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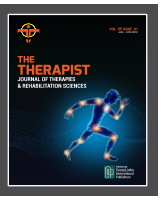

Original Article

Occurrence of Coccydynia in Healthcare Professionals of Karachi; Pain and Straight Leg Raise Test Perspective

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ABSTRACT

Coccydynia is a condition in which pain is experienced around the tailbone or coccyx region. The sitting position triggers the pain in the coccyx region especially when while patient comes from sitting to a standing position. The prevalence of coccydynia is unknown in the general population but it is more common in females than males. **Objective:** To determine the occurrence of coccydynia in healthcare professionals of Karachi. **Methods:** A cross-sectional study was conducted among healthcare professionals in Karachi from August 2023 to Feb 2024. The sample size of the study was 543 healthcare professionals. The sampling techniques which was used in this study were convenient. For the collection of data, a self-administered questionnaire was used while for the evaluation of data, two tests Visual Analog Score (VAS) and Straight Leg Raise(SLR) were used. The data were analyzed through the SPSS version 23.0 software in which we calculated the frequencies and percentages. **Results:** The study was done on 543 healthcare professionals between the ages of 20 to more than 59 years old who were recruited from different hospitals in Karachi. Pain intensity which was evaluated by the visual analog scale observed 223 (41.06 %) of participants found to lie in the moderate pain category while confirmation of coccydynia was done by the application of SLR and was found to be positive in 426 (78.85%) of healthcare professional's. **Conclusions:** The occurrence of coccydynia was found in the majority of the healthcare professionals of Karachi while the complaints of pain were found in the moderate category.

INTRODUCTION

Coccydynia is the pain of the tailbone at the base of the spine (coccyx) bone. It may be a sharp pain or sometimes feels like dull pain around the coccyx bone [1]. It is more common in females as compared to males. When sitting in a constant position for a long period causes inflammation of the coccyx bone and sometimes it injures the joints of the coccyx called coccygeal joints the reason for the injury of bone is that it gives compressive pressure on tailbone muscles and their tissues which surround the coccyx bone [2]. It is a very irritating condition for the patients who suffer from this pain. Sometimes patients feel pain in the region of the lower sacrum and sometimes they feel pain in the lower back or not. When they are sitting on a hard surface for a longer period it shows the signs and symptoms of this disease are sharp pinching or dull aching pain in the tailbone or lower region of the sacrum [3]. Most of the time the pain becomes worse and increases the intensity of symptoms in females when they have a period of menstruation, due to performing activities that exert pressure on the muscle of levator ani muscle during sexual intercourse, bending in a forward position, floor sitting, a person can sit down or standing up position, and also when

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passing the stool [4]. It is still unclear the mechanism of pathophysiological which is considered as a coccydynia. Most cases of coccydynia are related to spinal or rectal surgery, injections of epidural, or accidental events like fall on the tailbone, or when they are given birth to a child [5]. After any traumatic injury, it might lead to the hypermobility of the coccyx joint and cause inflammatory effects on the sacrococcygeal joint [6]. It also produces microtrauma through faulty body posture or position of the body like bike riders who are riding their bike for a constant period, or those who are sitting in a wheelchair for a prolonged period it may cause a sprain in the coccyx bone pr region of the coccyx [7]. The prevalence of this condition coccydynia is unknown in the general population but in a study, it is reported that the ratio coccydynia is present with lower back ache with range from 1 to 2.7 percent [8]. In obese persons, the incidence rate of coccydynia is higher than in normal persons. The other studies showed the risk factors of coccydynia like age, traumatic complaints, body mass index, tumors, joint position, and clinical presentations [9]. In a lean person, the coccyx usually rotates in a sitting position as the body mass index increases in the person the rotation of the pelvis is reduced in a sitting position and the angle of incidence is high. Coccydynia can be diagnosed by using the two tests straight leg raise (SLR) and per rectal measurement [10]. The SLR is most commonly used to find out the pathology of the intervertebral disc or irritates nerve roots. When the person performs the straight leg raise the intensity of pain is increased [11]. Coccydynia mostly shows symptoms like pain or swelling in the coccyx, numbness sensation, leg weakness, and bladder problems [12]. Without treatment, the coccydynia resolves the issue within a week. If the pain does not resolve on its own then taking a conservative treatment to subside the symptoms of coccydynia and about 90 percent of it is managed conservatively [13]. It can be treated by taking painkiller medicine, a doughnut-shaped pillow for sitting, physical therapy sessions, and sometimes taking the injections of steroids [14]. Most of the patients who suffer from the condition of coccydynia usually take physical therapy sessions in which a physical therapist gives cryotherapy, trans electrical nerve stimulation on the coccyx, therapeutic ultrasound, and suggests some exercises that help them to relieve the pain in the coccyx region. While taking the steroidal injections it suggests that take two injections in a consecutive month [15].

