Prevalence of Upper Trapezius Myofasical Pain and Brasserie Groove Deformity Due to Tight Inner Wear in Women: The Co Relational Study

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Abstract

Objective: To evaluate the effect of tight bra strap on upper trapezius and brasserie groove deformity due to tight inner wear

Sample: A total number of 100 women aged 20-40 years were randomly recruited from rural area as well as from urban area

Design: Correlational and observational study

Method:100 subjects fulfilling selection criteria participated in the study. All of them were told about the procedure of study. All their queries were answered satisfactorily and informed consent was taken from them. They were asked to fill these questionnaires which consists of 32 items. Participants were asked to state their bra size immediately after completion of the questionnaire (i.e. reported bra size) and then measure their bra size by tape method. Brasserie groove deformity is checked by palpation and observation of taught muscle band. The participants were selected for the inclusion and exclusion criteria of the study. The patient consent was taken to be comfortable and relaxed.

Conclusion: Study suggests the there is highly positive correlation between measured breast size and trapezius myofascial pain as with increase in bra size, trapezius myofascial pain also increases, and the positive correlation of measured bra size and VAS scale .

Key Words: *Myofascial pain, upper trapezius, brasserie groove deformity and brasserie*

Introduction

A trapezius is a muscle which connects your back to your upper limb. It is having a three fibers upper trapezius, middle trapezius, lower trapezius. Upper trapezius elevates scapula [1]. Myofascial dysfunction is the collection of sensory, motor and autonomic symptoms. It includes referred pain as well as localized pain, decreased range of motion and weakness[8].Myofascial pain is caused by a tight clothing ,structural inadequacies, systemic, alcohol toxicity, inflammatory diseases and relative growth hormones deficiency [13].A brasserie having two components -two cups like structure for support a breast and two straps attached to a cup which lift your breast against the gravity [3]. It leads to increases bra strap pressure on a upper fibers of trapezius .The wearing a wrong size bra can cause a serious musculoskeletal and neurological problem. The developing problems are-[3]

- Deep bra furrow
- Back pain
- Pectoral girdle myalgia

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- Exercise inducing breast discomfort
- Upper limb neural symptoms

. A main part which creates a symptoms and discomfort is bra straps [6]. Due to prolonged wearing of incorrect bra size and tight strap the chronic contraction is occurs within the trapezius muscles can having a compressive effect and narrowing of arteries leads to ischemia of that area. [3] .Due to the tight bra strap the musculoskeletal symptoms could be the pain, soreness, pectoral girdle myalgia etc. They all restrict a scapular movement and effect on posture also [5,3]. A depression occurs at the junction of neck and shoulder due to a tight bra strap is called brassiere groove deformity.

Purpose and Significance

The purpose of this study was to compare a upper trapezius myofasical pain and deformity in heavy breast size and small breast size

Aim And Objective

To evaluate the effect of tight bra strap on upper trapezius and brasserie groove deformity due to tight inner wear

Null Hypothesis

Tight inner wear in women does not produce upper trapezius myofascial pain and brassiere groove deformity

Alternative Hypothesis

Tight inner wear in women is significantly cause to produce upper trapezius myofascial pain and brasserie groove deformity

METHODOLOGY

SAMPLE SIZE

A total number of 100 women aged 20-40 years

Sample Population

A sample size were randomly recruited from rural area as well as from urban area Data were collected from college students, working professionals and housewife

Inclusion Criteria

Women aged 20-40 years

No pathology and injury occurs from last 3 month in neck, shoulder, upper back and arms area

Exclusion Criteria

Women more than 40 years are not allowed

pathology and injury occurs from last 3 month in neck, shoulder, upper back and arms area

Study Design

Correlational and observational study

Instruments and Measurement Tools

Data collection of this study comprised of 3 steps-questionnaire, bra size measurement and presence of brasserie groove deformity.

