consistency (>0.70) of SP-36 questionnaire [16]. For data collection, first researcher explain the purpose of study to the participant and informed consent form was signed by the patient, then researcher fill out the questionnaires by asking questions to the patients. Then the overall score of patient's satisfactions and QOL was calculated. The overall score of Queen Mary's Outpatient Physiotherapy patient satisfaction survey was divided into five categories. From 0 to 6 patient was considered very satisfied, from 7 to 14 patients were considered unsatisfied, from 15 to 24 satisfaction level of patients was considered neutral, from 25 to 34 patients were considered satisfied and having score from 35 to 42 patients were considered highly satisfied from the physiotherapy treatment. SF questionnaire has eight sections and each section has a

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score of 100. The overall score of Quality of life was compiled by calculating the percentage of total points. From 0 to 24, QOL was considered as poor, from 25 to 49 QOL was categorized as fair, from 50-69-point quality of life was considered as good, from 70 to 84 QOL was considered as very good and from 85 to 100 QOL was categorized as excellent. A permission letter signed by the HOD of the department was used to get permission for data collection from the required hospitals. The study received permission from institutional review board of Government College University Faisalabad. Prior to data collection, informed consent forms were signed by all study participants. Patients privacy and dignity was prioritized. Collected data were analyzed by SPSS version 22.0. Descriptive statistics were illustrated as frequency and percentage and independent t test was used to analyze the significant difference in patient's satisfaction and quality of life of private and government hospitals.

RESULTS

Figure 1 shows the gender distribution; 50.35% of study participants were males, while 49.63% were females. The majority of participants were between the age of 35 to 44 years (30.6%). Consequently, 19.8% were between 45 to 54 years, 17.7% patients were between 55 to 64 years, 29.1% were between 65 to 74 years and only a small proportion about 1%, were between 75 to 84 years (Figure 2).

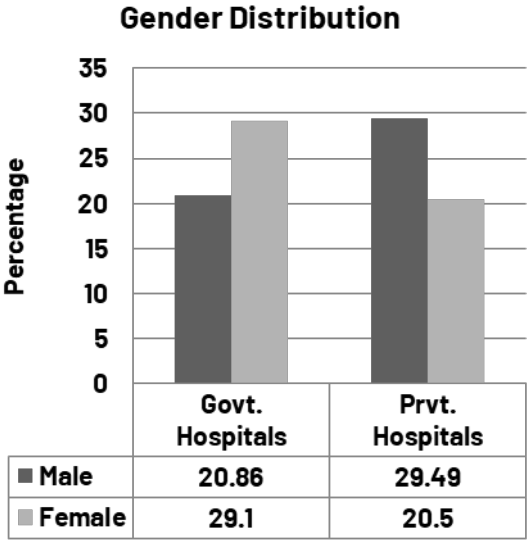

Figure 1: Gender of Participants

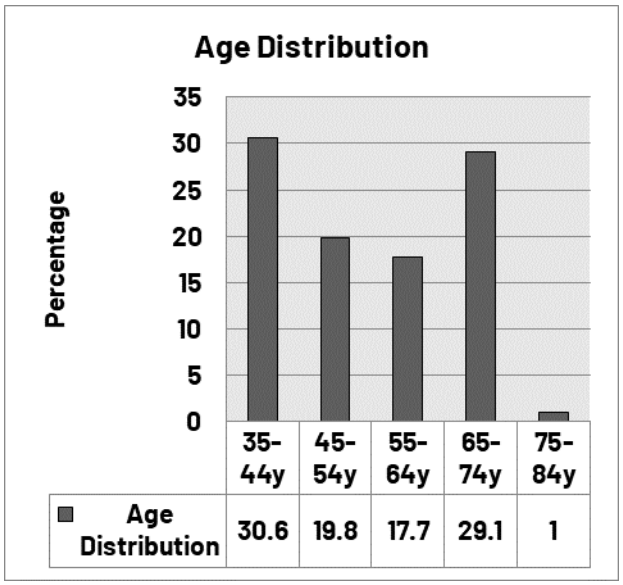

Figure 2: Age of Participants

Table 1 showed the frequency and percentage of overall patient's quality of life. 46% patients from government hospital and 64% from private hospitals had excellent quality of life. 40.3% patients of government and 28% patients from private hospitals reported to have very good quality of life. 12.2% had good, 1.4% had fair and 0% patients reported to had poor quality of life from government hospitals. Among patients that were receiving physical therapy from private hospitals, only 5.8% had good, 0.7% reported fair and 0% had poor quality of life.

Table 1: Overall score of QOL

Govt. Hospital Patients (n=139)		Private Hospital Patients (n=139)	
Quality of Life	F (%)	Quality of Life	F (%)
Poor	0(0)	Poor	0(0)
Fair	2(1.4)	Fair	1(0.7)
Good	17(12.2)	Good	8(5.8)
Very Good	56(40.3)	Very Good	40(28.8)
Excellent	64(46.0)	Excellent	89(64)

Table 2 demonstrates the overall score of patient's satisfaction level. From government hospitals, 6.5% patients were highly satisfied, 24.5% were satisfied, 29.5% were neutral, 26.6% were dissatisfied and 12.9% were very dissatisfied from physical therapy services they received for musculoskeletal disorders. From private hospitals, 23% were highly satisfied, 36% were satisfied, 21.6% patients were neutral, 15.1% were dissatisfied and 4.3% patients were very dissatisfied from physical therapy treatment, they were receiving for musculoskeletal disorders.

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Table 2: Queen Mary's Outpatient Physiotherapy patient satisfaction survey overall score

Govt. Hospital Patients (n=139)		Private Hospital Patients (n=139)	
Satisfaction level	**F (%)**	**Satisfaction level**	**F (%)**
Very dissatisfied	18(12.9)	Very dissatisfied	6(4.3)
Dissatisfied	37(26.6)	Dissatisfied	21(15.1)
Neutral	41(29.5)	Neutral	30(21.6)
Satisfied	34(24.5)	Satisfied	50(36.0)
Highly satisfied	9(6.5)	Highly satisfied	32(23.0)

Independent T test showed that there is a significant difference (p=0.00) in satisfaction level of government and private hospital patients. Patients of private hospitals were more satisfied as compared to government hospital patients. Also, there is a significant difference (p=0.04) in QOL of government and private patients. Patients of private hospital had better quality of life than government hospital patients (Table 3).

Table 3: Independent sample t-test

Patients' Satisfaction			
Sector	**t**	**df**	**Sig.(2-tailed)**
Government	-5.42	276	0.00
Private			
QOL of Patients			
Government	-2.06	276	0.04
Private			

DISCUSSION

Musculoskeletal disorders have a significant impact on people's functional status and their ability to perform daily activities. Physical therapy interventions are critical in relieving pain, restoring functional abilities, and improving patients' overall quality of life [7]. The aim of the study was to recognize the factors of the patient satisfaction and quality of life in the outpatient physical therapy department of both public and private hospitals of Faisalabad. In the current study, from govt. hospitals 24.5% patients were satisfied and 6.5% were highly satisfied and from private hospitals 36% patient were satisfied and 23% were highly satisfied with the physical therapy services they received for musculoskeletal disorders. Also 46% patients of government hospital and 64% patients of private hospitals had excellent quality of life. Moderate quality of evidence from previous studies indicated that patients who access physiotherapist directly for their problems lead superior outcomes like healthcare expenses, disability reduction and also the quality of life [17]. Results of recent study showed that there was a significant difference in patient satisfaction (p = 0.00) and QOL (p = 0.04) in government and private hospitals. Patients receiving physical therapy from private hospital were more satisfied and have better quality of life than government hospital. But in contrast to this a study of united Arab Emirate by Hamda *et al.*, in found no significant difference in perceived quality of health services received by patients in private and public hospitals [18]. In recent study significant difference were found between satisfaction and QOL of patients in public and private hospitals. This difference might be due to the fact that therapists' in private hospitals listen patients' problems more attentively and give appropriate time to complete the treatment sessions. A study by Tanveer *et al.*, revealed that interpersonal communication skills exhibited by therapist have a major impact on patients' level of satisfaction. Effective communication between doctor and patient leads to more positive and satisfactory experience of treatment on patients [19]. In recent study, patients of private hospital reported higher level of satisfaction and QOL as compared to the government hospitals. Factors that contributed to higher satisfaction level and quality of life were more personalized care, advance modalities, proper interaction of therapist to patients, limited waiting time, and better treatment services. In line with these results, a study by AisyaPutri *et al.*, indicated that positive correlation was found between patient satisfaction level and higher quality of services provided in cases related to sport injuries [20]. The limited sample size of the study may affect the generalizability of this research to broad level. Moreover, it relied only on self-reported data of patients regarding to satisfaction and quality of life which may subject to biasness or false reporting by patients. Further research with broader sample size is recommended to enhance generalizability. Further studies are recommended with incorporating objective measurement including medical reports and clinical assessment rather than self-reported measures only. This was provided more comprehensive outcomes. Government should focus to improve healthcare services in public hospitals to enhance the experience of patients and quality of life.

CONCLUSIONS

A significant difference was found between quality of life and satisfaction level of patients receiving physical therapy services from private and government hospitals of Faisalabad. Patients of private hospital reported higher level of satisfaction and QOL as compared to the government hospitals. Factors that contributed to higher satisfaction level and quality of life were more personalized care, advance modalities, proper interaction of therapist to patients, limited waiting time, and better treatment services.

Authors Contribution

Conceptualization: HMAS
Methodology: M, AT

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Formal Analysis: MNS
Writing-review and editing: HR, TG, KM, UM, KS

Author have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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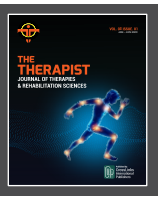

Original Article

Analyzing the Key Predictors of Implant Cut Out in DHS-Treated Intertrochanteric Fractures: A Comprehensive Investigation

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ABSTRACT

Intertrochanteric fractures are osteoporotic fractures in nature that mainly affect elderly people and lead to disability annually. This creates a burden on the healthcare system and results in significant resource usage, attention to medical needs, and rehabilitative care. **Objective:** To identify and analyze the key factors associated with intertrochanteric fractures. **Methods:** A cross-sectional study was conducted at Khawaja Muhammad Safdar Medical College (KMSMC) in Sialkot, Pakistan. This observational study enrolled 137 patients, with 63 males (46%) and 74 females (54%). **Results:** The average age of the selected group was 64.55±14.26 years. It was highlighted that most of the fractures (52%) were on the right side, this features a potential asymmetry in fracture development. Secondly, falls were recognized as the prime reason for intertrochanteric fractures, as it accounts for 65% of the cases. As per fracture classification taken into account, stable fractures (64%) were the most common type noticed. Furthermore, a large part of patients (76%) encountered a positive outcome in terms of union, mentioning a successful healing of the fractures. Besides, a notable percentage (52%) of the cases exhibit good reduction, demonstrating functional alignment of fractured bone segments in the course of the treatment procedure. **Conclusions:** The present study deduced that a remarkable number of fractures were observed on the right side, specifying a possible imbalance in fracture occurrence. Furthermore, falls were regarded as the primary cause of intertrochanteric fractures. Majority were stable in nature with positive union outcomes and showed a good reduction.

INTRODUCTION

Hip fractures are usually linked with poor bone quality, this underlines the crucial need for correct positioning of metalwork within the femoral head. It is also equally vital for implants to possess the strength and resilience needed to resist the development of cut-outs [1]. Intertrochanteric fractures, manifests higher death rates and complex impediments rendering them especially concerning [2]. They comprise hip fractures and which responsible for burdening the healthcare system as they cause millions of disabilities per Anum [3]. Inter-trochanteric fractures, are mostly seen in the geriatrics. So, this requires treatment aimed at restoring early mobility to lessen complications and return patients to their pre-operative state. Prompt surgical intervention is considered most important for

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elderly patients with intertrochanteric fractures [4]. The dynamic hip screw (DHS) is the prevailing gauge and standard for assessing outcomes, especially in stable intertrochanteric fractures. Over the past decades, the treatment of intertrochanteric fractures has noticed considerable improvements, with various fixation devices emerging and fading. But still, the choice of treatment relies on the fracture type and bone quality. The DHS has long been counted as the benchmark for fixing intertrochanteric fractures, particularly the stable fracture types [5]. The dynamic hip screw (DHS) is considered the ideal way out for intertrochanteric fracture fixation, earning its position as the gold standard implant [6]. For optimum post-surgical results, it is prudent to address a displaced joint by employing a recommended device in conjunction with DHS fixation. This method underlines the remarkable efficacy of DHS, yielding impressive outcomes and forming a foundation for further enhancing joint stabilization [7]. Implants must undergo a consequential number of loading cycles with sub-critical amplitudes, which can upshot in a failure mode often known as implant cut-out. Cut-out is the prime mechanical problem observed in trochanteric fractures. Various factors are responsible for this, such as age, osteoporosis, fracture type, reduction quality, and potential mispositioning of the lag screw. However, there is ongoing controversy and debate surrounding these factors [8]. Three crucial factors contributory to mechanical failures in the internal fixation of extracapsular proximal femoral fractures consist of male gender, non-anatomic reduction, and misalignment of the lag screw [9]. The widespread mechanical problem with the hip screw system is implant cut-out. Ensuring precise fracture reduction is vital to lessen cut-out risks [10]. Avoiding increased anterior hip screw placement is crucial [11]. It can also affect joint biomechanics and result in pain or limited range of motion. Precise positioning according to surgical guidelines is essential for optimal outcomes [12]. The DHS augments stress distribution in fractured bone, positioning it more closely with intact bone [13]. It also lessens the likelihood of post-operative problems in comparison to orthodox internal fixation methods [14]. Choosing for screw placement within lower half of femoral head has established to be a considerable deterrent compared to fixation collapse [15]. Alongside, the association between technical failures and the surgical method becomes noticeable. Fascinatingly, attaining exact alignment between the neck and shaft emerges as non-essential for completing a successful screw placement [16]. Furthermore, the employment of a guidewire showed satisfactory results, mostly when confronting complications in closed reduction scenarios [17]. This emphasizes the efficacy of employing a guidewire as a treasured asset in complicated cases. Ultimately, emphasizing the imperative of precise placement remains paramount prior to embarking on the insertion of the hip screw [18]. This study aims to not only bargain treasured insights into intertrochanteric fractures but also to pave the way for upcoming research endeavors. By shedding light on the main reasons related with these fractures, it will also offer a solid foundation for further inquiries in this field, driving progress and revolution in the understanding and handling of intertrochanteric fractures.

METHODS

An analytical cross-sectional study focusing on intertrochanteric fractures was steered at orthopedics department of Khawaja Muhammad Safdar Medical College (KMSMC) Sialkot, Pakistan from January 2016 to December 2019. A total of 137 members were included in the study, and their data were composed from patient records accessible in the department. The researchers employed a non-probability convenient sampling technique to select the participants based on their convenience and appropriateness. The study encompasses individuals of all ages and genders who had intertrochanteric fractures. Certain cases, such as medical board cases and those where intertrochanteric fractures were not diagnosed, were excluded from the study to ensure the reliability of the data. To analyze the data, frequencies, and percentages were calculated for different types of intertrochanteric fractures. These statistics were recorded in a separate Excel sheet. SPSS version 21.0 software was used for data analysis and interpretation. Before commencing the research, ethical approval was obtained from the Research Ethics Committee (REC) of KMSMC, Sialkot, under reference number 103/REC/KMSMC, dated 06-06-2023. This ensured that the study adhered to ethical guidelines and safeguarded the rights and well-being of the participants.

RESULTS

A study was conducted, enrolling a total of 137 patients, including 63 males (46%) and 74 females (54%). The patients' mean age was 64.55±14.26 years, with a minimum age of 37 years and a maximum age of 95 years. Details are given in Tables 1 and 2.

Table 1: Gender characteristics in frequency and percentages

Gender	Frequency (%)
Males	63 (45.99)
Females	74 (54.01)
Total	137 (100)

Table 2: Age characteristics in frequency and percentages

Age (years)	Minimum	Maximum	Median	Mean ± SD
Males	37	95	63	63.17±14.61

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Females	39	94	65.5	65.73±13.94
Total	37	95	64	64.55±14.26

The fracture details, including information on the side, etiology, type, outcome, and reduction, are presented in Tables 3 - 7. Gender is an important factor to consider when it comes to bones and fractures. As a result, in addition to overall fracture information for features such as side, etiology, kind, outcome, and reduction, gender comparison and M:F ratio are also stated as a subject of study. Examining fractures by side, it was found that 48% of the patients (M: F = 0.57:1) had left-sided fractures, while 52% (M: F = 1.22:1) had right-sided fractures (Table 3).

Table 3: Fracture Side by Left and Right

Fracture side	Left; n (%)	Right; n (%)
Males	24 (17.52)	39 (28.47)
Females	42 (30.66)	32 (23.35)
Total	66 (48.18)	71 (51.82)

The etiology of fractures revealed that falls were the predominant cause, accounting for 65% of cases (M: F = 0.68:1). Road traffic accidents (RTA) accounted for 33% of cases (M: F = 1.37:1), while physical assault accounted for 2% of cases (M: F = 0.5:1) (Table 4).

