

A STUDY ON CORRELATION BETWEEN NECK PAIN AND HAND GRIP STRENGTH AND ITS EFFECT ON QoL AMONG FEMALE BEAUTICIANS.

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ABSTRACT

The beauty industry has resulted in beauty therapists performing an extensive range of treatments to meet the demand of vigorous repetitive movements that may lead to overuse and strain injuries. The goal of the study was to assess the correlation between neck pain and hand grip strength and its effect on QoL among female beauticians in Surat. The total 62 female of age between 25 to 35 years were taken in the study. For Neck Pain, grip strength and QoL, NDI scale, hand held dynamometer, World Health Organization Quality of Life, brief version used respectively. - The Pearson co-efficient correlation between NDI and HHD was 0.4372 and between HHD and WHOQOL was 0.5257 .This study concluded that there was a significant association between the neck pain and hand grip strength, and thus QoL.

Keywords: NDI, Hand Held Dynamometer, WHOQOL BREEF, Beauticians.

INTRODUCTION:

Cosmetologists, aestheticians, beauticians, massage and beauty therapists are synonymous terms referring to people who work in the beauty industry. Their common tasks include facial cleansing, skin, nails and body hydrotherapy and care, anti-wrinkle, pigmentation and acne treatment, make up, depilation, body and face massage, reflexology, aromatherapy, face and body hair removal, etc.¹

Tasks like manicure, pedicure, facial, hairdressing, massage, threading, waxing, etc. these following tasks which a beautician performs on a daily basis, all require fine motor activity of fingers, pinch strength, grip strength and wrist movements.² Work-related musculoskeletal disorders (WMSDs) have emerged as a major health problem among workers in the developing countries. Many episodes of muscular pain are disabling, thus making it one of the costly occupational health problem. However, in the workplace, occupational risk factors such as forceful exertions during manual materials.³

Work-related musculoskeletal disorders (WRMDs) have been described in the literature as being highly prevalent amongst workers in various professions, particularly those involved in manual intensive jobs.⁴ Musculoskeletal (MSK) disorders are considered to be a major health problem around the world⁵ and have been identified in the literature as the most common causes of severe longstanding pain and physical disability.⁶

NDI questionnaire is designed to provide information to how neck pain affects a person's ability to manage in everyday life. It has 10 components having scoring from 0 to 5. Total score 50.Greater the score indicates greater disability.⁷ Hand Held Dynamometer is mainly used instrument for grip strength. HHDs provide a quantified measurement of force. They are considered easy use, with convenient size, and low cost. The overall affordable of this device may justify further widespread clinical use and also reported as a reliable instrument.⁸

The WHO Quality of Life (WHOQOL) group has developed a brief QoL assessment scale, the World Health Organization Quality of Life, brief version (WHOQOL-BREF), which consists of 26 items representing four domains: physical, psychological, social and environmental.²² Psychometric studies have indicated that the WHOQOL-BREF has cross-cultural validity as a QoL assessment tool.²³ In India, the psychometric properties of the WHOQOL-BREF have been tested, and good reliability and validity demonstrated for elderly people.⁹

Thus, in view of previously reported studies, our study aimed to assess the neck pain and hand function in beauticians. The objectives of this study were: (1) to correlate neck pain with hand grip strength (2) to associate its effect on QoL among female beautician .

Significance of the study

Several studies have been conducted showing relation between neck pain and grip strength among computer worker population. Some studies show relation between back pain and QoL in it . However, till

date less prospective studies are found making the correlation between the neck pain, grip strength and QOL among female beauticians . Moreover, a standard protocol for either of the intervention has not been agreed upon. The result of this study would implicate a better exercise program for these population and can help to have good quality of life. The purpose of the study was to correlate neck pain with grip strength and its association with QoL among beauticians.

Hypothesis:

Null hypothesis H0

There is no relation between neck pain , grip strength and QoL among female beauticians.

Alternative hypothesis H1

There is relation between neck pain , grip strength and QoL among female beauticians.

METHODS

Study design: Experimental study.

Population: Female beautician individual of 25 to 35 years of age

Sampling technique: Purposive sampling.

Study duration: 2 months

Sample size: 62

For the study the sample size was calculated in G Power 3.1.9.2 with effect size 0.80 and $\alpha =0.05$. Sample size calculated was 52, with a drop out chances of 20% the total sample size was 62 samples.

Study setting: Senior citizen organization committee, Surat, Gujarat, India.

Eligibility criteria

Volunteers were included in the study who were of 25-35 years of age at the time of the study, willingness to do physical exercise with regular attendance, able to do daily activities by themselves, working for more than 5hours for more than 5 years ,only females . Volunteers were excluded from this study who were having Any known neurological disorder (i.e. Parkinson's disease, multiple sclerosis, head injury, peripheral neuropathy, stroke, vestibular disorder), any known musculoskeletal disorder (i.e. joint replacement, amputation, or physically limiting arthritis) Any known cardiovascular and psychosomatic disorder which limits physical daily activities. Materials and tools used were Clipboard with NDI sheet, Clipboard with HHD sheet Clipboard with WHOQOL-BREF, Sphygmomanometer (mercury sphygmomanometer), Stethoscope.

Outcome measures

NDI scale , HHD, WHOQOL-BREF Questionnaire.

