Frequency Of Neck Pain In Diabetic Patients

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ABSTRACT

Objective: The objective of this study is to evaluate the frequency of neck pain in diabetic patients

Methodology: Cross- sectional study involving 382 were carried out involving diabetic patients with neck pain. Data were collected from Gujrat city. Convenient sampling technique were used and a total of 382 patients were evaluated. Patients aged 18-65years who were willing to participate in the study were included. Self-structured questionnaire and Performa were used for measuring Prevalence of neck pain in diabetic patients. The reliability of the questionnaire was good (Cronbach's a=0.619). All the given questionnaire were briefly explained to the patients. The data were collected under the rules and regulations of ethical committee of university of Lahore.

Results: The results of this cross-sectional study shows that the Mean ± Median of age of participants were 44.53±44.00. The frequency of females were 238(62.3) while the male participants were 144(37.7). The frequency of 18.5 to <25 (Healthy) were 83(21.7), 25.0 to <30 (Overweight) were 233(61.0) and 30.0 or higher (Obesity) were 66(17.3). While p-value 0.40 BMI and VAS shows that there is no association of Body Mass index in relation with neck pain among diabetic patients.

Conclusion: It is concluded that the frequency of neck pain is more in female diabetic patients then in male patients, while p-value 0.40 BMI and VAS shows that there is no association of Body Mass index in relation with neck pain among diabetic patients.

Keywords: Neck Pain, Diabetes Mellitus, VAS scale

INTRODUCTION

The neck is the part of the body where many vertebras the head with the torso. The neck supports the weight of the head and protects the nerves that carry sensory and motor information from the brain down to the rest of the body. In addition, the neck is highly flexible and allows the head to turn and flex in all directions. [1]

According to the World Health Organization (WHO), diabetes is defined as a metabolic disorder characterized by high levels of blood glucose that may cause serious damage to many organs, namely, the heart, blood vessels, eyes, kidneys, and nerves. [2] Musculoskeletal complications are most commonly seen in patients with a longstanding history of type 1 diabetes, but they are also seen in patients with type 2 diabetes. [3]

There are several potential risk factors for neck pain in diabetic patients. One of the main risk factors is poor blood sugar control. High blood sugar levels can cause damage to nerves and blood vessels, leading to nerve pain and reduced blood flow to the muscles and tissues in the neck region, which can cause stiffness and pain. Additionally, obesity is another risk factor for both diabetes and neck pain. Being overweight puts increased pressure on the neck muscles and can lead to chronic pain.[4]

Neck pain and its related disability have a huge impact on individuals and their families, communities, health-care systems and businesses. Individuals may have difficulties with many activities, such as driving a car, turning the head and working on a computer. They may also have a reduced ability to participate in work, social and sporting endeavors, which in turn can further increase the burden associated with neck pain.

The rationale of the study is to access the neck pain among diabetic patients. Diabetes mellitus is a global disorder and spreading world widely, whereas neck pain is very common among today's population. So this study works on to evaluate the association of neck pain among diabetic patients.

MATERIAL AND METHODS

Study design, duration and setting

An analytical cross-sectional study were conducted between March 2023 and July 2023. After the approval of ethical committee. A sample of 382 diabetic patients were selected patients from Aziz Bhatti Shaheed Teaching Hospital Gujrat, Ikram Hospital Gujrat and City Hospital Gujrat, who were agreed to participate in the study.

Sampling technique and sample size calculation

Nonprobability convenient sampling technique was used. Sample size n=382 was calculated using below mentioned formula10 and WHO recommended calculator

$$n=\frac{Z^2P(1-P)}{d2}$$

n= 382

n = sample size
z = level of confidence
p = estimated proportion
d = tolerated margin of error

Inclusion & exclusion criteria
Inclusion Criteria
- Age 18-70
- Diabetic patients.
- Diabetes type 1 and 2.
- Male and female.

Exclusion Criteria:
- Reported traumatic neck injury (Whiplash injury).
- Diagnosed spinal deformities. (Scoliosis, kyphosis).
- Temporomandibular disorders reported.
- Fracture in spine or shoulder the diagnosed.

Questionnaire
- Neck Disability Index (NDI) Questionnaire

Ethical approval and Consent
Ethical approval was taken from Institutional Review Board (IRB) of University of Lahore, Punjab, Pakistan. A consent was taken from the participants before collecting data. Ensured that data would be used for only research purpose. The research project was approved by research and ethics committee of University of Lahore.