Table 4: Fracture etiology by fall, Physical assault, and RTA

Fracture etiology	Fall; n (%)	Physical assault; n (%)	RTA; n (%)
Males	36 (26.28)	1 (0.73)	26 (18.98)
Females	53 (38.68)	2 (1.46)	19 (13.87)
Total	89 (64.96)	3 (2.2)	45 (32.85)

The fractures were classified into two types: stable and unstable. The majority of cases were characterized as stable fractures, accounting for 64% of the total (with a male-to-female ratio of 0.87:1). Following stable fractures, unstable fractures comprised 36% of the cases (with a male-to-female ratio of 0.81:1) (refer to Table 5).

Table 5: Fracture Type by Stable and Unstable

Fracture side	Stable; n (%)	Unstable; n (%)
Males	41 (29.93)	22 (16.06)
Females	47 (34.30)	27 (19.71)
Total	88 (64.23)	49 (35.77)

The analysis of fracture outcomes based on union revealed that the majority of patients experienced successful union, accounting for 86% of the cases (with a male-to-female ratio of 0.97:1). The second most common outcome was follow-up-lost, which accounted for 7% of cases (with a male-to-female ratio of 0.29:1). Additionally, there were cases of cut-out, comprising 5% of the total (with a male-to-female ratio of 0.4:1), and a small proportion of patients who unfortunately expired, accounting for 2% of cases (with a male-to-female ratio of 0.5:1) (refer to Table 6).

Table 6: Fracture Outcome by Union, Cut-Out, Expired, and Follow-Up Lost

Fracture outcome	Union	Cut-out	Expired	Follow-up Lost
Males	58 (42.33)	2 (1.46)	1 (0.73)	2 (1.46)
Females	60 (43.80)	5 (3.65)	2 (1.46)	7 (5.11)
Total	118 (86.13)	7 (5.11)	3 (2.19)	9 (6.57)

The assessment of fracture reduction was done via radiological investigations. These indicated that the majority of fractures exhibited good reduction, accounting for 52% of cases (with a male-to-female ratio of 0.97:1). Following good reduction, a significant proportion of fractures were classified as acceptable, comprising 33% of the total (with a male-to-female ratio of 0.67:1). There were also cases of poor reduction, representing 15% of the fractures (with a male-to-female ratio of 0.91:1) (refer to Table 7).

Table 7: Fracture Reduction by Good, Acceptable, and Poor

Fracture reduction	Good	Acceptable	Poor
Males	35 (25.55)	18 (13.14)	10 (7.30)
Females	36 (26.27)	27 (19.71)	11 (8.03)
Total	71 (51.82)	45 (32.85)	21 (15.33)

DISCUSSION

Findings from a retrospective cohort study led in Italy shed light on an important observation: intertrochanteric fractures are more widespread among women than men [19]. This study also emphasizes this gender-specific discrepancy, indorsing that female practiced an advanced frequency of fractures compared to their male counterparts. Intertrochanteric fractures are categorized among the most commonly occurring fractures among elderly persons. In 2019 research was conducted in India to clarify on the main environmental factors that contribute to intertrochanteric fractures. According to the aforementioned study, the three noteworthy causes were falls from standing height, road traffic accidents, and slips on wet floors [20]. This study also underlines falls and road traffic accidents followed by as the main reasons for factors. In a prospective study, it was found that among men, common causes included sporting injuries and vehicle accidents. However, in the case of females, physical assaults and falls emerged as highlighted factors [21]. This study aligns with the aforementioned results for men but emphasizes falls as the primary cause of intertrochanteric fractures in females. A randomized controlled trial discloses that a large number of patients with intertrochanteric fractures demonstrate an unstable pattern [22]. However, this study points to the greater occurrence of stable intertrochanteric fracture cases among males and females. A retrospective study held at an academic medical center in New York discloses that most fractures lead to union. The study employed operative

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records and radiographs to detect appropriate candidates for investigation [23]. This research study also emphasizes that a meaningful proportion of fractures, exclusively 86%, achieved union. By assessing fracture reduction, a retrospective study held in Turkey showed that a majority of the fractures (77.5%) met the principles for appropriate reduction [24]. This research study focuses on the assessment of fracture reduction in intertrochanteric fractures, showing that a majority (52%) of the cases attained good reduction.

CONCLUSIONS

The present study highlights several valuable aspects of intertrochanteric fractures. Firstly, it was detected that many of these fractures appeared on the right side, accounting for 52% of the cases. This data can be useful for clinicians while assessing patients with suspected intertrochanteric fractures. Secondly, falls were categorized as the leading reason for intertrochanteric fractures, providing 65% of the cases. This focuses on the significance of fall restraint strategies and involvements to decrease the numbers of such fractures among susceptible populations, such as older people. The study also grouped the fractures into stable and unstable types, with stable fractures indicating the widely held at 64%. Recognizing the distribution and characteristics of several fracture classes is cardinal for suitable treatment scheduling and decision-making. Likewise, the study highlights the outcome of these fractures and found that a meaningful proportion (76%) rose in the union. This proposes that most patients faced successful healing and recovery. In terms of fracture reduction, 52% of cases attained good reduction. This specifies that the anatomical orientation of the fractured bones was well-restored, which is important for optimal functional consequences and long-term permanence. Largely this study specifies a comprehensive overview of intertrochanteric fractures, stress important factors such as fracture side, contributing factors, fracture classes, outcomes, and reduction quality.

Authors Contribution

Conceptualization: OFT, NMB
Methodology: MMA, NAB
Formal analysis: DM, WN
Writing-review and editing: TH, MAH, RA, OFT

Author have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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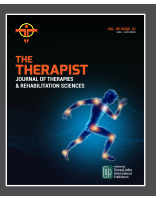

Original Article

Immediate Effect of Ischemic Compression Therapy to Release Suboccipital Trigger Points in Tension-Type Headache among Adult Population of GCUF

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ABSTRACT

Tension-type headache is a nervous illness and characterized by pain, causes stretch on both sides and stiffness which feels like a band or pressure leads to disruption in daily activities. **Objective:** To see the immediate effects of ischemic compression therapy to release sub-occipital trigger points in tension type headache. **Methods:** It was a quasi-experimental study. Study population was students and faculty members of GC University, Faisalabad from age between 25 to 35 years. Sample size of the study was 35. A convenient sampling technique was used to select individuals according to the defined inclusion criteria. Trigger points were evaluated by palpating the occipital region. Data collection tools including visual analogue scale (VAS) and HIT-6 was used to measure intensity of pain and tension-type headache. SPSS version 25.0 was used to analyze the data. **Results:** Post-treatment values of VAS showed the reduction in pain intensity (mean=0.57) as compared to the pre-intervention values (mean = 5.03). A notable reduction in HIT-6 impact from (mean = 65.13) to (mean = 40.40) was observed. Paired sample t-test showed a p-value below 0.05 for both VAS and HIT-6, highlighting the positive effects of ischemic compression therapy to release sub-occipital trigger points in tension type headache. **Conclusions:** There was a notable reduction of pain intensity immediately after the treatment session. Ischemic compression therapy was significantly effective to release sub-occipital trigger points in patients with tension type headache.

INTRODUCTION

A myofascial trigger point is a hyperirritable area that is uncomfortable upon compression and can cause referred pain, motor dysfunction, and autonomic abnormalities [1]. It often exists inside a taut band of skeletal muscle. Sub-occipital muscles in the cervical musculature can produce TrPs, which cause a referred pain pattern to the side of the head over the occipital and temporal bone [2]. Acute trauma or repeated micro-trauma can cause muscle fiber tension and the creation of trigger points. Participants may have localized, chronic discomfort that limits their range of motion in the afflicted muscles [3]. Other causes of trigger points include history of fall, stress, lack of exercise,

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sedentary lifestyle, swayback posture, telephone posture, anxiety and depression [4]. Tension-type headache is a nervous illness identified by the susceptibility to attacks of mild to moderate intensity. Stress is known to be the major factor causing tension-type headache [5, 6]. It differs from migraine in various ways. Headache usually goes on from 30 minutes to seven days and mostly present on both sides of head. The intensity of headache is not severe; it ranges from mild to moderate [7]. No GIT related symptoms like nausea or vomiting can be seen in tension-type headache, these are present in migraine [8]. The present of active TrPs strongly correlates with the chronic tension-type headache [9]. Ischemic compression is a mechanical method of treating myofascial trigger points that involves applying steady pressure over a prolonged period of time to render the trigger points inactive [10]. Ischemic compression is carried out by applying pressure to the trigger points with a level of pain that is manageable using a pressure algometer or thumb pressure, and simultaneously increasing compression intensity as the level of pain lowers [11, 12]. Muscle lengthening should occur after ischemic compression. Ischemic compression induces localized ischemia in the muscle, which is then followed by reperfusion once the process is over [13]. Due to the analgesic, circulatory, muscular relaxation, and functional benefits of the ischemic compression approach, which is also simple to use, affordable and produces more rapid & effective outcomes than traditional physiotherapy [14, 15]. Togha M *et al.*, conducted a randomized trial including 29 females having cervicogenic headache related to myofascial trigger points in sternocleidomastoid muscle. The aim of that trial was to compare the effects of ischemic compression and dry needling in treatment of headache symptoms and in features related to myofascial trigger points. Subjects were randomly divided into three groups; one dry needling, second ischemic compression and a control group. 4 treatment sessions were given to ischemic compression and dry needling groups. Results revealed that both therapies were equally effective in treating headache symptoms as there was no difference between both groups ($P > 0.05$) in significant improvement of intensity, pain thresholds, duration frequency of headache and myofascial trigger point area ($p<0.05$). Conclusion revealed that reduction in symptoms of headache occurred for both ischemic compression and dry needling therapies during small period of 4 treatment sessions but ischemic compression might be preferred because of its non-invasive nature [16]. Although, previously various studies are published on the beneficial effects of ischemic compression therapy but there was a very limited literature available on the therapeutic effects of Ischemic compression therapy on sub-occipital trigger points in tension-type headache (TTH). Therefore, the purpose of the study was to evaluate the immediate impact of Ischemic Compression Therapy on the Sub-occipital trigger points, in students and faculty members of Government College University Faisalabad suffering with tension-type headache (TTH). The finding of this research will be helpful in developing more targeted treatment approach for the patients of tension type headache.

METHODS

It was a quasi-experimental study conducted at the Government College University Faisalabad. Sample size of the study was 30, which were calculated through open epitool software with margin of error as 5% and 95% confidence level. The duration of the study was 5 months, from January 2023 to June 2023. Inclusion criteria of the study were students and faculty members of GC University Faisalabad of age between 25 to 35 years experiencing tension type headache in occipital region, patients having limitation in movement of head and having bilateral head pain. Exclusion criteria of the study were any diagnosed neurological disease, headache due to medicine overuse, history of recent trauma or surgery, history of chronic infections in neck of head region, recent trauma to the spine, hypertensive individuals and participant's not willing to sign the informed consent form. Non probability convenient sampling technique was used for data collection from sample. Prior to data collection, consent forms were signed by all selected participants. Trigger points in sub-occipital region was detected by manual palpation. Prior to ischemic compression, hot pack was applied to the effected region for ten to fifteen minutes. The intervention of Ischemic compression therapy was performed to release the sub-occipital trigger points. Pre and post treatment data were measured by visual analogue scale (VAS) for pain intensity and HIT-6 for tension type headache. All ethical concerns were taken into account. The study received ethical approval from institutional review board of Government College University Faisalabad. Informed consent was signed by participants prior to data collection. Dignity of all participants was prioritized. All personal data were kept confidential. The collected data were analyzed by using SPSS version 25 and paired sample t-test was used for pre and post treatment analysis.

RESULTS

Table 1 demonstrates the frequency and percentages of demographic statistics. There were total 30 volunteers and all of them were students from the different department of the university. There were 24 females and 6 males. Age was divided into three categories, 50% participants were from the age of 17 to 20 years, 43.3% were from the age of 20 to

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23 years and 6.6% were between the ages of 23 to 26 years.

Table 1: Demographic statistics

Demographic statistics (n=30)		Frequency (%)
Gender	Female	24(80%)
	Male	6(20%)
Age	17-20y	15(50%)
	21-23	13(43.3%)
	24-26	2(6.6%)

Table 2 shows the results of paired sample t-test, by comparing the pre and post intervention values of VAS and HIT-6. In VAS the mean score improved from 5.03±2.125 to 0.57±0.626 and a p-value of 0.0005. HIT-6 showed an improvement in mean score from 65.13±5.958 to 40.40±5.021 with a *p*-value of 0.000.

Table 2: Paired sample t-test results

Paired sample t-test					
	N	Mean ± SD	t	df	Sig. (2-tailed)
VAS – pre	30	5.03±2.125	11.954	29	.000
VAS – post	30	0.57±0.626			
HIT -6 pre	30	65.13±5.958	18.591	29	.000
HIT-6 post	30	40.40±5.021			

DISCUSSION

Tension-type headache is a nervous illness identified by the susceptibility to attacks of mild to moderate intensity. Stress is known to be the major factor causing tension-type headache [5]. Ischemic compression is a mechanical method of treating myofascial trigger points that involves applying steady pressure over a prolonged period of time to render the trigger points inactive [10]. The purpose of the study was to evaluate the immediate impact of Ischemic Compression Therapy on the Sub-occipital trigger points, in students and faculty members of Government College University Faisalabad suffering with tension-type headache (TTH). Demographic statistics of recent study showed that, out of thirty candidates, 24 were women and 6 were men. This shows the higher frequency of tension-type headache in female students. In support to these results, a study by Rstogi *et al.*, concluded that tension type headache is more prevalent in women as compare to men. Results of that study demonstrated that female to male ratio was 1.6:1 [17]. Results of recent study showed a significant improvement in pain intensity after the treatment of ischemic compression therapy with a difference in mean score of 4.467±2.047 on VAS ($p<0.05$). The findings of this study was in line with a previous study of 2021, by Khan *et al.*, which reported that the group which received ischemic compression therapy had more significant improvement in pain intensity from 5.28±2.09 to 1.51±1.06, compared to the other group receiving spray and stretch technique for the management of trigger points in trapezius muscle [18]. Another study by Niemaszy *et al.*, supported these finding, which concluded that a single session of 2 minutes ischemic compression on trapezius muscle, releived the pain intensity as well as imprvement in cervical mobility [19]. A study by Panzeri *et al.*, resulted that ischemic compression is one of the foremost treatment intervention for the management of tension-type headache [20]. Similarly, the current study demonstrated a reduction in mean HIT-6 value from 65.13±5.958 to 40.40±5.021 with a p-value of 0.000. It showed that ischemic compression therapy had significant effects in reducing tension type headache. The research by Tao *et al.*, concluded that benificial effects of ischemic compression is due to the effect of hypoxia which create in that area and then releived after a specific time period. It helps to enhance the blood flow and oxygen at that resgion and boost up the endogenous analgesic mediators [21]. The study had a small sample size and limited to participants with age 25 to 35 years, which may limit the generalizability of study findings. Moreover, only subjective and self-reported outcome measures was used which may cause biasness. Lastly the participants were not followed-up for longer time period, so it is not known whether the beneficial effects of ischemic compression were maintained or not.

CONCLUSIONS

In conclusion, ischemic compression had statistical significant effects in sub-occipital trigger point release in the patients of tension-type headache. A significant improvement was seen in pain intensity and headache impact score immediately after the treatment with ischemic compression pressure in both males and females.

Authors Contribution

Conceptualization: AK
Methodology: AK
Formal Analysis: IA
Writing-review and editing: TG, NN, SS, MA, HJ

Author have read and agreed to the published version of the manuscript.

Conflicts of Interest

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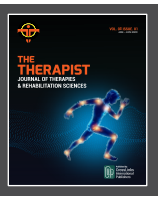

Original Article

Awareness and Knowledge of Speech Language Pathologists regarding Pediatric Feeding Disorders

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ABSTRACT

Feeding is like a tremendous process involving multiple systems that are interconnected with each other. The speech pathologist plays an important role in helping the child develop a positive relationship with his or her mouth and food, as well as learning how to eat enjoyably, carefully, and efficiently. **Objective:** To determine knowledge of Speech Language Pathologists about the Pediatric Feeding Disorders. **Methods:** It was a cross sectional study. Data were collected from the Speech Language Pathologists through online questionnaire generated through Google forms after taking permission letter from Research and Ethics committee. Non- probability convenience sampling technique was used. Sample was calculated 157 on the basis of total number of BS graduate Speech Language Pathologists by using 95% confidence interval through sample size calculator Rao soft. Data were analyzed in SPSS 21 using descriptive statistics including frequency tables and bar charts. **Results:** Total 157 responses were received.145 were females and 12 males participated in this study. Out of 157 participants, 60.51% SLPs reported that they do not feel confident on their clinical expertise regarding pediatric feeding disorders and 92.4% SLPs reported that they need more knowledge and training to deal with pediatric feeding disorders. **Conclusions:** Many Speech Language Pathologists in Pakistan have little knowledge about the management and treatment of PFDs. They do not feel safe to evaluate, assess and intervene with pediatric feeding disorders. Therefore, they feel less confident on their treatment strategies regarding pediatric feeding disorders.

