



Physiotherapy

ASSESSMENT OF WORK-RELATED WRIST PAIN AND DISABILITY IN BEAUTICIAN'S USING PATIENT RATED WRIST EVALUATION SCALE- SURVEY STUDY

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ABSTRACT The demand for beauty industry has increased globally. This has directly affected the musculoskeletal system of the beauticians as they need to perform the repetitive movements like flexion of the wrist while providing the services to the clients leading to soft tissue injuries. The need of the study was to assess the wrist pain and to determine the level of disability using patient rated wrist evaluation scale. 100 beauticians were included in this study. Data was analyzed using descriptive analysis. The study concluded that there is prevalence of wrist pain in beauticians where as there was moderate difficulty to perform the usual activities of daily living.

KEYWORDS : repetitive movements, patient rated wrist evaluation scale, beauticians, soft tissue injuries.

INTRODUCTION

The Beauty business is one of the rapid and competitive growing industry. People nowadays are more conscious for their skin, hair and for reinventing oneself, to feel more confident about their appearance and to look more attractive individuals visits beauty parlour. Beauty parlour is normally a place which is considered as a place to enhance the beauty of an individual to further extent. Beautician, Cosmetologist are the different analogue used for the professional working in different beauty sector. The different task performed by them are the Acne Treatment, Facial Treatment, Bleach, Manicure, Pedicure, Nail art, Removal of body hair (waxing), Application of Mehndi design, Body massage, Face Makeup, hairstyling etc.⁽¹⁾

Over the last few years, the demand of beauty industry has increased globally. Beauty has become the reflection of values. Social platforms like Instagram, you tube are the pronounced and incredible platforms that has increased the demand of this sector. Adolescence, or a full-grown lady all wants to be presentable and improve their beauty. Due to this the work load over the beauty professionals has increased. The activities performed by them requires the use of fine motor activities of finger and wrist movements. They also carry the equipment like the vibrating tools, hair dryer that can cause repetitive stress over the wrist joint due to continuous handling of these equipment.⁽¹⁾ An experimental study on occupational hazard for beauticians was performed doing the activities like Massaging and treating scalps, Manicure, Pedicure, hair colouring for prolonged period of duration in non-aligned position. Prolonged postures estimation was made that concluded that beauticians maintained over 90% in non-neutral neck/trunk postures and 64% in non-neutral wrist postures. Thus, according to previous study reports there was significant complain of work-related wrist pain in beauticians which hinders in their work activities as well as reduce the strength of hand and wrist.⁽²⁾

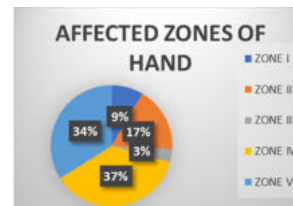
The wrist joint apart from being the most complex joint of the upper extremity it is one of the most active and widely used joint for the day-to-day activities. The muscles of the wrist are designed for balance and control the motions thereby maximizing the torque production. It helps in fine adjustment of gripping activities. Thus, the professionals involved in beauty sector perform activities that require gripping of the objects while performing their task such as plucking, eyebrow making, nail art etc, for longer period eventually affects the strength and function. Due to recurrent use of wrist, inadequate postures while performing the task and inadequate handling of the tools, wrist is more susceptible to injuries in beauticians. Thus, the assessment of wrist pain was therefore considered to be important as it may further lead to musculoskeletal disorders.⁽²⁾

The Patient Rated Wrist Evaluation scale (PRWE) is a 15-item questionnaire developed in 1998 for clinical assessment and is used specifically for the wrist problems. It consists of 2 domains "Pain" and "Function". The first domain is pain which consist of 5 items and is

rated from 1-10. The maximum score is 50 and the minimum is 0. The second domain is function. It is further subdivided into two sections i.e., specific activities which consist of 6 items and usual activities which consist of 4 items. The second domain as a whole is sum up to 10 items, divided by 2, thus the maximum score is 50 and the minimum score is 0. The total score is (sum of pain + function score) / 100

DATA ANALYSIS AND RESULTS

Descriptive Analysis was used for data analysis using Microsoft Excel 2013 for calculating frequencies and percentage



GRAPH 1.1

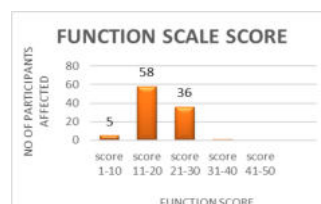
The above pie diagram shows that out of 100 participants 37% were affected in zone IV, 34% were affected in zone V, 17% were affected in zone II, 9% and 3% were affected in zone I and zone III respectively.



GRAPH 1.2 Pain scale score

For component 1:- It consist of 5 items and the sum of pain score was calculated out of 50, where 0 is no pain and 50 is worst pain.

