

Association of upper extremity pain with functional disability in swimmers

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Objective: To assess the association of upper extremity pain with functional disability in swimmers.

Methodology: This cross sectional study included 165 swimmers of both gender aged 20-35 years. A Questionnaire was circulated to collect data.

Results: Out of 165 subjects, 89 had good association of pain with disability, 70 had moderate

association of pain with disability, and only six had poor association of pain with disability.

Conclusion: Swimmers had good association of upper extremity pain with functional disability during the sequence of their living by the use of their upper extremity during swimming and daily life activities. (Rawal Med J 202;46:199-201).

Keywords: Injury prevention, shoulder pain, swimmer's shoulder.

INTRODUCTION

Every year, thousands of people swims for movement and restoration.¹ The very first cause of shoulder pain in swimmers is glen humeral laxity, impingement disorder and bicep or rotator cuff injury.^{1,2} Four diverse muscles used are serratus anterior, supraspinatus, deltoid and trapezius.³ Problems associated with the swimmers are most frequently resembles to the incapacitated 'throwers shoulder'. Swimmers assessed with shoulder pain must be treated as an individual clinical object, directed toward underlying disease or disorder and disability.⁴ Most of the swimmers do swimming for race and ability.⁵ Due to the resistant effects of water, swimmers have a minor injury and pain and disability can affect the physical activity of swimmers in competitive sports.⁶

The incidence of shoulder pain is 40-91%.⁷ The occurrence of shoulder pain among competitive swimmers is from top to toe.⁸ Well-organized and proprioceptive physical activities are the useful in the recovery of 'swimmers shoulder'.⁹ Hence, the aim of this study was to determine either pain with disability in swimmers present in which range over the different ages presenting the swimmers lifecycle. This provided the basic program to prevent shoulder injury that may leads to pain and disability.

METHODOLOGY

The study design was an observational cross

sectional study. Data were collected from multisite swimming centers and universities in Lahore, Pakistan.

Both males and females with ages 20 to 35 years, were included who had practice of swimming 5 to 7 days per week and sometimes twice daily. Sample size of 165 cases was calculated with 95% of confidence level, anticipated population proportion as P=0.25, absolute precision required as d=0.06.

$$n = \frac{Z^2_{1-\frac{\alpha}{2}} P(1 - P)}{d^2}$$

Non-probability purposive sampling technique was used. DASH and VAS questionnaire was used. The DASH has shown to be a reproducible, valid, and receptive dimension for the shoulder, arm, and hand area and may contribute to this statement if the instrument is also a valid and responsive instrument for use in patients. The visual analog scale (VAS) is one of the most commonly used measures of pain intensity in pain research.

Statistical Analysis: Statistical analysis was performed using SPSS version 21. Chi-Square test was applied for association. p<0.05 was considered significant.

RESULTS

Out of 165 participants, 77.6% were male and 22.4% female. The mean age was 24.5515 years (range 20-32). For time of swimming the percentage was (24.2%) for days and (75.8%) for weekend,

respectively. For duration of swimming, 35.8% for less than or equal to one hour and 64.2% for more than an hour. Table 1 shows that DASH SCORE association had Good results with VAS SCORE 89, Moderate DASH SCORE association with VAS SCORE of 70 and Poor DASH SCORE association with VAS SCORE 6, respectively. For the socioeconomic status results was low (8.5%), medium (81.2%) and High (10.3%), respectively.

Table 1. DASH Scores.

DASH Score	VAS Score			Total
	Mild Pain	Moderate Pain	Severe Pain	
Good	75	9	5	89
Moderate	43	15	12	70
Poor	3	0	3	6
Total	121	24	20	165

Table 2. Chi-square results for association between DASH and VAS.

	value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	19.269a	4	0.01
Likelihood Ratio	17.531	4	0.002
Linear-by-Linear Association	12.331	1	0.00
N of Valid Cases	165		