INTRODUCTION

Feeding is like a tremendous process involving multiple systems that are interconnected with each other like central nervous system, peripheral nervous system, gastrointestinal, oropharyngeal and cardiovascular systems. If any one of these is disrupted, it will cause risk of feeding complications and often contribute to emergence of pediatric feeding disorders [1]. The major feeding milestones are latches to nipple, breast/bottle feeding, spoon feeding, cup drinking and chewing solid food [2]. First two years of child`s life are very important for feeding development. Usually feeding procedure is more obvious during the age of six months to four years. Around the age of 2-3 years, child`s oral motor development is complete for feeding [3]. Feeding disorder is characterized by an inability or rejection to eat and consume enough food that is required to maintain a sufficient nutritional status. Feeding disorders may cause significant nutritional, organic and emotional risks that may include developmental delays and irregular growth patterns [4]. Pediatric feeding disorders are characterized as "impaired oral intake that is not age appropriate and is linked to medical, nutritional, feeding, and/or psychosocial

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domains, as well as medical, nutritional, feeding abilities, and/or psychosocial dysfunction" [5]. Children who are diagnosed with developmental, medical and behavioral problems have higher rate of feeding and eating difficulties [6]. Some developmental factors may contribute towards PFD including delay in development of motor skills, language, lack of cognition and socialization. Feeding behavior is affected by behavioral health issues in the child and the parents. Some environmental factors may result in formation of pediatric feeding disorders like at mealtime disturbing environment in the surrounding. For example, television or use of electronic instruments or feeding the child only at the irregular time like when he/she is sleeping or tired [4]. Some structural abnormalities that impact feeding process include cleft lip/palate, missing and irregular oral pharyngeal structures, misalignment and malocclusion of teeth, shortened tongue frenulum and incomplete development of laryngeal structures. Feeding disorders can also be caused by neurological impairments and neurodevelopmental issues that mainly influence oral motor structures and also create muscular problems, poor movement and coordination in the whole body e.g., CP, Down syndrome [7]. Sometimes sensory issues in children can increase the risk of pediatric feeding disorders. Food look, flavor, aroma, texture and temperature can reduce their food intake [8]. Risk of feeding problems is 5 times higher in autistic children in comparison with non-autistic children [9]. Many health practitioners from different disciplines are required to deal and manage feeding related issues. Pediatric feeding team members may vary but they usually include doctors who may be developmental pediatricians, neonatologists, gastroenterologists, nurses, speech-language pathologists, nutritionists, occupational therapists, physical therapist and psychologists. Speech-language pathologists are referred as feeding specialists [10]. Speech Language Pathologists create a interesting relationship between food an child`s mouth. They help the child how to cope with feeding fear and eat happily and effectively [5]. As a Speech and Language Pathologist its mandatory to have proper knowledge regarding normal and disordered feeding and swallowing procedure in order to perform feeding and swallow assessments and recommend proper treatments depending on every child`s condition [11]. Speech Language Pathologist`s job is to assess oral motor functioning, screening, formal and in formal clinical examination of swallowing. SLP plays an important role in treatment of feeding and swallowing issue and helps the child in formation of effective oral sensorimotor abilities [11]. SLP also counsel family and caregiver regarding effective mealtime location and schedule to enhance feeding habits [12]. The feeding and swallowing assessment involves observation of child`s health condition, oral motor development, gross and fine motor skills, neurological functioning and child`s nutritional intake. A comprehensive oral motor examination is required if there is abnormal oral motor function [13]. Oral motor strategy is the first treatment strategy used by Speech Language Pathologists in the management of feeding and swallowing disorders. Speech Language Pathologists use compensatory swallowing strategies that are helpful to increase oral muscular strength, protect the airways, and make the swallow safe and smooth. For formal assessment of swallowing disorders Speech Language Pathologists mostly use two formal tools the first one is Video Fluoroscopic Swallowing Study (VFSS) and the second one is Flexible Endoscopic Evaluation of Swallowing(FEES)[14]. A detailed feeding assessment also include child`s mealtime evaluation. It helps us in observing child`s feeding behaviors, designing and choosing appropriate treatment for the child. In mealtime evaluation Speech Language Pathologists provide food to the child and carefully observe the oral phases of swallowing [15]. Literature reveals that there is little awareness regarding Pediatric feeding disorders. Many Speech and Pathologists in Pakistan are not fully aware of pediatric feeding disorders. They have little knowledge about the management and treatment of PFDs. Therefore, they feel less confident on their treatment strategies regarding pediatric feeding disorders. There is a need to create awareness about pediatric feeding disorders and to train Speech Language Pathologists and caregivers as well about how to handle child`s feeding problems. The Purpose of this study is to determine the knowledge of Speech Language Pathologists regarding pediatric feeding disorders.

METHODS

A cross-sectional study was conducted at Riphah International University, Lahore. Sample was calculated 157 on the basis of total number of BS graduate Speech Language Pathologists (N=263) by using 95% confidence interval and 5% margin of error through sample size calculator Raosoft. Non- probability convenience sampling technique was used for data collection. Data were collected through online questionnaire developed by the help of expert opinion and literature after taking permission letter from Research and Ethics Committee issued on January2, 2023 with Ref No: REC/RCR &AHS/23/0620 Data were collected through online questionnaire developed by the help of expert opinion and literature. Inclusion criteria was Speech Language Pathologists currently working in hospitals, rehabilitation centers and educational institutes will be included in study and exclusion Criteria was under-graduates Speech

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Language Pathology students working as an intern will be excluded from the study. Data were collected from Speech Language Pathologists working in hospitals, rehabilitation centers and educational institutes. Informed consent was taken from all participants. Data were analyzed in SPSS 21 using descriptive statistics including frequency tables and bar charts.

RESULTS

Total sample consists of 157, participants among them 92.4% were females and 7.6% males. Among 157 Speech Language Pathologists, 71 had Bachelor`s degree in Speech language Pathology, 44 SLPs had Masters degree in Speech Language Pathology, 40 SLPs had both Bachelors and Masters degrees and 2 were PHD Scholars. Total 121 Speech language Pathologists had working experience of less than 5 years, 30 SLPs had working experience of 5 to 10 years and 6 SLPs had working experience of more than 10 years(Table 1 and 2).

Table 1: Frequency and percentage of academic qualification

Academic Qualification	Frequency (%)	Valid Percent	Cumulative Percent
Bachelor`s degree in SLP	71 (45.2)	45.2	45.2
Post graduate/ Master's degree in SLP	44 (28.0)	28.0	73.2
Both	40 (25.5)	25.5	98.7
PHD	2 (1.3)	1.3	100.0
Total	157 (100)	100.0	

Table 2: Frequency and percentage of working experience

Working experience	Frequency (%)	Valid Percent	Cumulative Percent
Less than 5 years	121 (77.1)	77.1	77.1
5 to 10 years	30 (19.1)	19.1	96.2
More than 10 years	6 (3.8)	3.8	100.0
Total	157 (100.0)	100.0	

Out of 157 participants, just 55 Speech language Pathologists reported that they had received clinical training on pediatric feeding disorders at graduation. Only 45 Speech language Pathologist reported that they are currently dealing with pediatric feeding disorders while 112 SLPs reported that they are not currently dealing with PFDs (Table 3 and 4).

Table 3: Frequency and percentage of received clinical training on pediatric feeding disorders at graduation

Received clinical training on pediatric feeding disorders at graduation?	Frequency (%)	Valid Percent	Cumulative Percent
Yes	55 (35.0)	35.0	35.0
No	102 (65.0)	65.0	100.0
Total	157 (100)	100.0	

Table 4: Frequency and percentage of SLPs currently dealing with pediatric feeding disorders

Currently dealing with pediatric feeding disorders?	Frequency (%)	Valid Percent	Cumulative Percent
Yes	45 (28.7)	28.7	28.7
No	112 (71.3)	71.3	100.0
Total	157 (100.0)	100.0	

Among 157 participants, 62 Speech Language Pathologists reported that they feel confident on their clinical expertise regarding Pediatric feeding disorders while 95 SLPs reported that they do not feel confident on their clinical expertise regarding Pediatric feeding disorders (Table 5).

Table 5: Frequency and percentage of SLPs feeling confident on your clinical expertise regarding PFDs

Feel confident on your clinical expertise regarding Pediatric feeding disorders?	Frequency (%)	Valid Percent	Cumulative Percent
Yes	62 (39.5)	39.5	39.5
No	95 (60.5)	60.5	100.0
Total	157 (100)	100.0	

DISCUSSION

After searching literature regarding knowledge of Speech Language Pathologists about pediatric feeding disorders. We found that majority of SLPs have insufficient knowledge regarding pediatric feeding disorders [16]. According to Wilson et al., study, 134 survey participants reported that they received less education and training regarding pediatric dysphagia during their graduation [16]. This current study reported that out of 157 participants 64.9% Speech Language Pathologists reported that had not received clinical training on pediatric feeding disorders in graduation. Krikheli et al., concluded that speech language pathologists clearly have a role in the pediatric palliative care team throughout the literature but there is little information regarding appropriate speech language pathologist assessment and intervention approaches for this population. This study showed that 50.24% Speech Language Pathologists reported that they had no knowledge about the formal assessment (screening tools) regarding pediatric feeding disorders [17]. The present study indicated that 46.50% Speech Language Pathologists reported that they do not feel safe to evaluate, assess and intervene with pediatric feeding disorders. This correlates with the study of Zingler et al., that highlighted that knowledge of SLPs for working with pediatric feeding disorders proved to be insufficient and majority speech language pathologists do not feel safe to handle cases with pediatric feeding disorders [5]. Knollhoff, concluded a study to evaluate how speech language pathology graduate

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courses provide training and clinical knowledge regarding pediatric feeding and swallowing disorders. According to his study 60% participants reported they feel less confident to deal pediatric feeding and swallowing disorders [18]. This study indicated that 60.51% SLPs reported that they do not feel confident on their clinical expertise regarding pediatric feeding disorders. The present study showed that majority of Speech Language Pathologists reported that they need more knowledge and training to deal with pediatric feeding disorders. Likewise O` Reilly and Walshe, concluded that Speech Language Pathologists around the world perceive that they have important role in palliative care. But this clinical area is under developed. There is a need of further research and clinical training to educate SLPs and multidisciplinary team members in the domain of palliative care [19]. According to Zimmerman study, out of one hundred speech language pathology master degree programs just 21% programs offered a course in pediatric dysphagia and 64.50% SLPs reported that they feel less confident to work with dysphagia population. The current study indicated that 49.7% Speech Language Pathologists had not taken any courses on pediatric feeding disorders in their academic curriculum [20].

CONCLUSIONS

This Study concluded that many Speech and Pathologists in Pakistan are not fully aware of pediatric feeding disorders. They have little knowledge about the management and treatment of PFDs. They do not feel safe to evaluate, assess and intervene with pediatric feeding disorders. Therefore, they feel less confident on their treatment strategies regarding pediatric feeding disorders.

Authors Contribution

Conceptualization: MC, AA
Methodology: MC, MM
Formal analysis: AA
Writing-review and editing: MC, MM, MS

Author have read and agreed to the published version of the manuscript.

Conflicts of Interest

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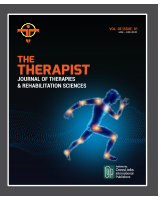

Original Article

Association of Physical Activity and Obesity in Health Care Professionals of Karachi

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ABSTRACT

Obesity is a major health problem worldwide. The worldwide prevalence rate of obesity is about 13% of adults are obese, and 39% of adults are overweight. Globally, found that 1 out of every 5 children is overweight and faces many complications. **Objective:** To determine the relation of physical activity and obesity in health care professionals of Karachi. **Methods:** A cross-sectional survey was done on 543 healthcare professionals of various domains selected from the hospitals of Karachi according to the division of seven districts (Central, East, Kemari, Orangi, Malir, South, West). The evaluation of the study was done through three weight measurement tools(BMI (body mass index), Waist circumference, waist-hip ratio) and two questionnaires: a self-administered and an international physical activity questionnaire. The data were analyzed by SPSS version 23.0. **Results:** There were 543 healthcare professionals extracted from seven districts of Karachi, Out of which 310 performed more than 3 hours, 181 performed less than 3 hours per day, and 52 were not sure about their level of moderate activities in daily routine While 146 healthcare professionals performed more than 3 hours per day, 283 performed less than 3 hours per day, and 114 were not sure about their level of vigorous activities in their daily routine. **Conclusions:** Our study concluded that the frequency of obesity is less in healthcare professionals as compared to the general public.

INTRODUCTION

The deposition of uncontrolled fatty tissues in a person's body that produces a negative impact on an individual's health is called obesity [1]. It is a major health problem worldwide. While having a meal we intake a larger amount of energy than we spend the energy during the performance of activities in daily living [2]. The worldwide prevalence rate of obesity is about 13% of adults are obese, and 39% of adults are overweight. Globally, found that 1 out of every 5 children is overweight and faces many complications [3]. It is the major cause of morbidity and is an important health issue that can affect the physical, mental, and psychosocial aspects of well-being. Mostly the normal capacity of a person to perform their activities of daily living is decreasing day by day due to obesity [4]. The death rate in the U.S. is approximately 325,000 per year and the reason is overweigh [5]t. According to the study,

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obesity can cause various diseases like; diabetes, hypertension, cancer, stroke, cardiopulmonary diseases, anxiety depression, as well as the capacity of a person's physical activity and endurance can also be affected by obesity. Furthermore, around 3 lacs 25 thousand deaths in the U.S. per year among non-alcoholic and non-smokers are due to Obesity [6]. Physical activity plays a vital role in the prevention of obesity. According to the American Heart Association guidelines for physical activity, an adult person must do 2 hours and 30 minutes of moderate OR 1 hour and 15 minutes of vigorous aerobic activity in a week to maintain a healthy lifestyle, Around two days of muscle strengthening is recommended in a week [7]. Should avoid a sedentary lifestyle by spending less time sitting, Should perform physical activity five hours a week, should increase the level of activity in slow to moderate to high levels. Unfortunately according to a study conducted in 2015, only 18 percent of obese persons met the guidelines of Physical activity [8]. Another research reported if little variation in the physical activity status of a person occurs it causes a huge reduction in the prevalence of Obesity [9]. A study states that the healthy weight of a person could be maintained by a physically active individual. Furthermore, it can promote healthy lifestyle modification in all age groups and cause a reduction in the prevalence of obesity [10]. The study reported, that there is a negative correlation between physical activity and obesity. Although physical has a vital role in the maintenance of weight and lifestyle modification separately it cannot control the risk factors of obesity [11]. According to the study, Obesity is proven to be a more influencing factor for the health, finances, activity, and productivity of an employee in comparison to non-obese employees at the workplace [12]. However, it has been reported In a study that the workplace also plays a vital role in the prevalence of Obesity because the contribution of working conditions; (timings, workstation, work stress) and job description of an employee describes the employee's physical activity status during working hours [13]. Healthcare professionals are the most common population who face these working conditions at the workplace. Healthcare professionals (HCPs) are the main leaders in decreasing the ratio of health diseases by giving information related to their health status, and guidelines for serving a healthy and comfortable lifestyle, and also guiding people about their body weight which is suitable according to their age domain [14]. There is a general perception about healthcare professionals that they are the personalities who play a vital role in the community to promote healthy lifestyles [15]. Some studies found the stats of obesity are lower in HCP as compared to other people. In the study of the USA healthcare professionals are proved to have the lowest obesity rate in female HCPs as compared to male HCPs [16]. The study in South Africa researched that the health care professionals 73.5 percent were obese, and around 56 percent of health care professionals were fully satisfied with their body weight [17]. In our study, we are determining the prevalence of obesity in healthcare professionals and the association of physical activity with obesity.

METHODS

This study was done on healthcare professionals of various domains and was a cross-sectional survey after the issuance of ethical approval from the competent authority of AORC medical center and institute with ref no: BASAR/No.053260/physio, date: 11 May 2023, The study was conducted between May to October 2023 followed by a non-probability purposive sampling technique. The sample size of the study was calculated through Raosoft.com software with a hypothesized 50% population of healthcare professionals. Statistical conditions were a 99% confidence interval and 1 % margin of error. The estimated sample size calculated from the software was 543 participants selected from the hospitals of Karachi according to the division of seven districts (Central, East, Kemari, Orangi, Malir, South, West) The inclusion criteria were healthcare professionals (Physicians, Physical Therapists, Nurses, Pharmacist, Supporting staff, Technicians) working in Clinical environment, the age group from >20 years and above were included. Healthcare professionals who were working in an academic environment and who were not willing to participate were excluded from this study. The evaluation of the study was done through three weight measurement tools(BMI, Waist circumference, waist-hip ratio) and two questionnaires: a self-administered and an international physical activity questionnaire [18]. The data were analyzed by SPSS version 23.0.

RESULTS

There were 543 healthcare professionals extracted from seven districts of Karachi were analyzed through an International physical activity questionnaire, a self-administered questionnaire, and weight measurement tools (BMI, waist circumference, and waist-hip ratio) The status of participants co-morbid like DM, HTN, and exercise was collected from research participants is shown in Table 1.