Procedure

Ethical clearance was taken from institutional ethical committee. All female beautician from various beauty centre was invited to participate in free camp for trial. However, volunteers who were interested was evaluated. The purpose of this study was explained and a written informed consent and demographic details was obtained from all the subjects. Subjects was preliminary screened based on the inclusion and exclusion criteria.

After screening the samples, they were asked to fill the following sheets:

The NDI was used to measure the level of neck pain, HHD was used to measure the grip strength and WHOQOL-BREF was used to assess quality of life.

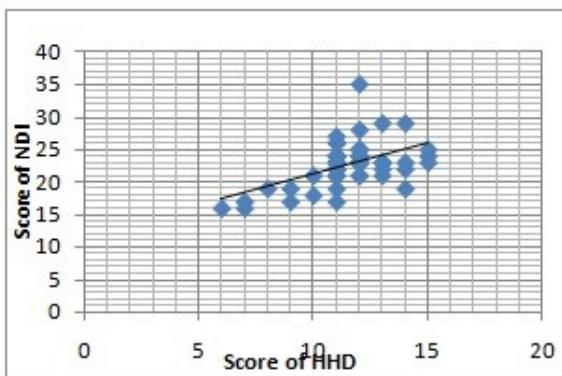
Statistical analyses

All questionnaires were numbered. A double data entry procedure was conducted by two trained data-entry workers using statistical software (SPSS 16 version). A logistic Pearson coefficient of correlation analysis will allow simultaneous testing of associations between two or more explanatory variables, was conducted to explore relationships between NDI , HHD and quality of life domains.

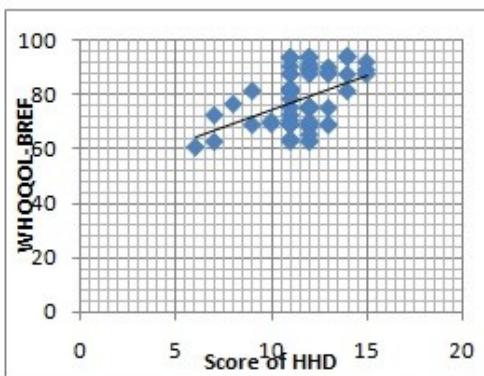
RESULTS

The result of this study shows that those subjects who were having high complain of neck pain may are at a risk of hand problem such as decrement in grip strength. And due to low score of HHD individuals are more prone for low quality of life.

The Pearson coefficient of correlation was used to examine the relationship among the NDI, HHD and WHOQOL-BREF Scale scores. The Pearson's correlation coefficient between the NDI and the HHD were 0.4372which showed a high correlation between them with the significance of $p<0.01$. The correlation between the HHD and WHOQOL-BREEF was 0.5257 with the significance of $p<0.05$ which also showed a strong correlation between them.



Graph A : Coeffecient correlation between NDI and HHD



Graph B : Coeffecient correlation between HHD and WHOQOL BREF

DISCUSSION:

The word Ergonomics in simple terms can be defined as the study of work. It helps to fit the job to the worker instead of fitting the worker to a job. Many previous study deals with study of people at work, in terms of equipment design, workplace layout, the working environment, safety, productivity, and training, which in turn affects the physiology, biomechanics, psychology, anthropometry and kinesiology. Ergonomics helps in determining the risk and to initiate strategies to control work related musculoskeletal disorders.¹⁰

WRMSDs occur when there is an imbalance between physical capabilities of the worker and physical requirements of the job. Damage to a worker's body leading to MSDs can occur due to prolonged exposure to ergonomic risk factors. In beauticians the common risk factors could be repetition of movements; awkward postures, or unsupported positions, static postures, or maintained for long periods of time, Motion, such as increased speed or acceleration when bending and twisting, can body; Compression, from grasping sharp edges like tool handles, can concentrate force on small areas of the body, Inadequate recovery time due to overtime, lack of breaks, and failure to vary tasks; Excessive vibration, usually from vibrating tools. One of the most frequently affected areas is the arms, mainly the wrist and fingers that can lead to tendon disorders such as tendinitis, tenosynovitis, De Quervain's disease, trigger finger, and carpal tunnel syndrome, Raynaud's syndrome, etc. ^{10,11}

Thus, this study assessed the pain present in neck , hand grip strength and its affection on QoL in beauticians to analyze how prone they are to develop WRMSD's. The statistical analysis in this study indicated significant associations between neck pain , hand grip strength , and quality of life among beauticians . Harshita Gowda et al had did study on Hand Function Assessment in Beauticians who had concluded that there is high prevelance of hand dysfunction among female beauticians.Thus as a supportive study the present study had concluded that all the female beauticians are at high risk of neck pain and had low score of HHD and also have high influence on QoL .

CONCLUSION

The results of this study suggest that QOL impairments are present in people with neck pain and hand muscle weakness among female beauticians. This relationship has important implications for the development of rehabilitation programs that aim to improve hand muscle strength and diminished its impact on function in beauticians. The important impact of neck pain and hand muscle weakness includes significant functional deterioration, and expenditure to health and social services. Better understanding of the risk factors may help to reduce the occurrence of muscle weakness, reduce physical and social activity restriction, maintain independence and enhance quality of life in beauticians with musculoskeletal problems. There is a strong emphasis on multidisciplinary working in prevention of neck pain.This is one of the largest studies to investigate associations between QOL and HHD. This study provides further insights into associations between QOL and HHD among other working population. In addition, further studies are needed to refine interventions, improve screening for neck pain , hand muscle strength, and to develop approaches in high-risk groups

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