Data collection procedure
Cross- sectional study involving 382 were carried out involving diabetic patients with neck pain. Data were collected from Gujrat city. Convenient sampling technique were used and a total of 382 patients were evaluated. Patients aged 18-65years who were willing to participate in the study were included. Self-structured questionnaire and Performa were used for measuring Prevalence of neck pain in diabetic patients. The reliability of the questionnaire was good (Cronbach's a=0.619). All the given questionnaire were briefly explained to the patients. The data were collected under the rules and regulations of ethical committee of university of Lahore.

Statistical analysis:
Data were entered and analyzed using Statistical Package for Social Sciences (SPSS) software version 24. For descriptive analysis, mean and standard deviation were calculated for quantitative variables whereas frequencies and percentages were calculated for qualitative variables. For inferential statistics, Chi-square test was applied. All results were calculated at 95% confidence interval and p-value ≤ 0.05 was considered as significant value.

Results:
Table 1: Cross-Tabulation of Gender of Participants * Visual Analogue Scale

		Visual Analogue Scale				
		No Pain	Mild Pain	Moderate Pain	Severe Pain	Worst Pain
Gender of Participants	Female	47	95	60	35	1
	Male	26	71	25	22	0

Table 5.2: Chi-square Tests for Gender of Participants * Visual Analogue Scale

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.063[a]	4	.281
Likelihood Ratio	5.466	4	.243
Linear-by-Linear Association	.383	1	.536

Table 3: Neck Disability Index (NDI) Questionnaire

		Frequency	Percent
Pain	I have no pain at the moment.	64	16.8
	The pain is very mild at the moment	183	47.9
	The pain is moderate at the moment	71	18.6
	The pain is fairly severe at the moment.	19	5
	The pain is very severe at the moment.	40	10.5
	Pain is the worst pain imaginable at the moment.	5	1.3
Personal Care (Washing, Dressing, etc.)	I can look after myself normally without causing extra pain.	83	21.7
	I can look after myself normally, but it causes extra pain	149	39
	It is painful to take care of myself and I am slow and careful.	104	27.2
	I need help but I am able to manage most of my personal care.	40	10.5
	I need help every day in most aspects of my care.	6	1.6
Work	I can lift heavy weights without causing extra pain.	19	5
	I can lift heavy weights but it gives extra pain	135	35.3
	Pain prevents me lifting heavy weights off the floor.	204	53.4
	Pain prevents me from lifting heavy weights	20	5.2
	I cannot lift or carry anything	4	1
Headache	I have no headaches at all.	29	7.6
	I have slight headaches that come infrequently.	147	38.5
	I have moderate headaches that come infrequently.	130	34
	I have moderate headaches that come frequently.	51	13.4
	I have severe headaches that come frequently.	20	5.2
	I have headaches almost all the time.	5	1.3
Concentration	I can concentrate fully without difficulty.	4	1
	I can concentrate fully with slight difficulty.	54	14.1
	I have a fair degree of difficulty concentrating.	128	33.5
	I have a lot of difficulty concentrating.	140	36.6
	I have a great deal of difficulty concentrating.	51	13.4
	I can't concentrate at all.	5	1.3
Sleep	I have no trouble sleeping.	5	1.3
	My sleep is slightly disturbed for less than 1 hour.	76	19.9
	My sleep is mildly disturbed for up to 1 - 2 hours.	189	49.5
	My sleep is moderately disturbed for up to 2 - 3 hours.	109	28.5
	My sleep is greatly disturbed for 3 - 5 hours.	3	0.8
Driving	I can drive my car without neck pain.	12	3.1
	I can drive as long as I want with slight neck pain.	127	33.2
	I can drive as long as I want with moderate neck pain.	182	47.6
	I can't drive as long as I want because of moderate neck pain	61	16
Reading	I can read as much as I want with no neck pain.	11	2.9
	I can read as much as I want with slight neck pain.	52	13.6
	I can read as much as I want with moderate neck pain.	150	39.3
	I can't read as much as I want because of moderate neck pain.	151	39.5
	I can't read as much as I want because of severe neck pain.	18	4.7
Recreations	I have no neck pain during all recreational activities	7	1.8
	I have some neck pain with all recreational activities	32	8.4
	I have some neck pain with a few recreational activities	167	43.7
	I have neck pain with most recreational activities.	128	33.5
	I can hardly do recreational activities due to neck pain.	35	9.2
	I can't do any recreational activities due to neck pain	13	3.4

DISCUSSION:

Cross- sectional study involving 382 participants were carried out involving diabetic patients with neck pain. Data were collected from Gujrat city. Convenient sampling technique were used and a total of 382 patients will be evaluated. Patients aged 18-65years who were willing to participate in the study were included. Self-structured questionnaire and Performa were used for measuring Prevalence of neck pain in diabetic patients. The reliability of the questionnaire was good (Cronbach's a=0.619). All the given questionnaire were briefly explained to the patients. The data were collected under the rules and regulations of ethical committee of university of Lahore.