Table 1: Characteristics of research participants

Characteristics	Male N=275(%)	Female N=268(%)	Total N=543(%)
Professionals			
Physicians	31(11.27)	23(8.58)	54(9.94)
Physical Therapists	73(26.54)	81(30.22)	154(28.36)
Nurses	69(25.0)	73(27.23)	142(26.15)
Pharmacist	49(17.81)	33(12.31)	82(15.10)
Supporting staff	31(11.27)	43(16.0)	74(13.62)
Technicians	22(8.0)	15(5.59)	37(6.81)
Age			
20-29	37(13.45)	35(13.05)	72(13.25)
30-39	87(31.63)	83(30.97)	170(31.30)

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40-49	79(28.72)	81(30.22)	160(29.46)
50-59	33(12.0)	39(14.55)	72(13.25)
>59	39(14.18)	30(11.19)	69(12.70)
Body Mass Index (BMI)			
Underweight (<18.5)	19(6.90)	37(13.80)	56(10.31)
Normal (18.5-24.9)	176(64.0)	141(52.61)	317(58.37)
Overweight (25.0-29.9)	69(25.09)	77(28.73)	146(26.88)
Obese (≥30)	11(4.0)	13(4.85)	24(4.41)
Waist Circumference (cm)			
Normal	239(86.90)	211(78.73)	450(82.87)
High (Obese)	36(13.09)	57(21.26)	93(17.12)
Waist-Hip Ratio			
Normal	261(94.90)	221(82.46)	482(88.76)
High (Obese)	14(5.09)	47(17.53)	61(11.23)
Diabetes			
Yes	27(9.81)	23(8.58)	50(9.20)
No	248(90.18)	245(91.41)	493(90.79)
Hypertension			
Yes	41(14.90)	27(10.07)	68(12.52)
No	234(85.09)	241(89.92)	475(87.47)
Exercise			
Yes	239(86.90)	210(78.35)	449(82.68)
No	36(13.09)	58(21.64)	94(17.31)
Duration of Exercise			
Adequate	219(79.63)	197(73.50)	416(76.61)
Inadequate	56(20.36)	71(26.49)	127(23.38)

Health care professionals working in seven districts of Karachi are Central 107, East 21, Kemari 27, Korangi 73, Malir 23, South 193, and 99 from West as shown in Figure 1.

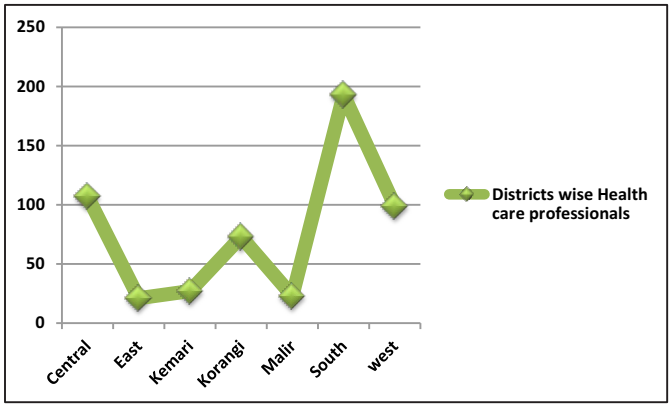

Figure 1: Districts wise research participants

Out of 543 research participants, 310 (57.09%) performed more than 3 hours per day, 181(33.33%) performed less than 3 hours per day, and 52 (9.57%) were not sure about their level of moderate activities in daily routine as shown in Figure 2.

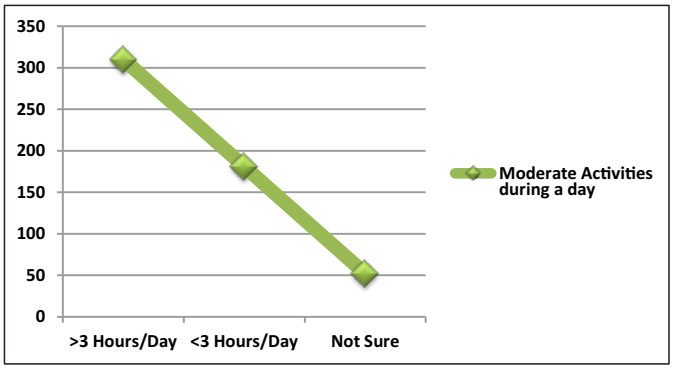

Figure 2: Moderate activity status

Out of 543 research participants 146 (26.88%) performed more than 3 hours per day, 283(52.11%) performed less than 3 hours per day, and 114 (20.99%) were not sure about their level of vigorous activities in their daily routine as shown in Figure 3.

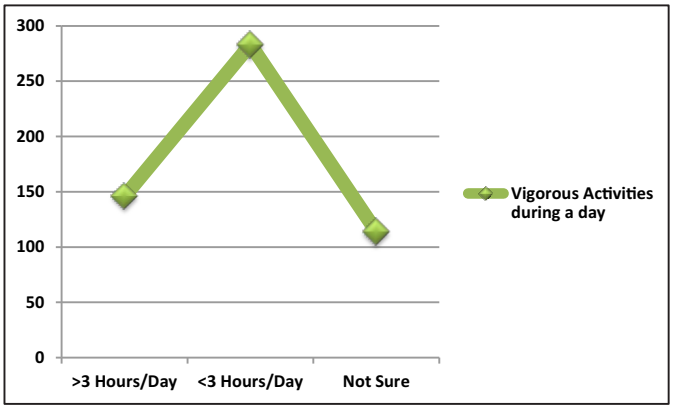

Figure 3: Vigorous activity status

DISCUSSION

Healthcare professionals are the representatives of healthy lifestyles because of the knowledge and skills they have related to health and preventive measures to reduce unhealthy activities from their lives due to their healthcare experiences [19]. As the trend of high cholesterol diet intake and sedentary lifestyle are increasing in Pakistan in terms of junk foods, artificial intelligence equipment, etc. the association of Physical activity with weight affects the weight of an individual [20]. Another study by Sadaf also studied environment, personal, religious, cultural, and socioeconomic factors in increasing obesity rate [21]. Our study provides useful data related to the frequency of obesity among healthcare professionals. The prevalence of overweight healthcare professionals according to BMI was 26.88% while the obese group was 4.41% which is lower than the national prevalence found by Kasu et al., in 2015 [22]. This shows that healthcare professionals are usually concerned about their health and fitness of their own with their heavy long schedule of daily work routines. A study conducted in Zimbabwe revealed that Female healthcare

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professionals were more proved to be obese as compared to males due to multiple factors like household, individual, social, and community factors which cause an increase in the risk of multiple diseases [23]. However, weight circumference is the measurement of fat in the middle region of the body. This composition of fat is prone to spread in the surrounding human organs which causes increased blood pressure, fat profile, and diabetes in a person [24]. A study conducted in Europe stated that the frequency of obesity and waist circumference is shown in individuals from their childhood aged 7 years which causes problems in their lives related to metabolic complications of the cardiac system [25]. Whereas, From our study, Waiste circumference findings show 17.12% (Females: 21.26%, Males: 13.09%) obese. Waist Hip ratio is the circumference of the waist to the hip in non-dimension form [25]. According to WHO, the average waist-hip ratio of a healthy person should be ≤ 0.85in females and ≤0.9, in males [26]. The study reported, waist to waist-to-hip ratio and waist circumference both are the variables of measurement of weight and are directly associated with each other and used as a tool for obesity but are also not very good options for the older population [27]. But in our study, the frequency of obesity among healthcare professionals was 17.12 (Females: 17.53%, Males: 5.09%). Generally the body mass index, waist circumference, and waist-hip ratio all are used to evaluate the prevalence of obesity among both genders [28]. A study shows health care professionals working in non-clinical environments were more obese than clinical professionals showing the strong prevalence of physical activity and obesity [29]. Another study done in Kenya among healthcare professionals showed there was no difference between the findings of obesity among clinical and non-clinical healthcare professionals [30]. However in our study the highest values of Body mass index were found to be more in the normal category at 58.37%. There are some limitations of our study. Firstly, the research participants were recruited from a single city Karachi Pakistan however the frequency of healthcare professionals is different in every city of Pakistan. That's why the conclusion cannot be generalized to the other cities. Secondly, the diet factor has not been considered as a dependent variable however it has a vital influence on the higher levels of Body mass index.

CONCLUSIONS

It has been observed that the rate of obesity is lower among healthcare professionals as compared to the general public. Additionally, our studies also highlighted the dependent variables of obesity like physical activity, BMI, weight circumference, and waist-hip ratio evaluated by healthcare professionals. There is a need for lifestyle modification that can promote a healthy weight and healthy lifestyle to healthcare professionals which reflects a positive impact on society.

Authors Contribution

Conceptualization: MN, MF
Methodology: SURB, MTA
Formal analysis: SB
Writing-review and editing: MN, MF, SB, SURB, AD, SRB

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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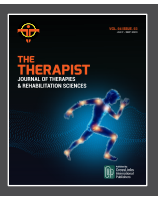

Original Article

Evaluation of Relationship of Diabetic Foot Ulcers with Peripheral Arterial Disease in Patients Diagnosed with Type 2 Diabetes Mellitus

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ABSTRACT

Diabetes mellitus that is poorly treated commonly results in the development of diabetic foot ulcers, which is one of the condition's most serious effects. The most typically affected areas of the foot are those that are continually under pressure and prone to friction. Diabetic foot ulcers are caused by a variety of factors. It is estimated that between 10% and 20% of diabetics also have peripheral arterial disease (PAD). In many cases, there are no obvious signs. **Objective:** To evaluate the of relationship of diabetic foot ulcers with peripheral arterial disease in patients diagnosed with type 2 diabetes mellitus. **Methods:** We performed a cross-sectional investigation at Shaikh Zayed Hospital from august 2022 to February 2023, involving individuals aged 50 years or older who were diagnosed with type 2 diabetes mellitus. Our study encompassed the assessment of both variables, where we examined the ankle-brachial index for each participant and documented relevant clinical details and anthropometric measurements. **Results:** Mean age of these patients was 61.34 years with a standard deviation of 3.61. In terms of gender distribution, 105 individuals were male, accounting for 63.63% of the sample, while 60 were female, representing 36.36%. The mean time with diabetes was 18.21 years with a standard deviation of 3.12. The mean ulcer size measured 8.61 millimeters with a standard deviation of 0.11. For patients with diabetic foot ulcers, there were 64 (78.04%) cases with peripheral arterial disease. **Conclusions:** This study identified a correlation between peripheral arterial disease and diabetic foot ulcers among individuals diagnosed with type 2 diabetes mellitus.

INTRODUCTION

Poorly controlled diabetes mellitus frequently leads to the development of diabetic foot ulcers, representing one of the condition's gravest consequences. Those with diabetes, neuropathy, peripheral vascular disease, or untreated foot problems are at increased risk. It's also a major reason people lose limbs, as it can lead to foot osteomyelitis [1, 2]. Areas of the foot consistently under pressure and subject to friction are most commonly affected. The causes of diabetic foot ulcers are multifaceted. Poor glycemic control, calluses, foot deformities, lack of proper foot care, wearing shoes that do not fit well, dry skin, poor circulation, underlying peripheral neuropathy etc. are all major contributing factors [3]. The prevalence of diabetic foot ulcers is anticipated to increase concurrently with the growing annual rate of new diabetes diagnoses [4, 5]. Up to half of all diabetic foot ulcers can be traced back to peripheral artery dysfunction, making it a major contributor to the onset of these sores [6]. There is a correlation between diabetes and PAD, with up to 11% of people with diabetes impacted by PAD compared to 4% of non-diabetic individuals [7, 8]. It is estimated that between 10 and 20 percent of people with diabetes also have

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peripheral artery disease (PAD). In many cases, there are no noticeable symptoms. Diabetics generally suffer from greater degrees of distal vascular disease and are more likely to develop peripheral arterial disease [9]. Significant morbidity, including as pain and impairment in function, amputation, and increased mortality, is linked to PAD. The lifetime prevalence of diabetic foot ulcer (DFU) is believed to be between 12 and 25 percent among people with diabetes. Amputation of lower extremity is a common result of diabetic foot ulcer since healing might take months to years. Neuropathy is the primary contributor to DFU, however further risk factors like peripheral artery disease, poor diabetes management, and inadequate self-care also play a role [10 ,11]. Patients having type 2 diabetes often suffer from impaired blood circulation, making them more susceptible to PAD, which can reduce blood flow to the extremities. Understanding this relationship is crucial for early detection, management and prevention of diabetic foot ulcers in these individuals, ultimately improving their quality of life and reducing amputation rates.

METHODS

This cross-sectional study was conducted at Shaikh Zayed Hospital from August 2022 to February 2023. Our study included 165 patients with type 2 diabetes of both genders aged ≥ 50 years. This study was approved by the Institutional Review Board, Shaikh Zayed Hospital on January 21, 2022 Reference IRB/SZH/291. The sample size of 165 cases was calculated taking a PAD frequency to be 52.5% in patients with type II diabetes mellitus keeping 80% confidence interval and 5% margin of error using WHO calculator [12]. Data on demographics, diabetes duration, ulcer characteristics, and relevant clinical parameters were collected. Measurements included ulcer size, duration, HbA1C levels, and ankle-brachial index to evaluate peripheral arterial disease. HbA1c levels were determined using latex agglutination on a DCA 2000 analyzer, while lipid levels were assessed with a Hitachi-902 autoanalyzer. Peripheral arterial disease (PAD) assessment included measuring the ankle-brachial index (ABI) utilizing a handheld Doppler device. Participants with an ABI of 0.9 or below were categorized as having PAD. Diabetic Foot Ulcers (DFUs) patients underwent examination through a standardized clinical approach, encompassing thorough inspection, palpation, and evaluation of ulcer characteristics. Data analysis involved the use of SPSS software version-22. Continuous variables were assessed through chi-square tests were applied to analyze categorical variables.

RESULTS

The mean age of these patients was 61.34 years with a standard deviation of 3.61. In terms of gender distribution, 105 individuals were male, accounting for 63.63% of the sample, while 60 were female, representing 36.36%. Among the patients, a significant proportion had comorbidities, with 116 of them (70.3%) having hypertension, 8 (4.8%) reporting a history of tobacco smoking, and 10 (6.1%) having experienced a previous myocardial infarction (MI) or stroke. In terms of associated diseases, a small percentage of patients had infection (6.66%), and an even smaller percentage had gangrene (0.60%). Medication usage was also observed, with 110 patients (66.7%) taking antihypertensive drugs, 20 (12.1%) using lipid-lowering drugs, and 34 (20.6%) taking antiplatelet medications as shown in table 1.

Table 1: The demographic composition in terms of age and gender among the study (n=165)

Variables	Category	Frequency (%)
Age	Mean ± SD	61.34±3.61
Gender	Male	105(63.63%)
	Female	60(36.36%)
History of Comorbidities	Presence of Hypertension	116 (70.3%)
	Previous Tobacco Smoking	8 (4.8%)
	Previous MI or stroke	10 (6.1%)
Associated disease	Infection	6(6.66%)
	Gangrene	1(0.60%)
Medications	Antihypertensives	110 (66.7%)
	Lipid lowering drugs	20 (12.1%)
	Antiplatelets	34 (20.6%)

The average duration of diabetes was 18.21 years, with a standard deviation of 3.12. The mean ulcer size was 8.61 millimeters, with a standard deviation of 0.11. Furthermore, the ulcer duration had an average of 1.44 years, demonstrating notable variability among patients with a relatively high standard deviation of 2.91. The HbA1C percentage had a mean of 9.21, with a standard deviation of 2.17, depicting the average level of glycated hemoglobin in the study population as outlined in table 2.

Table 2: Details of sign, symptoms, positive abdominal masses and types of masses

Variables	Mean ± SD (%)
Time with diabetes (years)	18.21 ± 3.12
Ulcer size (mm)	8.61 ± 0.11
Duration of ulcer (years)	1.44 ± 2.91
HbA1C (%)	9.21 ± 2.17

There was a statistically significant correlation between the presence of Peripheral Arterial Disease (PAD) and Diabetic Foot Ulcers (DFU) in the study population. Individuals with PAD were three times more likely to have DFUs compared to those without PAD (OR = 3, 95% CI: 1.066-7.362, $p < 0.001$). Among the total participants, 64 had both PAD and DFU, while 18 had PAD but no DFU. On the other hand, 46 individuals had DFU without PAD, and 37 had neither PAD nor DFU as shown in table 3.