The study aims to determine the prevalence of pain and straight leg raise tests in healthcare professionals with the occurrence of coccydynia.

METHODS

A cross-sectional survey is conducted on the occurrence of coccydynia among healthcare professionals working in hospitals in seven districts of Karachi from August 2023 to February 2024. The sample size of the study was 543 healthcare professionals and was calculated through Raosoft.com. The non-probability convenience sampling was used in this study. The inclusion criteria of the study were age group between 20 years to more than 59 years, the presence of pain and tenderness during palpation in the coccyx area of research participants for more than 2 months, The participants excluded in our study who were not willing to participate in the study, who were done with partial or complete coccygectomy, abnormalities of coccyx region were excluded from this study. For data collection, a self-administered questionnaire comprised of demographics, and subjective and objective assessments of research participants was used. For evaluation of coccydynia SLR and Pain VAS were used. Data were analyzed by SPSS version 23.0 software in which frequencies and percentages were calculated.

RESULTS

The study includes 543 healthcare professionals between the ages of 20 to more than 59 years old who were recruited from different hospitals in Karachi. When we asked about the exposure of pain felt in a sitting position around the coccyx region the participants reported about 311(57.27%), in standing, the participants felt pain about 129(3.75%), and in a supine lying position, the research participants felt pain about 103(18.96%). When we asked a question about feeling the tenderness over the coccyx bone about 361 (66.48%) participants responded yes they had felt the tenderness. In this study, we recruited 543 healthcare professionals of which 57 (10.49%) were physicians, 117 (21.54%) were physical therapists, 104 (19.15%) were nurses, 63 (11.60%) were pharmacists, 54 (9.94%) nutritionists, 96 (17.67%)supporting staff, and 52 (9.57%) were technicians as shown in Table 1

Table 1: Demographics of Healthcare Professionals

Demographics	N (%)
Age	
20-29	103 (18.96)
30-39	201 (37.01)
40-49	121 (22.28)
50-59	73 (13.44)
>59	45 (8.28)
Gender	
Male	246 (45.30)
Female	297 (54.69)
Experience of Pain	
Sitting	311 (57.27)
Standing	12 (23.75)
Lying	103 (18.96)
Tenderness over Tail Bone	
Yes	361 (66.48)

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No	182 (33.51)
Healthcare Professionals	
Physicians	57 (10.49)
Physical Therapists	117 (21.54)
Nurses	104 (19.15)
Pharmacists	63 (11.60)
Nutritionists	54 (9.94)
Supporting Staff	96 (17.67)
Technicians	52 (9.57)

When we measured the intensity of pain we used the visual analog scale 223 (41.06 %) of participants were found to lie in the moderate pain category of VAS (visual analog scale) and after the application of SLR (straight leg raise test) 426 (78.85%) of a healthcare professional's had a positive test as shown in table 2.

Table 2: Findings of SLR Test and VAS Scale

Categories	N (%)
Visual Analogue Scale (VAS)	
No Pain	11 (2.02)
Mild Pain (1-3)	125 (23.02)
Moderate Pain (4-6)	223 (41.06)
Severe Pain (7-9)	106 (19.52)
Worst Pain (10)	78 (14.36)
Straight Leg Raise Test	
Positive	426 (78.45)
Negative	117 (21.54)

We recruited healthcare professionals from seven districts of hospitals in Karachi of which 74(13.62%) were from East, 134 (24.67%) were from Central, 58 (10.68%) were from Kemari, 63(11.60%) were from Malir, 91 (16.75%) were from Korangi, 68 (12.52%) were from South, and 55 (10.12%) were from west as shown in figure 1.