The results of this cross-sectional study shows that the Mean ± Median of age of participants were 44.53±44.00. The frequency of females were 238(62.3) while the male participants were 144(37.7). The frequency of 18.5 to <25 (Healthy) were 83(21.7), 25.0 to <30 (Overweight) were 233(61.0) and 30.0 or higher (Obesity) were 66(17.3). Visual analogue scale shows that the no pain frequency were 73(19.1), mild pain were 166(43.5), moderate pain were 85(22.3), severe pain were 57(14.9) and worst pain were 1(.3).

In our study females were 238(62.3) while the male participants were 144(37.7) while checking neck pain among diabetic patients. While a study occur in 2023 by Aremu A. Babatunde on entitle musculoskeletal pain among diabetic patients includes (n=109) were female. And males were (n=213)[5]

Current study also include BMI class and results shows the frequency of 18.5 to <25 (Healthy) were 83(21.7), 25.0 to <30 (Overweight) were 233(61.0) and 30.0 or higher (Obesity) were 66(17.3). While previous study in 2023 on title cervical pain, neck mobility, and body mass index shows that 35.2% were healthy, 20.4% were over-weight, and 30.8% were obese[6]

In our Visual analogue scale shows that the no pain frequency were 73(19.1), mild pain were 166(43.5), moderate pain were 85(22.3), severe pain were 57(14.9) and worst pain were 1(.3). while a precious study on VISUAL ANALOGUE SCALE (VAS) FOR PAIN occur in 2019 shows that no pain frequency was 22.3%, mild pain were 33.2%, moderate pain were 32.3% and sever pain were 19.1%. The visual analog scale (VAS) is a validated, subjective measure for acute and chronic pain. Scores are recorded by making a handwritten mark on a 10-cm line that represents a continuum between "no pain" and "worst pain [7]

In current study we used neck disability questionnaire to evaluate neck pain on diabetic patients. The NDI has become a standard instrument for measuring self-rated disability due to neck pain and is used by clinicians and researchers alike. Each of the 10 items is scored from 0 - 5. The maximum score is therefore 50. The obtained score can be multiplied by 2 to produce a percentage score. Each item is scored out of 5 (with the 'no disability' response given a score of 0) giving a total score for the questionnaire out of 50. Higher scores represent greater disability. The result can be expressed as a percentage or as raw scores (out of 50). In the guidelines, use of the raw score is recommended.[8]

Neck pain frequency and intensity were, not surprisingly, significant predictors of the NDI score because they relate directly to the experience of neck pain. However, these variables are of limited value in understanding the underlying cause of the neck disability reported, because neck pain can be due to either local cervical nociception or migraine sensitization, or both. Previous studies have looked to modify the NDI by removing items to create a more specific measure of neck disability in cervical musculoskeletal pain states with the resultant creation of the NDI[9]

Current study also see the relation the Body Mass Index (Kg/m^2) * Visual Analogue Scale. This shows that with bmi 18.5 to <25 (Healthy) with no pain were 16, mild pain were 33, moderate pain were 18, severe pain were 16, worst pain were 0, with bmi 25.0 to <30 (Overweight) with no pain were 38, mild pain were 110, moderate pain were 52, severe pain were 32, worst pain were 1 and with bmi 30.0 or higher (Obesity) with no pain were 19, mild pain were 23, moderate pain were 15, severe pain were 9, worst pain were 0 while a previous study was held in 2020 on The Relationship Between Body Mass Index and Pain Intensity with Musculoskeletal Disorders result shows that 79% were overweight or obese, and 42% reported no pain at index MSD diagnosis. Overall, there was a J-shaped relationship between BMI and pain (nadir = 27 kg/m2), with the severely obese (BMI ≥ 40 kg/m2) being most likely to report any pain. [10]

The limitations of the study are this study doesn't include other musculoskeletal disorders occur in diabetic patients and this study don't include risk factors for neck pain.

CONCLUSIONS:
It is concluded that the frequency of neck pain is more in female diabetic patients then in male patients, while p-value 0.40 BMI and VAS shows that there is no association of Body Mass index in relation with neck pain among diabetic patients.

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