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Table 3: The correlation between PAD and DFU

Peripheral Arterial Disease			OR	95% Confidence Interval	p-value
Present	Absent	Total			
64	18	82	3	1.066-7.362	p<0.001
46	37	83			
110	55	165			

DISCUSSION

When atherosclerosis progresses to the point where it affects the lower extremities, as it does in diabetic patients, the result is peripheral artery disease and ischaemia. Diabetic foot and leg problems have emerged as a major public health issue in both the developed and the developing worlds. Diabetic foot wounds, which are caused by neuropathy and peripheral artery disease, can become infected, leading to the need for amputation of the lower extremities [13]. In many of the etiological variables contributing to the formation of diabetic foot ulcers can be diagnosed earlier utilizing simple and inexpensive technology in a clinical setting, thereby reducing the negative effects of diabetic foot ulcers [14]. Both Rhee *et al.*, and Okello *et al.*, found a statistically significant gender imbalance favoring women [15, 16]. These results were similar to but not statistically significant from other investigations. One study found that males were more likely to have PAD than females due to the higher prevalence of smokers among males. Our individuals did not have a high rate of smoking either currently or historically [17]. In a study by Moreira *et al.*, it was found that 78% of patients with diabetic foot ulcers (DFU) concurrently had peripheral arterial disease (PAD) which was similar to our study. Their research established a significant association between PAD and DFU, with an odds ratio (OR) of 3 (95% confidence interval, CI: 1.087–8.242) and a highly significant p-value of <0.001 [18]. A study conducted in the Netherlands, involving 1,229 patients with type II diabetes, revealed that only 49% of patients with diabetic foot ulcers (DFU) also had peripheral arterial disease (PAD). This discrepancy may be attributed to various factors, such as differences in ethnicity (possibly the prevalence of European ancestry, EAP), a higher incidence of smoking, or neuropathies among diabetic individuals, all of which are also associated with the development of DFU [19]. In a study conducted in Mexico, which focused on a Latin population similar to our own, 65% of diabetic patients with DFU were found to have coexisting PAD, a result that aligns more closely with our findings. However, it's worth noting that the disparities between our study and the Mexican study could be attributed to the case-control design used, where only 20 cases of DFU were considered alongside 40 control subjects without DFU [20]. Our research only applies to patients with diabetes in tertiary hospitals; its results cannot be extrapolated to the wider population. We did not account for the possibility that other factors, such as lifestyle and socioeconomic position, contribute to the increased risk of PAD in diabetic individuals. It may be useful for future studies of PAD in this cohort to investigate the effect of these variables.

CONCLUSIONS

In conclusion, this study systematically examined the association between diabetic foot ulcers and peripheral arterial disease in individuals diagnosed with type 2 diabetes mellitus.

Authors Contribution

Conceptualization: AY
Methodology: AY, MH, AF
Formal analysis: MUK
Writing-review and editing: AY, FB, QS

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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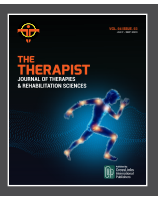

Original Article

Prevalence of Various Forms of Active Tuberculosis in Patients with Diabetes

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ABSTRACT

A diabetic foot ulcer (DFU) is a persistent complication of diabetes mellitus. Diabetes is linked to a two to four-fold higher likelihood of developing peripheral arterial disease (PAD) when compared to individuals without diabetes. **Objective:** To determine the incidence of various forms of active tuberculosis in patients with diabetes. **Methods**: It was a cross-sectional study conducted at the Department of General Medicine from August 2022 to February 2023. 175 patients, including both males and females, participated in this study. Comprehensive demographic information was meticulously documented for each patient following the appropriate consent procedures. These patients had symptoms such as cough with or without phlegm, hemoptysis, persistent fever, and unexplained weight loss, and their ages ranged from 10 to 85 years. Comprehensive medical history, clinical examination, and TB screening tests were conducted and data analysis were done by SPSS version-24 for further analysis. **Results:** The mean age was 51.34 years with a standard deviation of 3.61. Among the patients, 107(61.14%) were male, and 68 (38.85%) were female. The overall prevalence of active TB was 38 cases, accounting for 21.71% of the total. Among these cases, 18 were pulmonary TB, making up 47.36% of the active TB cases, while 13 were extra-pulmonary TB, constituting 34.21% of the total. Additionally, 5 cases were identified as multidrug-resistant TB, representing 13.15% of the active TB cases. **Conclusions:** In conclusion, our study reveals a higher prevalence of various forms of active tuberculosis in patients with diabetes with pulmonary tuberculosis accounting for 47.35% and extra pulmonary tuberculosis for 34.21% of cases.

INTRODUCTION

Mycobacterium tuberculosis infects a quarter of the world's population, solidifying tuberculosis (TB) as a prominent global infectious disease. TB continues to pose a substantial global public health challenge, with an annual death toll exceeding 1.5 million and approximately 10 million new cases reported each year. The death toll from tuberculosis has dropped by 27% since 2000 [1, 2]. People with DM have higher TB rates than the general population, and having DM triples the risk of contracting tuberculosis (TB). In underdeveloped nations, where tuberculosis is rampant and diabetes is on the rise, understanding the connection between the two diseases is crucial [3, 4] Pakistan saw an increase in the prevalence of diabetes among people 20 and older, from 5% in 1990 to 7% in 2016 [5]. Diminished cellular immunity, impaired alveolar macrophage function, reduced interferon gamma levels, pulmonary microangiopathy, and inadequate micronutrient levels represent some of the proposed pathophysiological mechanisms linking diabetes mellitus (DM) to an increased risk of tuberculosis (TB). In low and middle-income nations, the co-occurrence of TB and DM exemplifies a bidirectional relationship between a communicable and noncommunicable disease, intensifying the dual burden of both conditions [6, 7]. The coexistence of diabetes and active tuberculosis poses a significant public health challenge, warranting investigation into the prevalence of different forms of active tuberculosis in diabetic patients [8-10]. Our study

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hypothesized that the prevalence of various forms of active tuberculosis is higher in patients with diabetes compared to the general population without diabetes. Understanding this prevalence is crucial as diabetes can compromise the immune system, increasing susceptibility to tuberculosis. Additionally, diabetes may lead to atypical presentations of tuberculosis, potentially delaying diagnosis and treatment. Exploring the prevalence of various forms of active tuberculosis in diabetic patients can inform targeted interventions to improve the management of these dual conditions and reduce their associated morbidity and mortality.

METHODS

This study was conducted at the Department of General Medicine from August 2022 to February 2023. A sample size of 150 patients was determined using the WHO online calculator, incorporating a 5% margin of error and a 95% confidence interval, while considering a TB prevalence of 7.2% [11]. Patients of both genders having age of 18 to 60 with a diagnosis of DM and were already receiving medication for diabetes were included. Patients with a recent diagnosis of diabetes, those on steroids or other immunosuppressant's and those who have been taking antibiotics within the past 15 days were not included in our study. All participants in the study gave their informed consent after being fully briefed on the study's design. Patients were classified as having tuberculosis based on the presence or absence of certain symptoms. A patient with TB positive symptoms will exhibit at least three of the following: a cough that has persisted for > 2 weeks, fever, appetite loss, night sweats, and extreme fatigue. Sputum analysis was explored for patients with three or more complaints. For the purpose of observing AFB (stands for Acid-Fast Bacilli), by light microscopy with Ziehl-Neelson (ZN) staining, three sputum samples (morning-spot) were taken. In the Ziehl-Neelsen staining procedure, clinical specimens from diabetic patients were smeared on microscope slides, subjected to Carbol Fuchsin staining and gentle heating, followed by decolorization with Ziehl-Neelsen Decolorizer. Counterstaining with Methylene Blue, air-drying, and microscopic examination facilitated the identification of acid-fast bacilli indicative of active tuberculosis. If a patient showed both positive TB symptoms and If any of their samples displayed positive ZN staining, individuals were categorized as having tuberculosis. Patients were judged to be TB-negative if they showed no signs of TB and had negative ZN staining in all of their samples. SPSS version 25, statistical software, was used to enter and analyse the acquired data. Frequencies and percentages were calculated for qualitative variables like gender, TB positive, and TB negative. Age, gender, and diabetes type served as stratification variables to mitigate their moderating effects, with the chi-square test applied post-stratification. A significance level of 0.05 was utilized for statistical inference.

RESULTS

The table 1 provides information on several variables among the demographic groups of patients with type-II diabetes. The mean age was 51.34 years with a standard deviation of 3.61. Among the patients, 107 (61.14%) were male, and 68 (38.85%) were female. Regarding their medical history, 116 (70.3%) had a history of BCG vaccination, while 59 (33.71%) did not. Additionally, 50 patients (28.57%) had a familial history of TB, while 125 (71.42%) did not. In terms of diabetes type, 37 (21.14%) had Type-I diabetes, and 138 (78.85%) had Type-II diabetes.

Table 1: The demographic distribution of individuals with diabetes

Measurements	Category	Frequency (%)
Age	Mean ± SD	51.34±3.61
Gender	Male	107(61.14%)
	Female	68(38.85%)
History of BCG vaccination	Yes	116 (70.3%)
	No	59 (33.71%)
Familial history of TB	Yes	50(28.57%)
	No	125(71.42)
Type of Diabetes	Type-I	37(21.14%)
	Type-II	138 (78.85%)
Mean duration of diabetes	Mean±SD	12.11±1.67

Table 2 presents the different categories of tuberculosis observed in individuals with diabetes. The overall prevalence of active TB was 38 cases, accounting for 21.71% of the total. Among these cases, 18 were pulmonary TB, making up 47.36% of the active TB cases, while 13 were extra-pulmonary TB, constituting 34.21% of the total. Additionally, 5 cases were identified as multidrug-resistant TB, representing 13.15% of the active TB cases, and 2 cases were classified as miliary TB, making up 5.26% of the total cases.

Table 2: Various categories of tuberculosis found in individuals with diabetes

Variables	Frequency (%)
Overall Prevalence of Active TB	38(21.71)
Pulmonary TB	18(47.36)
Extra Pulmonary TB	13(34.21)
Multidrug-Resistant TB	05(13.15)
Milliary TB	02(5.26)

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Table 3 outlines the characteristics of individuals who are impacted by both active tuberculosis and diabetes mellitus. Among them, 145 cases (82.85%) were identified with pulmonary localization, while 30 cases (17.14%) had extra-pulmonary TB. When assessing chest X-ray findings, 85 individuals (48.57%) exhibited cavities, while 90 (51.43%) did not have cavities. In terms of sputum smear results, 125 cases (71.24%) tested positive for AFB, and 50 cases (28.57%) were AFB negative. Regarding radiographic presentation, 135 cases (77.14%) displayed typical features, while 40 cases (22.85%) exhibited atypical characteristics.

Table 3: Characteristics of individuals affected by both active tuberculosis and diabetes mellitus

Variables	Category	Frequency (%)
Localization	Pulmonary	145(82.85)
	Extra pulmonary	30(17.14)
Cavity on Chest X-ray	Yes	85(48.57)
	No	90(51.43)
Sputum smear	AFB+	125(71.24)
	AFB	50(28.57)
Radiographic presentation	Typical	135(77.14)
	Atypical	40(22.85)

DISCUSSION

This study examined the rate of tuberculosis in diabetics. Tuberculosis and diabetes are strongly related illnesses, and both are increasing in prevalence. Infections of the lungs are typically caused by the bacterium Mycobacterium; however, the disease can extend to other organs. Among the many illnesses that can be particularly dangerous for people with diabetes, TB stands out as a major threat. Diabetic patients have a prevalence of tuberculosis that is three- to five-fold higher than that of the general population. Since tuberculosis and diabetes share symptoms including fatigue, weight loss, and anorexia, it can be challenging to manage people with both conditions at the same time [12, 13]. In our study overall prevalence of active TB was 38 cases, accounting for 21.71% of the total. Among these cases, 18 were pulmonary TB, making up 47.36% of the active TB cases, while 13 were extra-pulmonary TB, constituting 34.21% of the total. Additionally, 5 cases were identified as multidrug-resistant TB, representing 13.15% of the active TB cases, and 2 cases were classified as miliary TB, making up 5.26% of the total cases. Our results are similar to findings of Basit et al., who found that among the 550 survey participants, 19 individuals (13%) were diagnosed with active TB. Among these TB cases, 58% were attributed to pulmonary TB, 42% to extra-pulmonary TB, and 6% to multi-drug resistant TB (MDR-TB). These findings underscore the heightened risk of MDR-TB and pulmonary tuberculosis among individuals with diabetes, with pulmonary TB being notably more prevalent than extra-pulmonary TB [14]. Since both TB and diabetes are more common in poor nations, and since anti-TB drugs tend to affect glycemic control, it's possible that this is why there's such a significant positive correlation between the two diseases [15]. Supporting these results are studies looking into the DM-TB link, which have shown that diabetes triples the risk of tuberculosis, especially in locations where the disease is prevalent [16, 17]. Kermansaravi et al., reported comparable results with our findings, among the 400 diabetic patients, 24 individuals (6%) were initially suspected for PTB. However, subsequent laboratory preclinical assessments confirmed the presence of smear-positive pulmonary TB in 4 cases. Furthermore, the results of the PPD test showed that 257 patients (64.25%) had a negative response (induration of 0-4 mm), Among the entire cohort, 118 patients (29.5%) displayed an intermediate positive result, indicated by an induration size between 5-9 mm, while 25 patients (6.25%) tested positive, with an induration size falling within the range of 10-14 mm [18]. Masood et al., also reported that among the diabetic patients, 63 individuals (21.7%) were diagnosed with type 1 diabetes mellitus (DM), while 227 individuals (78.3%) had type 2 DM. When inquired about tuberculosis (TB) symptoms, 32 patients (11.0%) reported positive symptoms, while the remaining 258 patients (89%) reported negative symptoms. However, upon conducting additional sputum analysis, TB was confirmed in only 12 patients (4.1%) [19]. Ali et al., reported that the mean duration of diabetes was 11.5±9.19 years. Among the participants, active tuberculosis was detected in only 30 cases (15%). Out of these cases, 17 (56.7%) were diagnosed with pulmonary tuberculosis, while the remaining 13 (43.3%) had extra-pulmonary tuberculosis. Additionally, 18 patients (60%) had smear-positive TB, while 12 patients (40%) had smear-negative TB [20]. Tuberculosis incidence is notably elevated in individuals with diabetes, and non-diabetics also experience a relatively high occurrence of extra-pulmonary TB. Post-primary tuberculosis predominantly affects the upper and apical lung lobes. Intestinal tuberculosis ranks as the most prevalent form of extra-pulmonary TB. Within the diabetic population, multi-drug resistant TB (MDR-TB) is alarmingly prevalent. Urgent and comprehensive measures are imperative, as failure to address this issue promptly could lead to a severe and escalating public health crisis in the future. Patients with DM-TB have additional factors beyond their glucose levels that must be taken into account in order to provide effective therapy and maintenance.

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CONCLUSIONS

In conclusion, our study reveals a higher prevalence of various forms of active tuberculosis in patients with diabetes with pulmonary tuberculosis accounting for 47.35% and extra pulmonary tuberculosis for 34.21% of cases.

Authors Contribution

Conceptualization: MT, AW
Methodology: MT
Formal Analysis: RR
Writing-review and editing: NA, SZ, FB
All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest

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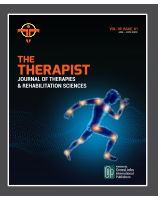

Original Article

Text Neck Syndrome and Associated Risk Factors: Prevalence in Medical Students

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ABSTRACT

Text neck depicts repeated stress injury and irritation of neck due to smart phone usage or other handheld devices over a sustained period. **Objective:** To evaluate the prevalence of text neck syndrome in medical students of Abbottabad. **Methods:** Descriptive cross sectional study was conducted at various government and private medical colleges of Abbottabad. A sample size of 300 students was estimated suitable for the study calculated via Epitool, a total 300 students of age group 17-30 years were asked to fill 2 well- standardized questionnaires namely Neck Disability Index (NDI) & Nomophobia Pain Questionnaire(NPQ) after seeking informed consent. Convenient sampling technique was opted for data collection. The data was further analysed by using SPSS. **Results:** Among 300 subjects, 4.333% subjects showed mild nomophobia, 54% subjects reported moderate nomophobia, while 41.67% subjects had severe nomophobia. According to the Neck Disability Index (NDI), 6.333% subjects showed no disability, 41.67% subjects showed mild disability, 30% subjects showed moderate disability, 12.67% subjects showed severe disability while 0.333% subjects showed complete disability. There was significant positive correlation observed between NDI and NMP-Q with Pearson correlation co-efficient value of 0.88. **Conclusions:** The study revealed a high prevalence of Text Neck Syndrome in medical students, despite of their awareness and education, primarily due to gadget addiction.

INTRODUCTION

In the 21st century, advancement in cell phone technology has brought an ever-increasing number of individuals together day by day utilizing cell phones more. They spend more time utilizing cell phones, tablets, text e-perusing, and utilizing web-based media, which brings about flexion of the neck for a delayed time causing Text neck disorder [1, 2]. If this condition is not treated, it may result in early arthritis, permanent damage, and overuse syndrome [3]. Text neck syndrome is repeated stress injury and irritation coming from excessive watching or messaging closely via handheld devices over a sustained period [4]. Studies have demonstrated that around 87% of youngsters (14-18 years) in USA and 79% of teens (12-15 years) in UK own and use cell phones. Among grown-ups matured, 18-34 years, 92% and 95% of individual population own a cell phone respectively in USA and Australia [5]. Aside from neck pain, it can also cause shoulder pain, upper back pain, headache and increased thoracic kyphosis. It has been assessed that about 79% of the population in USA, aged between 18 to 44 years utilized their major time on mobiles phones, which

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they could have spent, on walking. It may cause repetitive stress injury or overuse with neck in flexion, leading to forward head position to see the mobile or other electronic gadgets [6]. This issue is a serious problem concern with kids, since their heads are bigger as compared to their body size than grown-ups are, and in this way, they are at more risk due to the use of cell phones [7]. Flexing the head forward to use a cell phone directly affects the spine. Shifting the head forward to 15 degrees places around 27 pounds of force on neck. This increases to 40 pounds at 30 degrees, 49 pounds at 45 degrees and 60 pounds at 60 degrees [8]. This may lead to various other problems such as muscle ischaemia, pain and fatigue in head, decrease ROM of cervical spine, early disc degeneration and osteophyte formation, temporo-mandibular joint pain and inflammation, tension headache, increase in dorsal kyphosis (secondary to forward head posture), and decrease in range of motion of shoulder and arm (secondary to excessive phone usage [9, 10]. Due to the rising prevalence of media gadgets, for example, cell phones and PCs, Forward head posture (FHP) is a poor habitual neck posture. Text neck syndrome is becoming increasingly prevalent these days in almost all age groups but mostly in young population and students. With the advancement of technology, hand held devices are eventually causing a major threat to human biomechanics by creating postural misalignment [11-13].