Out of 100 participants only 1 participant was affected on the score 1-10 9 participants were affected on the score 11-20 60 participants were affected on the score of 21-30 25 participants were affected on the score of 31-40



GRAPH 1.3

For Component 2: - It consist of 10 items and the sum of specific activity and usual activity score was calculated out of 50, where 0 is no difficulty and 50 is unable to do.

Out of 100 individuals, 5 participants were affected on the score of 1-10, 58 participants were affected on the score of 11-20, 36 participants were affected on the score of 21-30, 1 participant was affected on the score of 31-40. However, no participant was affected on the score 41-50.

**GRAPH 1.4**

Total score was calculated with the sum of pain and function, where 0 is best outcome score and 100 is worst outcome score.

Out of 100 individuals, 3 participants showed a Total Scale Score between 11-20, 3 participants showed a Total Scale Score between 21-30, 12 participants showed a Total Scale Score between 31-40, 46 participants showed a Total Scale Score between 41-50, 26 participants showed a Total Scale Score between 51-60, 30 participants showed a Total Scale Score between 61-70, 1 participant showed a Total Scale Score between 71-80. However, no participants showed a Total Scale Score between 81-90 and 91-100

DISCUSSION:-

This study was done to investigate the intensity of wrist pain and the amount of difficulty in performing usual activities of daily living using Patient Rated Wrist Evaluation Scale. The participants were interviewed based on the questionnaire. The study included 100 participants. The age group of participants was between 20-35 years.

In this study, area of pain was determined using zones of hand schema. Out of 100 beauticians 37% were affected in zone IV, 34% were in zone V, 17% in zone II, 9% in zone I, and 3% in zone III. The wrist and hand consist of many different structures such as bones, muscles, tendons and ligament. These structure work together to enable an individual to perform various task as thumb is an extremely mobile and specialized digit, both of which are important prerequisites for the movement and for the normal prehensile functioning of the hand. It provides stability and helps in controlling the direction of movement and can help in grasping the object held in between the it and the fingers. Graph 1.3 illustrates that the loss of thumb function affects 37% zone IV of beauticians following which loss of zone V, zone II, zone I, zone III.

Beauticians require significant use of thumb and fingers especially index fingers for various activities at work such as using plucker, nail art, handling of makeup brushes etc. It also plays a major role while doing various beauty tasks such as massage, colouring hair, holding various equipment such as hairdryer etc for beauty treatments. Due to recurrent use of the thumb and index finger they are more prone to pain and muscle weakness leading to soft tissue injury.^[1] The questionnaire was used to assess the intensity of the pain and amount of difficulty in performing the activities. It was observed that the maximum component which was affected in the pain domain was when doing a task with repeated wrist movement, inadequate handling of tools, and unsupported positions which caused tremendous pain as the participants worked daily for minimum 8 -10 hours. However, the maximum component which was affected in the function domain was work. One of the previous studies on 'Hand Function Assessment in Beauticians' suggested that work related musculoskeletal disorders occurs when there is a variation between physical fitness and strength of the worker and substantiate demand of the job^[2]

Injury happening to a beautician's body leading to Musculoskeletal disorders that can occur due to prolonged exposure to ergonomics risk factors such as continuous use of hand, fixed stance maintained for prolonged duration, compaction from grabbing pointed sharp borders of tools, lack of frequents intervals during working hours, extreme and

immoderate use of vibrating objects usually can lead to overuse injuries like Connective tissue disorder^[1]Connective tissue disorders affects the soft tissue like muscles, tendons, bone that can occur due to repeated activities. Non-neutral postures of extreme flexion which occurs while performing activities like threading, manicure, waxing etc. Blow drying of hair especially causes an excessive pain due to the repetitive supination action.^[2]

Muscle pain and spasm occurs develop due to excessive use of non-neutral postures. This causes reduction in blood supply to the muscles affects the supply of oxygen and nutrients to the tissue resulting in the formation of adhesion. Carpal tunnel syndrome occurs due to compression of the median nerve this condition can occur in beauticians due to handling of the sharp edge objects for a prolonged period of duration, continuous repetitive wrist movements such as flexion extension, radial and ulnar deviation while holding the objects or giving the services to the clients, non-neutral positions of wrist while holding the vibrating devices that requires awkward position of wrist, thus putting direct pressure over the wrist leading to carpal tunnel syndrome.^[2]

Repetitive motion injury or Musculoskeletal disorders occurring in Beauticians can occur due to prolonged exposure to the above-mentioned risk factors. Early recognition of risk factors can prevent the prevalence of wrist pain and discomfort while performing the activity and thereby decrease the occurrence and development of the chronic conditions like carpal tunnel syndrome, quervains disease, trigger finger etc.^[2]

CONCLUSION:-The study finally concluded that there is prevalence of wrist pain in beauticians whereas there was moderate difficulty to perform the usual activities of daily living.

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