Procedure

Questionnarie

A total number of 100 female aged 20-40 years were randomly taken from rural area as well as from urban area. Those female were college students, working professionals and housewife's in India. The questionnaire consists of 32 items which included [2]

- Name
- Age
- Weight
- Height
- BMI
- Educational qualification
- Occupation
- Bra knowledge :- no formal education, primary education, secondary education, tertiary education
- Bra use :- the variable are duration of daily usage, reported bra size, bra method, congruent/ incongruent bra size after measurement
- Reported bra size
- Type of bra used and how it is worn
- Occurrence of pain:-Yes or no?

- Current history of pain
- Pain in last 12 months: - Yes or no?
- Visual analog scale
- Nature and type of pain: -Radiating pain, localized pain, dull aching pain
- Frequency of upper trapezius myofasical pain and requirement for treatment of pain :-None , self-medication and treated in a hospital
- Frequency of factor reported to affect upper trapezius myofasical pain :- the variable are factor that worsen the pain, factor that relieve the pain, and reported that bra fit can affect the pain
- Pain onset and duration

Bra Size Measurement

Participants were asked to state their bra size immediately after completion of the questionnaire (i.e. reported bra size).Following this, research then used the method describe by Lunarie in 2002 and white and Scurr in 2012 to measure a female bra's size. A tape method is used to determine a bra size. Bra sizing is traditionally done by determining two specific values: band size and cup size. Band size, typically expressed in inches in the United States, is conventionally determined first by measuring the circumference around the wearer's torso immediately below the breasts (the "underbust" measurement) with a conventional tape measure then adding Several-typically five inches to arrive at the correct band size[12,18]

Table 1. Cup size conversion table (Zheng *et al.* 2006).

Bust girth-band size	−1″	0″	1″	2″	3″	4″	5″	6″	7″	8″
Cup size	AA	A	B	C	D	E	F	FF	G	GG

Cup Size, typically expressed as a letter size, is conventionally determined by first taking a measurement of circumference around the wearer's torso at the "apex' or fullest part of the breasts (the "overbust" measurement) then calculating the difference between the apex or overbust measurement and the band size. By Standard practice, a difference of one inch corresponds to an A cup, two inches to a B cup, three inches to a C cup, and So on.