This study is of great significance as it aims to determine the prevalence of impairments leading to text neck syndrome in students of medical colleges of Abbottabad. There is a dire need of creating awareness among people about hazards, which results from poor posture habits of routine work. Adequate measures should be incorporated to educate and treat the youth as early as possible. Therefore, this study was conducted to evaluate the prevalence of Text Neck Syndrome in medical students of Abbottabad.

METHODS

Descriptive cross sectional study was conducted after obtaining the approval from Institutional Review Board of Women Institute of Rehabilitation Sciences Abbottabad (Reference No. 1804, Date of Issuance: 5 Sep, 2022). The time duration of the research was 1 year starting from September 2022 to September 2023.The data was sought from various government and private medical colleges of Abbottabad. A sample size of 300 students was estimated suitable for the study via Epitool. The inclusion criteria were (a) students who use mobile phone for more than 2 hours per day with age group 17-30 years. Subjects were asked to fill 2 well standardized questionnaires namely Neck Disability Index (NDI) & Nomophobia Questionnaire (NPQ) after seeking informed consent. Students with a history of cervical spine trauma and neurological symptoms were excluded from the study. (8) Convenient sampling technique was opted for data collection .The data was further analysed by using SPSS. The NMP-Q was used to measure nomophobia (No Mobile Phone Phobia; a condition where people have a fear of being detached from mobile phone connection). It comprises of 20 questions that address four factors of nomophobia: (a) inability to communicate, (b) lack of connectedness, (c) information access issues and (d) inconvenience. The score of each item ranges from 1-140. (1-20= No Nomophobia i.e, have no fear of losing a mobile phone and can survive without it and 100-140 =Severe Nomophobia i.e, have fear of losing a mobile phone and use it for prolong time period) [14]. The other questionnaire was Neck Disability Index (NDI) which is a standardized tool designed to access the intensity of neck pain on various daily activities (personal care, work, reading, concentration, sleeping, driving, lifting, recreation activities). It is calculated by using a questionnaire with 10-items, the highest score of each item is five with a total score of 50. The score 0-4 means no Disability 35-50 means complete Disability [15].

RESULTS

Table 1 shows that 34.33% subjects were male and 65.67% subjects were female recruited in the study from age 17-30 years.

Table 1: Gender Description

Gender	Frequency (%)
Male	103 (34.3)
Female	197 (65.6)

Approximately 24.67% subjects were between ages of 17-20 years, 61% subjects lied between ages of 21-25 years while 14.33% subjects were of ages from 26-30 (Table 2).

Table 2: Age in Years

Gender	Percentage
17-20 years	24.67%
21-25 years	61%
26-30 years	14.33%

Analysis revealed that 2% subjects used mobile phone for 2 hours, 13.67% subject used mobile phone for 3-4 hours, 29.67% subjects used mobile phone for 5-6 hours while 54.67% subjects used mobile phone for more than 6 hours per day (Table 3).

Table 3: Hours of Mobile Phone Use per Day

Hours of mobile phone use per day	Frequency (%)
2 hours	6 (2)
3-4 hours	41 (13.6)

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5-6 hours	89 (29.6)
More than 6 hours	164 (54.6)

Nomophobia Questionnaire interpretation of participants recruited showed that, none reported absence of nomophobia, 4.33% reported mild nomophobia, and 54% reported moderate nomophobia while 41.6% reported severe nomophobia (Table 4).

Table 4: Nomophobia Questionnaire Total Score

NMP-Q Scoring	Percentage
Mild Nomophobia	4.3%
Moderate Nomophobia	54%
Severe Nomophobia	41.6%

Neck Disability Index interpretation in subjects recruited who used mobile phone for more than 2 hours per day revealed that 6.3% of participants had no disability in the neck, 41.6% reported mild disability, 30% reported moderate disability, and 12.6% reported severe disability while 0.3% reported complete disability of neck (Table 5).

Table 5: Neck Disability Index Total Score

NDI Scoring	Percentage
No Disability	6.3%
Mild Disability	41.6%
Moderate Disability	39%
Severe Disability	12.6%
Complete Disability	0.33%

Pearson's co-relation(r) results between Neck Disability Index (NDI) and Nomophobia Questionnaire (NPQ) total scores are shown below. The table shows p-value less than 0.05(p-value=0.02) with Pearson correlation r= 0.88, which is validating significant association between the two variables with strong positive correlation respectively(Table 6).This implies that subjects with greater degree of neck pain and related disability were found to have a higher tendency of prolonged mobile phone usage; an indication factor for Text Neck Syndrome.

DISCUSSION

The rise in addiction rate and lack of awareness may be a potentially important contributor to Text Neck Syndrome. With a technological advancement, a more dependence has been observed among people on smart phone in daily routine which may, in near future, cause a number of biomechanical changes [16]. The current study was conducted to evaluate the prevalence of text neck syndrome in medical students of Abbottabad. Khan et al., conducted a study in 2020 on medical students of Sharif Medical and Dental College, Lahore. Total 120 participants were recruited and the results showed that among the subjects, mild nomophobia was found in 19(16%), moderate nomophobia in 80(67%) and severe nomophobia in 21(17%) of the students. Fifty students (42%) reported neck pain and 42 (35%) had mild neck disability index score due to moderate nomophobia and 36 (72%) students had severe nomophobia. There was a positive correlation between NMP-Q and NDI, having person's correlation coefficient of 0.41 [8]. According to our study 4.33% subjects had mild nomophobia, 54% subjects had moderate nomophobia while 41.67% had severe nomophobia. According to NDI score, 6.33% had no disability, 41.67% had mild disability, 39 % had moderate disability and 12.67% had severe disability while 0.333% had complete disability. The NDI and NMP-Q showed significant association with p-value 0.28 and strong positive correlation of 0.88. Ahmed et al., in 2019 conducted a study to determine neck pain and neck disability due to prolong mobile phone usage, in which 46.9% of students of physiotherapy reportedly had neck pain and 42.5% reported neck disability [17]. Comparable results were found in our study were Neck Pain was reported in 44.68% individual (19.33% had mild pain, 9.67% had moderate pain, 5% had fairly severe pain, 5.67% had very severe pain while 5% had worst imaginable pain) while 41.67% students had mild neck disability. Shah and Sheth conducted a study in 2018 on 100 physiotherapy students from Ahmedabad, India and established a significant correlation between the use of mobile phone and NDI [18]. Our study has revealed comparable results as NDI and NMP-Q had a significant correlation between the two with p-value < 0.05 i.e., 0.028. Alsiwed et al., in 2021 conducted a research to determine the prevalence of text neck syndrome and its association with smartphone use among medical students in Jeddah, Saudi Arabia. The results demonstrated that among the participants, 49.5% had mild, 16.1% had moderate, and 2.6% had severe neck disabilities due to smart phone usage with p-value <0.001 [19]. According to our study, 41.67% had mild disability, 39 % had moderate disability and 12.67% had severe disability. The results for mild disability are comparable between both the studies while the results for moderate and severe disability were reported higher in our study. Kamaraj et al., also conducted a study in 2022 on the prevalence of text neck syndrome among under-graduate students of a medical college in Puducherry and found a significant association between gender, medical academic year and duration of electronic gadget usage with significant p values 0.030, 0.001 respectively. Duration of electronic gadget usage and text neck syndrome was associated statistically with significant p value 0.038. Our study has also fetched similar results as NDI and NMP-Q had a significant correlation between the two with p-value < 0.05

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i.e., 0.028 [20]. This study has its own limitations as the study was done only in medical colleges of Abbottabad with convenience sampling technique. This study was unable to show temporal cause-effect relation between the variables due to the cross sectional design of the study. In future multiple studies should be carried out in all provinces of Pakistan with a random sampling containing larger sample size. Further researches can be done to include the same number of men and women on a larger scale to obtain a more accurate result of the gender association using objective examination such as measuring Cervico-vertebral Angle (CVA) in clinical setup for proper assessment of forward head posture and text neck syndrome. This study suggests that prolong use of electronic gadgets such as mobile/smart phone may lead to evolution of a number of symptoms in the head and neck region, one of which is Text Neck Syndrome. The study revealed a high prevalence of the cluster of symptoms which, together, may lead to the development of Text Neck Syndrome. Medical students, despite of their awareness and education, are still prone to this condition as gadget addiction is a major hazard of advancement of technology. Appropriate measures should be taken to address and treat this alarming condition.

CONCLUSIONS

The study revealed a high prevalence of Text Neck Syndrome in medical students, despite of their awareness and education, primarily due to gadget addiction leading to poor posture, neck pain and disability.

Authors Contribution

Conceptualization: MB, AK
Methodology: GA, AR
Formal analysis: MWA
Writing-review and editing: AJ, GA, AR, SHA, MAA
All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest

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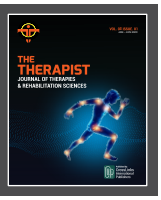

Original Article

Comparative Analysis of Speed Endurance Production and Maintenance Drills: A Study on Enhancing Performance in Hockey Players

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ABSTRACT

Hockey features a variety of high-intensity motions that cause tiredness during the most intense moments of play. During these gaming phases, anaerobic energy turnover and muscular activation are significant, which may exhaust the physiological mechanisms that fight tiredness. **Objective:** To determine the effects of speed endurance production and speed endurance maintenance drills on hockey players. **Methods:** A quasi-experimental study was conducted at Gojra hockey club, Gojra. Total sample size was 60 male healthy field hockey players. Participants were selected by sealed envelope method and divided into Group A (speed endurance production) and Group B (speed endurance maintenance). Speed endurance production group received very high intensity training around 30 seconds exercise interval time followed by 2-3 minutes rest period to guarantee sufficient recovery time. Speed endurance maintenance training group involve small side games in 30-60 sec similar recovery time. The data were analysed using SPSS 23.0. **Results:** The age of participants with mean± SD was 21.60 ± 4.6. SEP and SEM techniques were applied in both groups. The result shows significant effect with ($p<0.05$) in all respective tests: 50-meter, 400-meter, yo-yo distance and yo-yo Intermittent Recovery 2 and non-significant with ($p>0.05$) in 100-meter, 200-meter and fatigue index test in between group analysis. It shows statistically significant effect within groups. **Conclusions:** Study concluded that speed endurance production and speed endurance maintenance is effective in improving intermittent exercise capacity and fatigue index in both groups.

INTRODUCTION

Hockey is national game of Pakistan and standout amongst the most famous games in Pakistan. The Pakistan national field hockey group is maintained and run by the Pakistan Hockey Federation (PHF), the representing body for hockey in Pakistan [1]. Hockey is described by high power discontinuous movements and quick changes in speed and span also, visit body contact. The hockey player performs a game of at least 15 minutes in which vigorous move with ball performed to get goal. Each move keeps going from 4 to 90 seconds with at least five minutes of recuperation and breaks in between the game [2, 3]. The extreme force screams entail the hockey player to create muscle quality

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control also, anaerobic perseverance. Physical attributes of world class players demonstrate that the goal keeper are always having more height and weight as compared to other players of the team than advances ostensibly because of positional requests. The players of hockey are always having a specific body type. They are having lean body as for hockey players having more weight can disturb their capabilities to perform the game and skating skills can be disturbed [4, 5]. Physiological profiles of tip top hockey groups uncover the significance of oxygen consuming perseverance anaerobic power and perseverance strong quality and skating speed. During the hockey play demonstrates picks up in anaerobic perseverance however there is no alteration in oxygen consuming perseverance [6, 7]. Despite the fact that a comprehension of the hidden energetics is vital from an examination viewpoint, professionals are more intrigued by the basic relationship between entrenched field wellness and then again execution tests [8]. Irregular trainings for a time period of 5 to 10 minutes leads to almost 80 to 90% of HRmax includes a noteworthy which leads to an increase in the transport of oxygen to the important parts of body. During preparing the power, the change in the maximum uptake of oxygen occurs almost 20 to 35% and it continues till 5 to 12 weeks, with singular varieties because of starting level of wellness, span and recurrence of training. When preparing it at a decreased force of 50 to 70%, just an 8– 12% expansion in the oxygen uptake seen in already stationary investigation [9]. The respiratory endurance of muscles and heart continuance have for quite some time been perceived as one of the central segments of physical wellness. Since aggregation of lactic corrosive is related with skeletal muscle weariness, anaerobic digestion can't participate at a measurable noteworthy value to the vitality used [6, 10]. Several studies have found differences in total oxygen consumption among distinct types during tasks conducted at optimal processing speed. The reasons for this changeability are not surely knew, but rather it appears to be related to the anatomy attribute, mechanically expertise, involvement of nerves and muscles aptitude and capacity of flexible vitality are imperative. The present economy regularly characterized as the enduring position in which maximum oxygen intake speed or as vitality as the running of it per meter cost (mLkg-1m-1) [11, 12]. The discovered qualities for hockey players were 10– 16% less than for centre separation sprinters. Hockey players have around 25% more than ball players and sprinters. Additionally, Hungarian world class hockey players have 20 to 32% larger amount of less oxygen consumption-coordinated access gathering. One issue with such estimations is their restricted pertinence to the dashing and hazardous developments of soccer. Anaerobic execution assessment as far as hockey-particular field tests may be the most ideal approach for the hockey players [12-14]. In this study, a critical gap was identified in understanding the impact of different training methods on hockey players' fatigue management and energy utilization. This research filled this gap by objectively evaluating and comparing the effects of speed endurance production and maintenance drills on players' performance. The significance of the study lies in its potential to inform optimized training strategies, enhancing players' performance during high-intensity periods of play.

METHODS

It was a quasi-experimental study. This research was carried out at the Gojra hockey club. The investigation lasted six months. A total of 60 players were recruited for this study and assigned to two groups of 30 hockey players each. Sample size was calculated through open Epitool calculator by comparing the means. For sample selection, convenience sampling with randomization was used in two groups: group A and group B. The study's inclusion criteria were male hockey players aged 16 to 30 who were registered with the club and had attended at least two training sessions per week for the previous three months. Exclusion criteria included any G-II or higher strain, sprain, fracture, or dislocation in the previous three months, as well as any major neuro-musculoskeletal or cardiovascular pathology. Prior to the intervention, players worked out four times per week and played a full-length game. They held three weekly sessions (Monday, Wednesday, and Friday) during the training intervention period. All training sessions were 90 minutes long and included both warm-up and technical/tactical skill development, with the exception of the last 20 minutes, when the habitual conditioning part (i.e. aerobic high-intensity, strength, or speed/agility drills) was replaced by speed endurance training. All SEM and SEP training sessions were held on artificial turf and were closely monitored. The participants were subjected to three and five repetitions, respectively, during the first and second sessions. The players did six to eight repetitions beginning with the third. During the 8-week intervention period, participants completed three speed endurance sessions per week (all with 100% compliance). Aside from the one prescribed in the hockey environment, no other physical exercise was performed. To minimise any potential interference from external variables, the players maintained their normal lifestyle and food intake in the weeks preceding the intervention phase, which lasted eight weeks. Both groups were tested at the beginning and end of the eight-week intervention period. All of the players underwent physical fitness tests, which were conducted by the same staff, at the same time, on the

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same hockey pitch, and under the same conditions. Each test was run twice per session, with the best reading used for analysis. During matches and training sessions, the respective coaches would report on injuries and the players' participation. One medical physician and one physical therapist at the medical centre were unaware of the group assignment. Outcome measures of the study were 50-meter run, 100-meter run, 200-meter run, 400-meter run, F=fatigue index test and YOYO fitness tests (Aerobic fitness). 50-meter run, 100-meter run, 200-meter run and 400-meter run tests determine acceleration, maximum running speed, and speed endurance based on the distance run. The test consists of a single maximum sprint over a predetermined distance, with time recorded. Following a standardised warm-up, the test is performed over a specific distance, such as 100, 200, 400, or yards, depending on the sport and what you are attempting to measure. The fatigue index measures anaerobic capability, also known as endurance. It is the rate at which each athlete's power falls; in other words, it represents the rate at which you tyre when sprinting. The running-based anaerobic sprint test (or RAST) for fatigue index combines statistics from six sprints, using your maximum power and the statistics from your best sprint (your minimum power), the statistics from your slowest sprint, and the average of your sprints to arrive at a figure in watts per second. The higher your tiredness index, the less likely you are to retain power during a series of sprints. The Yo-Yo Intermittent Tests are identical to the Yo-Yo Endurance Test (a version of the beep test), except that subjects in the intermittent tests take a brief active break (5 and 10 seconds for the sporadic endurance and intermittent recovery tests, respectively). Each Yo-Yo Intermittent Test comes in two variants: beginner Level 1 and advanced Level 2. Team Beep Test software may be used to execute the Yo-Yo tests. All analyses were carried out using SPSS software (version 23.0, SPSS Inc). The data's normality was determined. A paired t-test was used to examine the difference between the interventional and control groups' prior and post intervention results, and an independent t-test was used to evaluate the difference between the interventional and control groups' pre and post intervention results. A value of p< 0.05 score was deemed statistically significant. All ethical concerns were taken into account. Informed consent forms were signed by all study participants prior to data collection. The dignity and privacy of all participants were prioritized.