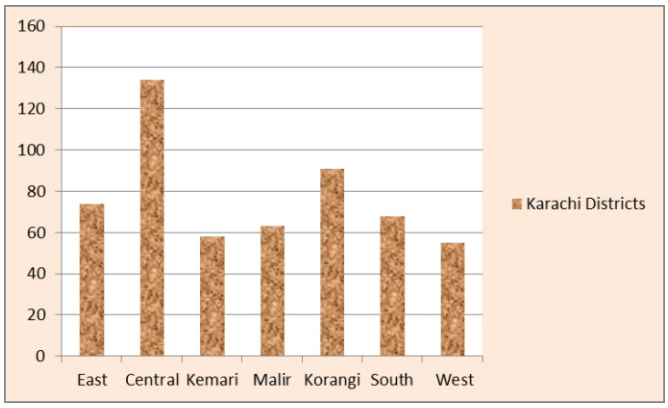

Figure 1: Healthcare Professionals from VII Districts of Karachi

When we asked a question about the previous history of coccyx injury 291 (53.59%) responded yes. When asked a question related to the radiating pain to the lumber region 206 (37.93%) replied yes. While asked a question about the worsening of pain 394 (72.55%) replied yes. When asked a question about the pain increases while leaning backward in a sitting position said 304 (55.98%) yes as shown in Figure 2.

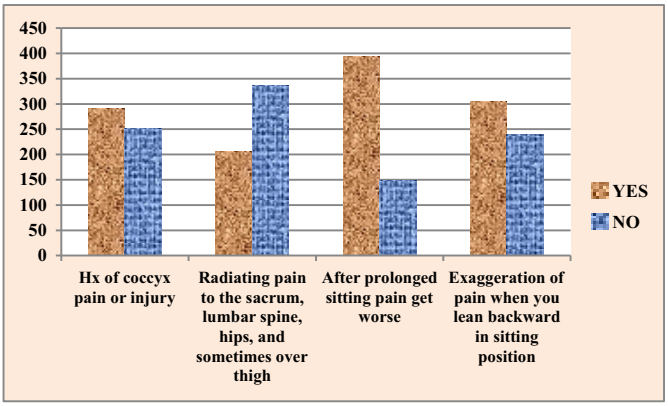

Figure 1: Pain-Related Factors among Health Professionals

DISCUSSION

The coccyx or tailbone is located at the bottom of the human's spine which is formed by the fusion of 3 to 5 vertebral bones. The main purpose of the coccyx is to maintain the posture, support the weight of the body, and help in sitting position. Coccydynia is referred to as the pain in the tailbone or coccyx region [16]. Postural maintenance is a vital aspect of every occupation but commonly healthcare professionals are susceptible to having musculoskeletal issues related to their specific professions [17]. In our study, the main objective is the finding of the occurrence of coccydynia among healthcare professionals in Karachi. The study revealed obesity and female gender are the major factors that are most susceptible to Coccydynia [18]. As compared to the previous study, our research found that 30 to 39 years is the common age of healthcare professionals who are selected in our study and the most common gender is female which showed a majority of females are susceptible to have coccydynia due to their job description. Furthermore, a study reported that the sitting position is the most aggravating posture for patients with coccydynia [19]. Similarly, in our study 311(57.27%), research participants experienced pain in sitting positions as compared to other positions. Another study reported that changing position from sitting to standing causes severe pain in the coccyx region [20] While in our study, 361 (66.48%) research participants have complained of pain in the bone of the tail or coccyx. A study revealed, that a history of trauma, prolonged sitting during driving, cycling, or traveling, bad posture, and obesity can cause strain on the coccyx region which causes tenderness and pain [21]. In our study, VAS (visual analog scale) showed about 223 (41.06%) of research participants were in the moderate pain category and the VAS score of their research participants in the pre-

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treatment session was lay in the severe category, but after the application of shock wave therapy, the pain severity of their subjects was reduced upto mild to moderate pain categories [22]. In our study, 426 (78.45%) of research participants found positivity in SLR (straight leg raise test) which is commonly used for the diagnosis of coccydynia. Whereas, a study concluded SLR test can be a reliable test for the evaluation of coccydynia because it is not influenced by the change in age, BMI (body mass index), low back pain, urinary incontinence, and fatigue [23].

CONCLUSIONS

Our study concluded with two major findings. Firstly, the occurrence of Coccydynia was observed in the majority of research participants but the highest percentage of coccydynia was found in physical therapists as compared to other healthcare professionals. Secondly, the age group from 30 to 39 years was more affected. Therefore, Awareness of stretching exercises and posture maintenance should be increased to prevent healthcare professionals from coccydynia.

Authors Contribution

Conceptualization: KJ
Methodology: OA, ML
Formal analysis: KZ
Writing-review and editing: ML, RB, AA, YI

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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