Fig 1. Vas Score

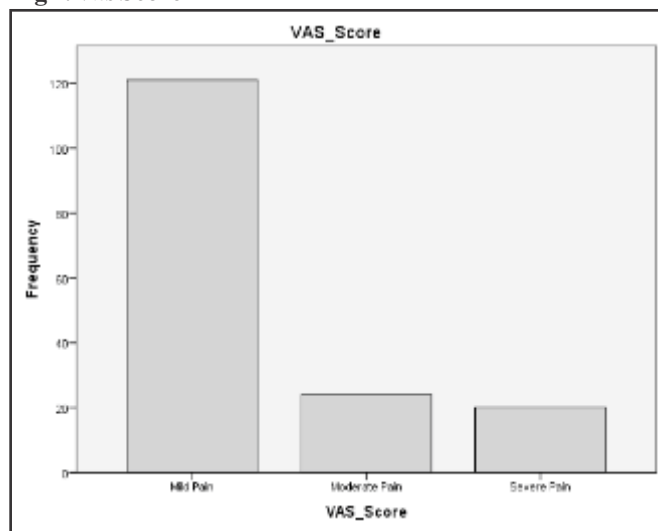
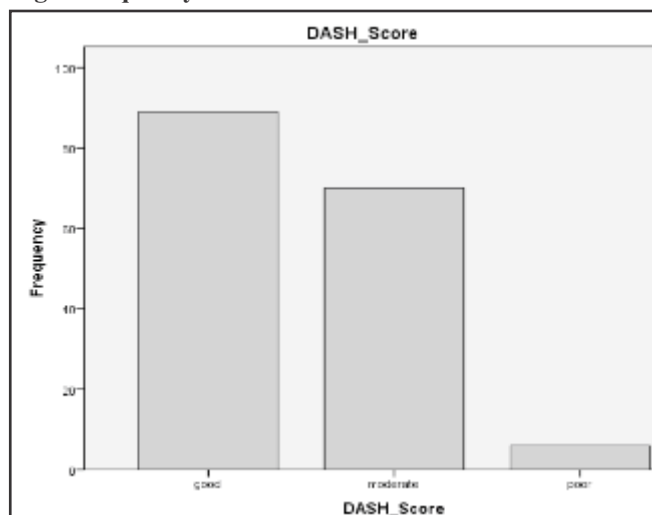


Fig 2. Frequency table for DASH score.



The VAS showed that 121 patients (73.3%) had mild pain (Fig. 1). DASH scoring showed that 89 patients (53.3%) had good disability and 70 patients (42.4%) were with moderate disability (Fig. 2). The Chi-square showed the Pearson Chi-Square value was 19.269 with degree of freedom 4 had significant value (p=0.001), which shows that there is association between DASH AND VAS (Table 2).

DISCUSSION

In this study, we found that shoulder pain is the major risk factor among swimmers that can forward to the disability by using shoulder joint. There was good association of pain regarding disability. In a study done to investigate the association among swimming practice proportions and shoulder pain throughout life time for swimmers found highest prevalence among young swimmers of shoulder pain.¹⁰ A study by Harrington et al explained that there was an association in between shoulder pain and disability with reduction in pectoralis minor length in swimmers.⁹

The aim of the study was to define either there was pain with or without disability in swimmers with respect to range of motion, core endurance of pectoralis length and upper extremity strength. The study showed the results between pain and disability which related to the current study. In 2012, a study by Tate et al found that there is pain and disability in female competitive swimmers all over their lifetime.¹ A platform was conducted to avoid shoulder damage

that may leads to dysfunction and pain seems necessary and may consist of exposure reduction, cross-training, pectoral and consequent shoulder stretching, reinforcement, and core strength physical activity. The physical calculations were performed of different athlete swimmers with the age group of 8 to 77 years. This study discussed that competitive swimmers were much prone to injury which lead to the pain and disability in the shoulder that effect their sport and daily life in this study association was found between pain and disability.¹ Stress and load on tendon of the shoulder joint may cause changes in extracellular matrix composition, this alteration in the composition have adverse impact on the endurance and mechanism of joint so it leads to the decrease in the capacity tendons of shoulder joint to resist outer forces leading to the pain and disability.² The limitations of the study were that the case control studies can investigate more accurate results. It is recommended that more risk factors should be measured in future studies.

CONCLUSION

Swimmers had good association of upper extremity pain with functional disability during the course of their live by the use of their upper extremity during swimming and daily life activities.

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Conception and Design: Sawera Sonam
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