RESULTS

The mean age of the participants with standard deviation was 21.17±2.53. Between group analyses were done through independent test. Table 1 showed mean values of 100m Run test, 50m run, YOYO Distance test, YOYO VO2Max, two hundred meter run test and fatigue index for SEP and SEM at 8th week. The p value (p<0.05) shows a significant difference between both groups except for 200m run and fatigue index.

Table 1: Between group analysis (Independent t-test)

Variables		Mean ± SD	p-value
100m run 8th week	SEP	15.17 ± 0.56	<0.05
	SEM	13.80 ± 0.44	
50m run 8th week	SEP	7.06 ± 0.38	0.028
	SEM	6.92 ± 0.20	
YOYO distance 8th week	SEP	572.00 ± 85.19	0.001
	SEM	460.00 ± 85.59	
YOYO Vo2max week 8th	SEP	41.20 ± 0.71	<0.001
	SEM	40.26 ± 0.71	
200m run week 8th	SEP	27.53 ± 0.58	0.834
	SEM	27.59 ± 0.91	
Fatigue index 8th week	SEP	84.10 ± 2.44	0.178
	SEM	82.30 ± 3.92	

SEP = Speed endurance production
SEM = Speed endurance maintenance

Table 2 shows the results of Mann-Whitney test for table shows YoYo level, 400m run at 8th week. The p-value (p<0.05) shows a significant difference in both groups (Table 2).

Table 2: Between group analyses (Mann-Whitney Test)

Variables		Median (IQR)	Mean Rank	p-value
YOYOIR2 level 8th week	SEP	0.9	26.70	0.001
	SEM		14.30	
400m run 8th week	SEP	0.27	15.20	0.004
	SEM		25.80	

SEP = Speed endurance production
SEM = Speed endurance maintenance

Within Group analysis was done by using Paired t-test. Table 3 shows the mean and S.D of pre and post SEP and SEM of 100m Run test, 50m run, YOYO Distance test, YOYO VO2Max, two hundred meter run test and fatigue index at baseline and after 8 weeks. There was significant difference in pre and post values with p<0.05 (Table 3).

Table 3: Within group analysis (paired t-test)

Variables		Mean ± SD	p-value
50m	Pre SEP	8.6± 0.27	0.002
	Post SEP	7.06 ± 0.38	
	Pre SEM	7.31 ± 0.21	0.022
	Post SEM	6.92 ± 0.20	
100m	Pre SEP	16.76 ± 0.41	<0.001
	Post SEP	15.71 ± 0.56	
	Pre SEM	14.64 ± 0.41	<0.001
	Post SEM	13.80 ± 0.44	

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200m	Pre SEP	30.11 ± 0.80	<0.001
	Post SEP	27.53 ± 0.58	
	Pre SEM	29.30 ± 0.83	<0.001
	Post SEM	27.59 ± 0.91	
YOYO distance	Pre SEP	348 ± 90.93	-<0.001
	Post SEP	572.0 ± 85.19	
	Pre SEM	272.0 ± 65.66	< 0.001
	Post SEM	460.0 ± 85.59	
YOYO VO2 max	Pre SEP	39.34 ± 0.74	<0.001
	Post SEP	41.20 ± 0.71	
	Pre SEM	38.68 ± 0.55	< 0.001
	Post SEM	40.26 ± 0.71	
Fatigue index	Pre SEP	67.15 ± 4.35	<0.001
	Post SEP	84.10 ± 2.44	
	Pre SEM	67.70 ± 4.41	< 0.001
	Post SEM	82.30 ± 3.92	

SEP = Speed endurance production
SEM = Speed endurance maintenance

Table 4 shows the median of pre and post SEM of 400 meter run rate and YOYO level. There was significant difference in pre and post values with p<0.05.

Table 4: Within group analysis (Wilcoxon Test)

Variables		Median (IQR)	p-value
400 meter run test	Pre SEP	0.35	<0.001
	Post SEP	0.27	
	Pre SEM	0.36	<0.001
	Post SEM	0.27	
YOYO level	Pre SEP	1.1	<0.001
	Post SEP	1.32	
	Pre SEM	1.0	<0.001
	Post SEM	1.25	

SEP = Speed endurance production
SEM = Speed endurance maintenance

Figure Shows the Pre and Post Training on 50 Meter Run among the Group.

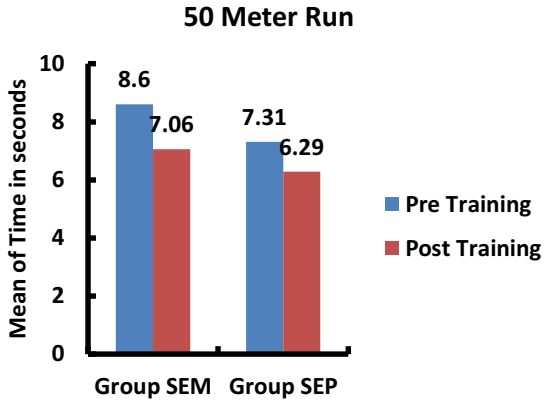

Figure 1: Pre and Post Training on 50 Meter Run among the Group

Figure 2 Shows the Pre and Post Training on 100 Meter Run among the Group.

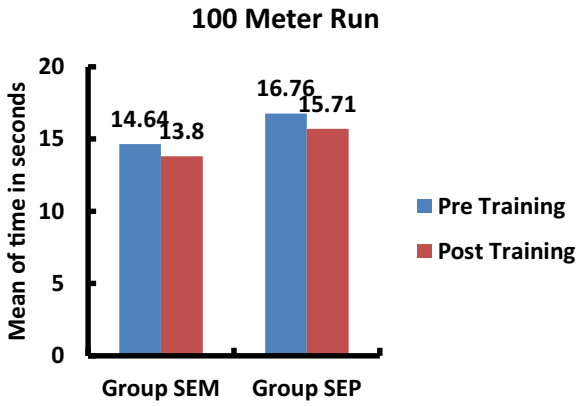

Figure 2: Pre and Post Training on 100 Meter Run among the Group

Figure 3 shows the Pre and Post Training on 200 Meter Run among the Group.

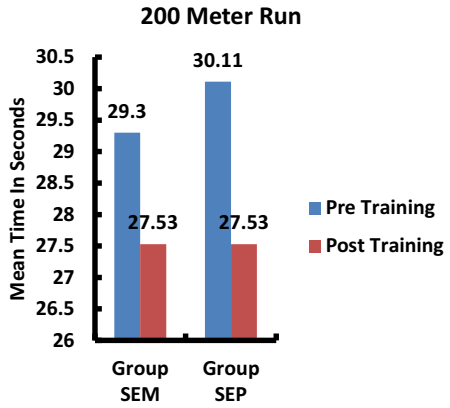

Figure 3: Pre and Post Training on 200 Meter Run among the Group

Figure 4 shows the Pre and Post Training on YoYo Distance among the Group

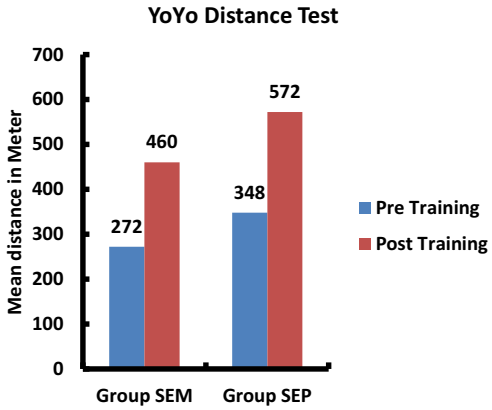

Figure 4: Pre and Post Training on YoYo Distance among the Group

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Figure 5 shows the Pre and Post Training on Fatigue Index among the Group.

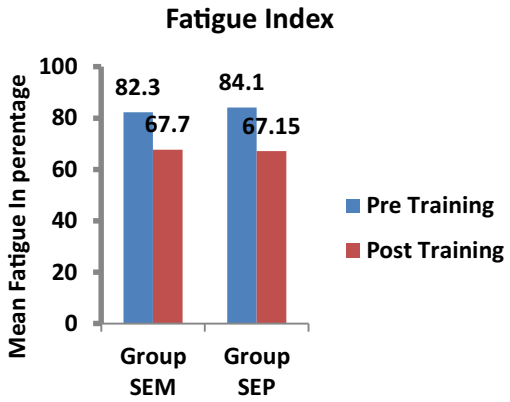

Figure 5: Pre and Post Training on Fatigue Index among the Group

DISCUSSION

The objective of the study was to determine the effects of speed endurance production and speed endurance maintenance drills on hockey players. The mean age of the participants with standard deviation was 21.17 ± 2.53. The results of the study revealed the p value ($p<0.05$) and shows a significant difference in 100m Run test, 50m run, YOYO Distance test, YOYO VO2Max, YoYo level and 400m run in both groups except for 200m run and fatigue index which showed a significant difference $p>0.05$. The 50-meter run performed in players to access their efficiency for the speed endurance production and speed endurance maintenance. Results showed positive speed endurance production and speed endurance maintenance. The results are in line with the findings of a previous research [15]. The results obtained for 10- meter test shows resemblance with the earlier studies done on it for hockey players. 15. Delextrat et al., shows positive trend in the speed endurance production and speed endurance maintenance. They test hockey players for 80-meter test and it comes to be 16.99 ± 0.49. This increasing trend is significant and correlate with findings of my results. Bangsbo et al., finds the positive trend in players run for 80 meter to access the speed endurance production and speed endurance maintenance [16]. This increasing trend was found correlated with present research parameters [17]. The 200-meter run performed in players to access their efficiency for the speed endurance production and speed endurance maintenance. The results show positive trends in speed endurance production and speed endurance maintenance for 200 meter run in both groups. The results obtained for 200-meter test shows resemblance with the earlier studies done on it for hockey players. Fiorenza et al., shows positive trend in the speed endurance production and speed endurance maintenance [18]. They test hockey players for 200-meter test and it comes to be 25.95 ± 0.99. This increasing trend is significant and correlate with findings of present results. The 400-meter run performed in players to access their efficiency for the speed endurance production and speed endurance maintenance. The positive trend for the value of 400-meter run is present. The results obtained for 400-meter test shows resemblance with the earlier studies done on it for hockey players. laia et al., shows positive trend in the speed endurance production and speed endurance maintenance. They test hockey players for 400-meter test and it comes to be 26.99 ± 0.32. This positive trend is significant and correlate with findings of present results [19]. In present study, the results show positive trends in speed endurance production and speed endurance maintenance for Fatigue Index test in both groups. The results obtained for fatigue index test shows resemblance with the earlier studies done on it for hockey players. Jensen et al., shows positive trend in the speed endurance production and speed endurance maintenance. They test hockey players for fatigue index test and it comes to be 72.59 ± 0.23. This increasing trend is significant and correlate with findings of present results [20]. The YO-YO level test performed in players to access their efficiency for the speed endurance production and speed endurance maintenance. The positive trend found in SEM group for the YO-YO level test. The results obtained for YOYO test shows resemblance with the earlier studies done on it for hockey players. They test hockey players for YOYO test and it comes to be 13.59±0.69. This increasing trend is significant and correlate with findings of present results. Positive trend in players run for YOYO test to access the speed endurance production and speed endurance maintenance was found in a study which correlated with current research parameters [19].

CONCLUSIONS

In conclusion, the study's findings showed that both speed endurance production (SEP) and speed endurance maintenance (SEM) training approaches significantly improve intermittent exercise capacity and fatigue index among hockey players. These improvements were observed in both groups, suggesting the efficiency of each training strategy in improving players' physical performance during high-intensity periods of play.

Authors Contribution

Conceptualization: AK, SHA
Methodology: MK
Formal analysis: HA
Writing-review and editing: TG, QA, HABA, MHR,

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All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest

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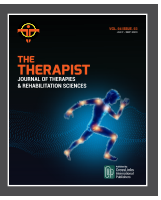

Original Article

Effectiveness of Pursed Lip Breathing and Alternate-Nostril Breathing in Patients with Respiratory Dysfunction

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ABSTRACT

Respiratory dysfunctions are the diseases or disorders like Asthma, emphysema, bronchitis, lung cancer, pulmonary hypertension, COPD and tuberculosis. Among respiratory dysfunctions, COPD is the most common and may be fatal. **Objective:** To observe the effectiveness of pursed lip breathing and alternate-nostril breathing in patients of respiratory dysfunction. **Methods:** This study is aimed to see the effects of PLB and ANB on respiratory outcomes in COPD patients. Qausi Experimental study was completed on 100 participants of age between 24-60 years. Purposive sampling is used to select the population. The participants were selected on the basis of inclusion criteria. Informed consent was taken before the start of exercise. Pulse oximeter was used to assess oxygen saturation values, numeric pain rating scale rating pain from 1-10 , was used to check pain level and Samn-perelli fatigue scale rating fatigue from 1-7 from fully alert till completely exhausted was used respectively. SPSS (version 23) was used for statistical analysis. Findings show that there is marked improvement in respiratory functions including oxygen saturation, pain and fatigue. **Results:** Outcomes after 4-6 weeks of performing pursed lip breathing shows improvement in oxygen saturation and alternate nostril decreases fatigue and pain with the p-value 0.05 which is highly significant. According to statistics, all respiratory variables are highly significant with the p-value<0.05. **Conclusions:** It is concluded that pursed lip breathing and alternate nostril breathing is an effective in improving oxygen saturation and respiratory rate. It is an inexpensive, non-pharmacological and easy method and helped in improving respiratory outcomes.

INTRODUCTION

In respiratory dysfunctions lung functions are compromised. It affects the respiration of the subject. Symptoms can range from mild to severe. The most common forms of obstruction are emphysema and chronic bronchitis. The subjects have problems in exhalation phase. Their oxygen saturation has also decreased. It may develop gradually over time (chronic) or all of a sudden (acute). Serious respiratory issues can result from cigarette smoking, prolonged exposure to pollutants, air pollution, inhaled irritants, and bronchial hyper-responsiveness. Various types of medication including inhalers and bronchodilator and physical therapy management should be considered [1]. Infections involving the bodily components used for respiration, such as the

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sinuses, throat, airways, or lungs, are known as respiratory tract infections, or RTIs. Changes to the volume and air pressure in the lungs trigger pulmonary ventilation. Some kind of infections caused by bacteria and viruses may also affects the function of respiratory system [2]. Lack of respiration occurs when an individual with obstructive lung disease finds it challenging to breathe out all of the air from their lungs. The exhaled air exits the body more gradually than it should due to lung injury or constriction of the airways within the lungs. After a full expiration, there can be too much air in the lungs. The lungs, blood vessels, and airways comprise the respiratory system. Pulmonary ventilation is brought on by variations in the volume and air pressure within the lungs [3]. Because of this, the chest X-ray remains the recommended method for preliminary examinations. As of right now, no solid data support a positive estimate of CT's risk-benefit ratio when used as a screening technique. The benefit of early detection of bronchial carcinoma is outweighed by the drawback, especially in high-risk individuals with a lengthy smoking history [4]. Reducing the amount of lung irritants you are exposed to and the course of your therapy will help you live a better, longer life, and delay the progression of your diseases [5]. A review of the impact of alternate nostril breathing (ANB) on an assortment of cardio-respiratory tasks were investigated. For four weeks, subjects took part in ANB exercise (15 minutes per day in the morning). Before and after the 4-week workout phase, cardio-respiratory parameters were determined. According to the results of the study, alternating nostril blowing boosts parasympathetic activity and substantially reduces systolic blood pressure (SBP).By alternate nostril breathing, the parasympathetic system substantially enhanced [6]. Another study was aimed to decide the impact of pursed lip breathing on measures of breathlessness and oxygen saturation (Sa02) in COPD sufferers. The approach used became quasi-experimental design. A pattern of sixty eight contributors (60 respondents PLB institution, and 8 respondents control group) become determined through overall sampling method. Independent T-take a look at became used which showed a difference between PLB and control group in boom in shortness of breath scale (p = zero.018) and Sa02 (p = 0.023). The results showed an effect of PLB on shortness of breath scale (p =0.030) and Sa02 (p = 0.002) [7].The ventilatory lung functions of 33 normal males and 42 normal women of average age were examined before and after a six-week course of alternate nostril breathing. They had better forced vital capacity (FVC), forced expiratory volume at the end of one second (FEV,%), maximal voluntary ventilation (MVV), peak expiratory flow (PEFR-lit/s), and longer breath holding times, all indicators of improved ventilatory functioning [8]. Examination carried out to investigate the outcomes of pursed-lip inhalation on dyspnea, respiration pattern, lung extent and respiratory mechanics in sufferers with COPD. Eighteen sufferers with a median (+SD) age of 58 ± 11 years and an average FEVI of one. Forty four L (50 ± 21% anticipated) were decided on for this observation. Pursed-lip respiratory promotes deep and slow respiratory patterns in sufferers at relaxation or at some stage in exercising. Changes in dyspnea rankings had been notably correlated with changes in quit-lung quantity (EELV)(r2 = zero.82, p = 0.002)[9]. A study conducted on 40 stable COPD patients between the ages of 40 and 70 were enrolled. The most amount of lung volume could be expelled in COPD patients thanks to PLB. Several strategies that reduce ventilator demand (physical conditioning and Oxygen therapy) have demonstrated the benefits of reducing DH and increasing exercise tolerance [10]. A study conducted at Mansoura University Hospital and Chest Hospital outpatient clinics inside the Mansoura area, the use of a quasi-experimental examine design on sixty patients identified with COPD. Patients had vast improvement in dyspnea and anxiety at put up- and observe-up assessments (p <0.05) [11]. Data from this study showed changes in chest wall muscle recruitment styles with pursed lip respiration (PLB) in COPD. Suggest stepped forward ventilation with this showed that pursed lip breathing accelerated the recruitment of the rib cage and accessory muscles throughout the muse and expiration section. Decreased inspiratory muscle obligation cycle, respiration and improved Sa02 were located at some stage in this take a look at [12]. Pursed-lip respiration is considered a non-pharmacological measure used to treat asthma assaults.10 sufferers had been enrolled, concluded that pursed-lip respiratory ought to save you the chance of relapse in asthmatic sufferers. Results confirmed improvement in breathing parameters in asthmatic patients [13]. A randomized crossover have a look at to evaluate the 6-minute stroll check (6MWI) without pursed lip respiration (PLB) and the 6MWT using PLB. Spirometry at some stage in tidal and essential potential, maximal inspiratory and expiratory mouth pressures were measured at baseline and after 10 minutes of PLB. A visual analogue scale (VAS) turned into extensively utilized to assess breathlessness at rest, after the 6MWT without PLB and after the 6MWT with PLB. P<0.01 became tremendous [14]. The impact of respiration sample and sitting function with PLB and quiet everyday breathing on COPD patients. 12 guys with COPD were covered on this have a look at and their TV, FVC, RR were measured as pre-values. Their PLB and herbal breath had been taken and the results had been discovered significant [15]. Ventilatory lung functions of 33 normal males and 42 normal women of average age were

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examined before and after a six-week course of alternate nostril breathing. They had better forced vital capacity (FVC) and longer breath holding times, all indicators of improved ventilatory functioning [16]. Pursed lip respiratory and diaphragmatic respiration have been taught to participants and achieved every day for 10 minutes with a one-month comply with-up. The intervention stepped forward inhaling fifty two.9% of topics, at the same time as each day activities advanced in sixty seven.6% of subjects [17]. Pursed lip breathing is a respiratory approach that will increase resistance in the course of exhalation, increasing pressure within the trachea. It is a non-pharmacological remedy that reduces COPD symptoms, pursed lip respiration sing a windmill toy also can enhance these COPD blowing patterns. The fine consequences had can visible after 12 weeks because of modifications in body composition from lengthy-term. PLB additionally progressed lung function, health-related pleasant of life and breathing muscle energy [18]. The rationale of this study is to observe the effectiveness of pursed lip breathing and alternate nostril breathing in patients with respiratory dysfunction. According to evidences found pursed lip breathing and alternate nostril breathing both are effective for the treatment of patients of respiratory dysfunction and there is significant immediate effect of pursed-lip breathing alternate nostril breathing on oxygen saturation, dyspnea and blood pressure as well as both are used in immediate management for dyspnea reliving, pain management and to maintain oxygen saturation. According to evidences found pursed lip breathing and alternate nostril breathing both are effective for the treatment of respiratory dysfunction. and there is significant immediate effect of pursed-lip breathing and alternate nostril breathing on oxygen saturation, dyspnea and blood pressure as well as both are (pursed-lip breathing and alternate nostril breathing) used in immediate management for dyspnea reliving. But which maneuver is most effective for improving the cardiorespiratory parameter and time efficacious for clinical use in patients so there is need to compare in present study.

METHODS

A sample size of 100 patients were selected through inclusion and exclusion criteria, variables included in this study were numeric pain rating scale, fatigue scale, and saturation. Purposive sampling is used to analyze data. Data were collected from public and private hospital of Faisalabad during the time period of November 2022 till January 2023. Data from each patient was collected between the period of 4 to 6 weeks using variables like numeric pain rating scale, pulse oximeter and Samn-perelli fatigue scale. G*POWER formula is used to get population size of 100 which is mostly used in Qausi-experimental studies in which power analysis for a one-tailed paired-samples t-test indicated that the minimum sample size to yield a statistical power of at least .8 with an alpha of .05 and a medium effect size (d = 0.5) is 100. The Inclusion Criteria was age: 24-60, gender: both (male and female), patients with respiratory dysfunction, able to understand (with or without attendant), patients with 3+ dyspnea scale (moderately severe breathlessness). Exclusion Criteria includes patients who were unconscious, Mentally Retarded Patients with lungs carcinoma, patients congenital lungs deformities, patients with chest trauma acute exacerbation of COPD, uncontrolled hypertension, patients with other systemic illness ,surgery involving chest or abdominal area, patient with other cardiac abnormality (e.g. Ischemic heart disease) and patient who are unable to understand and follow command. Assessment was done on selected patients daily for 4 to 6 weeks during their stay in hospital or post follow-up. Pre readings were taken at the time of history and post were taken after performing the exercise for the desired time. In pursed lip breathing exercise patient must be in comfortable and upright position such as sitting. Relax his/her shoulder and neck muscles. With the mouth closed, slowly inhale (breath in) through nose for at least 2 seconds. Also, it may help to count to themselves. With them mouth closed slowly exhaled (breath out) all the air in their lungs with your lips pursed "as if them going to whistle of gently flicker the flame of a candle," don't force the air out. Breathing out should be twice as breathing in. Perform pursed lip breathing in 20 minutes in this procedure. In Alternate nostril breathing first of all patient assumed posture (the comfortable posture). Open the right hand and bend index and middle finger against palm. The thumb was used for closing right nostril while the fourth and fifth fingers were used for the left nostril. Place the right thumb against the ala at the end of the nostril to close it and similarly press the fourth and fifth fingertips against the left nostril. Start the exercise in the 'relax sittings posture' with the relaxed attitude. Exhale slowly and deeply without closing the nostrils. Inhale slowly and quietly through the left nostril while closing the right. At the end of the inhalation, closed both nostrils and hold the breath for a while (not more than 1-2 seconds). Keep the left nostril closed and exhale through the right as quietly as possible. After exhaling completely, inhale slowly as quietly through the right nostril. Close both nostril and wait for a while, the open the left nostril and exhale slowly and silently, Inhale through the same nostril. & the alternate nostril breathing continued for 20 minutes. Variables were analyzed using SPSS version 23. Results were concluded by applying

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paired t-test which is used to compare the pre and post values. P-value <0.05 was considered as significant.

RESULTS

Table 1 showed the pre and post intervention pain, saturation, and fatigue scale. There was significant difference in mean pain score (6.45±0.99 vs. 3.95±1.68, p-value<0.0), Saturation (92.4±0.49Vs. 96.46±0.61, p-value<0.0), and Fatigue (6.22±0.75 vs. 4.24±1.56, p-value<0.007). The results showed significant improvement in pain, saturation and fatigue score.

Table 1: Pre-Post Analysis of Numeric Pain Rating Scale

Variables	Mean ± SD	p-value
Pre Numeric Pain rating scale	6.45±0.99	0.00
Post Numeric Rating Scale	3.95±1.68	
Pre Saturation	92.4. ±0.49	0.00
Post Saturation	96.46±0.61	
Pre Fatigue Scale	6.22±0.75	0.00
Post Fatigue Scale	4.24±1.56	

Demographics shows that the respiratory dysfunctions are more prevalent in males(65%0 as compare to female(35%). Out of 100 participants 65 (65%) were male and 35(35%) were female(Table 2).

Table 2: Gender distribution

		Frequency (%)	Valid Percent	Cumulative Percent
Valid	Female	35 (34.1)	35.0	35.0
	Male	65 (65.9)	65.0	100.0
	Total	100 (100.0)	100.0	

DISCUSSION

This experimental study was executed on patients with respiratory dysfunction of Faisalabad, Pakistan to survey the influence of high impact practice on cardiorespiratory wellness in respiratory dysfunction patients and to comprehend the effects of pursed lip breathing exercise and alternate nostril breathing on respiratory outcomes in them. Respiratory risk factors were checked to protect them from other adverse effects. Risk factors, pattern of breathing, severity of breathlessness are studied so that findings can help respiratory dysfunction participants concerned for physiotherapy intervention. In this study males and females both of age between 24-60 years were included. 100 participants were selected on the basis of inclusion criteria. All the participants were explained about the purpose of our study before the start of exercise. The consent form was signed from all the participants and clearly explained them about the procedure of pursed lip breathing and alternate nostril breathing. All the participants were assessed by using pulse oximeter for oxygen saturation measurement, numeric pain rating scale for pain measurement and fatigue scale for fatigue for respiratory outcomes. The purpose of that study was to determine the effect of PLB and ANB on oxygen saturation (SaO2), numeric pain rating scale for pain measurement fatigue scale for fatigue for respiratory outcomes in respiratory dysfunction patients. The data were then evaluated by using descriptive statistics. We measured the pre values of all the variables before starting exercise and then measured their post 4 weeks values and post 6 weeks values respectively. After therapy we can see some clear effectiveness on oxygen saturation in pre value the minimum oxygen saturation was 90% but after therapy the minimum oxygen saturation is 92% which shows the effectiveness of therapy and after 6 weeks minimum oxygen saturation is 93% which shows more effectiveness. On numeric pain rating scale we can also see some clear improvements as we had a maximum decrease in pain but after therapy we had 5 as the maximum grade in the patient of respiratory dysfunction with shows the effectiveness of the therapy. In breathing rate, we have also seen some clear improvements. After therapy their breathing rate is quite normal about 20 towards the standard breathing rate after 6 weeks. And improvements were shown in some of the patients. The descriptive Statistics of chest expansion, fatigue scale, six minute walk test along with quality of life for patients of respiratory dysfunction shows some more improvements then pre values and 4th week of therapy, after the week as we have come to see the increase in the means values. The comparison of pursed lip breathing and alternate nostril breathing patient before the treatment and after the treatment .There is a difference in the mean of numeric pain rating scale and fatigue scale between pre and post interval. Results of paired sample T test shows there is a significant difference in means of pre and post values of numeric pain rating scales, quality of life for respiratory illness(modified), oxygen saturation, chest expansion and fatigue scale score P-value<0.05 (results of standard deviation and mean are discussed in Table 1). According to past research studies, found pursed lip breathing and alternate nostril breathing both are effective for the treatment of respiratory dysfunction. and there is significant immediate effect of pursed-lip breathing and alternate nostril breathing on oxygen saturation, dyspnea and blood pressure as well as both are (pursed-lip breathing and alternate nostril breathing) used in immediate management for dyspnea reliving. But which maneuver is most effective for improving the cardiorespiratory parameter and time efficacious for clinical use in patients so there is need to compare in present study. And the present studies when compared with the past shows significant improvement in saturation and dyspnea. All of this description in the post values are an evidence for the effectiveness of therapy. Patients with COPD revel in excessive resistive airflow, hyperinflation

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and air trapping, a research was conducted to study the consequences of PLB on oxygen saturation, breathing muscle power and ventilatory characteristic. The populace in this look at changed into all COPD patients, the sampling approach used became consecutive sampling. The consequences of the two imply statistical test of paired t-assessments confirmed a big distinction within the oxygen saturation cost after six days of pursed lip respiratory [19]. In healthy individuals, the benefits of alternate nostril breathing were demonstrated in the areas of neurocognition, psychophysiology, respiratory, biochemistry, and metabolism. They were also discovered to be helpful in the treatment of several clinical issues [20]. There is marked improvement in oxygen saturation , numeric pain rating scale for pain measurement and fatigue scale for fatigue with the significance of p-value<0.05. Hence the alternate hypothesis is accepted and that there is the improvement in respiratory outcomes in respiratory dysfunction participants through. Pursed lip breathing and alternate nostril breathing. As the p value we obtained is 0.00 or less than 0.05 which are highly significant so our alternate hypothesis is accepted it shows highly significance of pursed lip breathing and alternate nostril breathing on respiratory variables. Pursed lip breathing and alternate nostril breathing has been advocated to improve respiratory outcomes and decrease respiratory rate. Several studies proved the effectiveness of PLB and ANB on respiratory outcomes. Oxygen saturation has marked improvement. There were significant improvements in participants at post and follow-up test ($p < 0.05$).

CONCLUSIONS

It is concluded that pursed lip breathing and alternate nostril breathing is effective in improving oxygen saturation and respiratory rate. It is an inexpensive, non-pharmacological and easy method and helped in improving respiratory outcomes. There is marked improvement in oxygen saturation, numeric pain rating scale for pain measurement and fatigue scale for fatigue with the significance of p-value<0.05. Hence the alternate hypothesis is accepted and that there is the improvement in respiratory outcomes in respiratory dysfunction participants through pursed lip breathing and alternate nostril breathing in patients of respiratory dysfunction.

Authors Contribution

Conceptualization: MM, RK
Methodology: AQ, AK
Formal analysis: HS
Writing-review and editing: MM, AQ, AB, IM, ME
All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest

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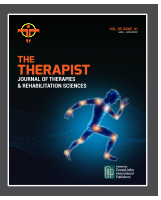

Commentary

Causes, Precautions and Management of Risk Factors Associated with Sports Injuries

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INTRODUCTION

Sports injuries are considered a global health problem that needs a special focus on public health to minimize the risk factors of sports injuries [1]. Sports Injuries refer to injuries commonly occurring during sports or exercise, but they are not only confined to sports. It can also appear in our routine life events. Suppose a factory worker can get tennis elbow injuries, and Painter gets shoulder injuries. Likewise, gardeners develop tendinitis even though they may not participate in sports [2]. The common sports injuries are sprains, strains, swollen muscles, shin splints, rotator cuff injuries, knee injuries, fractures, and dislocations. Based on nature, we can divide it into two types, i.e. intrinsic injuries and extrinsic injuries. Intrinsic injuries are those injuries which take place inside the body, while those injuries that take place outside the body are called outside injuries. Sports Injuries can occur in any part of the body, such as bones, joints, muscles, tendons, ligaments and cartilage [3]. Sports injuries may be categorized as chronic or acute sports injuries. Chronic or overuse injuries develop in sports where an athlete needs long-term repetitive motion, like long-distance running, cycling and swimming [4]. Chronic sports injuries include arthritis, tendonitis, tennis elbow, repetitive strain injury (RSI) and runner's knee [5]. Likewise, acute sports injuries consist of those injuries which happen suddenly. Wrist fractures. Ankle sprains. Shoulder dislocations are the best examples of acute sports injuries [5, 6]. In other words, those injuries which take place suddenly and need a short period of recovery are term as acute sports injuries, such as strain, sprain, dislocation and muscle aches etc. Similarly, those injuries that develop gradually and need more time for recovery are called chronic injuries [7]. Poor training, anatomical problems, muscle weakness, tendons, exercising ligaments, and unsafe environments are all causative factors of sports injuries [8]. In association with factors, sports injuries are usually instigated by overuse, direct impact, or the application of force greater

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than the body part can structurally withstand [9]. The main causes of injuries during sports are; lack of proper training, overtraining, long-term playing the same sports, playing on hard surfaces, and improper shoes and sports kits [2]. As a serious health concern, learning about preventive measures is important for athletes, coaches, and managers [10]. Preventive measures of sports injuries include; physical fitness, awareness about skills and techniques, and warm and cool down [11-13]. Due to injuries, a sportsman completely loses their performance. In addition, as a result of injuries, a sportsman feels soreness, swelling, muscular weakness, fatigue and pain. Along with physical problems, many psychological issues, such as fear, tension, lack of focus, and poor self-confidence, are also linked with sports injuries [14-18]. Different first aid techniques can help manage the severe effects of sports injuries, such as injury prevention, injury identification and treatment, and injury rehabilitation [19, 20]. Likewise, developing a fitness plan comprised of cardiovascular, strength and flexibility exercises, warm-up and cool down, staying hydrated, using proper equipment, etc. also used to manage sports injuries [21, 22]. There are five basic steps for preventing sports injuries among children. These preventive measures include wearing protective gear, i.e. helmets, protective pads, and other gear, warm up and cooling down, knowing the rules of the game, watch out for others and don't play when injured [22].

CONCLUSIONS

After critical analysis of previous epidemiological studies has shown that sports injuries are global and serious health issues caused by poor training, lacking proper skills, lacking facilities, and lacking warm and cool down all are the causative factors. To prevent sports injuries, all the concerned authorities of sports need to learn about physical fitness, medical fitness, skills and techniques, use of required facilities, proper warm and cool down etc.

Authors Contribution

Conceptualization: AK, I
Writing-review and editing: AK1, MJ, SB, IA, HU, AK2, I

All authors have read and agreed to the published version of the manuscript.

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