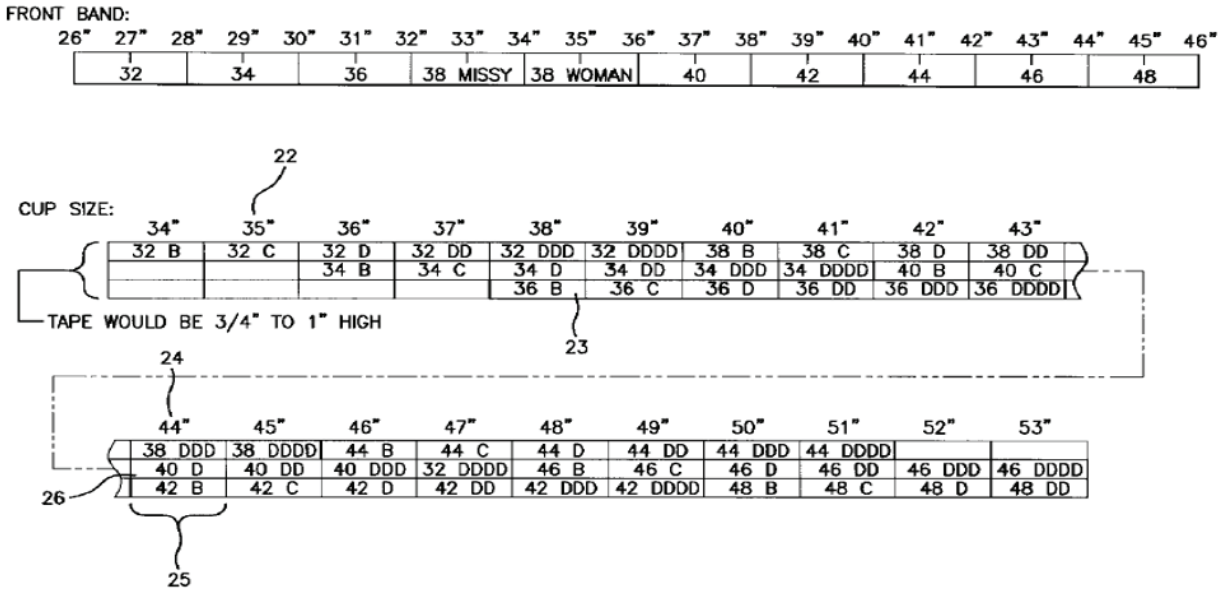

FIGURE 1 – Measurement Scale for bust size

BRASSERIE GROOVE DEFORMITY It was check by observation and taught band palpation [15]

Data Analysis

Data was analysed with SPSS statiscal package (version 12).

Pearson's correlation co-efficient (r) were calculated to determine the strength and direction of linear relationships between pairs of numerical variables. Effect sizes were calculated as r2. Consistent with Cohen's conventions, correlations were interpreted according to size as well as direction [8]. Correlations of less than 0.3 are described as small or weak, between 0.3 and 0.5 are medium or moderate, and greater than 0.5 are large or strong[8].

A Pearson's correlation co-efficient was used to determine the association between upper trapezius myofasical pain (point and 12-month prevalence) and measured bra size. UTMP was a binary variable of 'yes' (experienced Pain in the last 12 months) and 'no' (did not experience pain in the last12 months) responses. Bra size was also binary variable: it was considered 'congruent' when the participant's reported bra size was the same as her measured bra size and 'incongruent 'when reported bra size was different from measured bra size[2]

Result

100 female participated in this study. Participants' ages ranged from 20-40 years, the mean weight 85.4 ±38.6 kg body mass index is 26.1 ± 6.2 kg/m2. Although the deformity is more likely observed in women with large and heavy breasts. Brassiere groove deformity due to direct reflection of the bra weight via bra straps to the skin[15].In graph 1 shows that the comparison between the reported bra size and measured bra size and we find that 70% of females wearing incorrect bra size.

Mostly 70% of females with a large breast size were wearing a wrong bra size. There are several possibly explanations for why being large breasted is particularly associated with wearing a bra that is poorly fitted or the wrong size

Corelation

we were correlated the measured bra size and VAS. We were find that the correlation coefficient between the tape measured bra size and VAS is r=0.815 and it is positively correlated that heavy breast size having a more upper trapezius myofasical pain.

TABLE 2- Correlation between tape measurement and VAS

		VAS	Tape
VAS	Pearson Correlation	1	.024
	Sig. (2-tailed)		.815
	N	100	100
tape	Pearson Correlation	.024	1
	Sig. (2-tailed)	.815	
	N	100	100

After the positive correlation of measured bra size and VAS scale .We were correlate the measured bra size and brasserie groove deformity .The correlation coefficient between the tape measured size and deformity is r=0.232 and it is positively correlated that heavy breast size have a brasserie groove deformity

TABLE 3- Correlations between the measured bra size and deformity

		tape	Deformity
Tape measured bra size	Pearson Correlation	1	.121
	Sig. (2-tailed)		.232
	N	100	100
Deformity	Pearson Correlation	.121	1
	Sig. (2-tailed)	.232	
	N	100	100

Table 4- Bra knowledge and use (n=100)

Variable	n (%)
Duration of daily usage	
Working hours	18(18.75)
All day	52(54.16)
All day and all night	26(27.08)
No response	04(4.166)
Respondents who claimed to know their bra size	
Yes	78(78)
No	22(22)
Congruent/incongruent bra size after measurement	
Congruent	30(30)
Incongruent	70(70)

Table 5 Frequency of upper trapezius myofasical pain and requirement for treatment of pain (n=100)

Variable	n (%)
Prevalence	
Point prevalence	28(43.7)
12-month prevalence	34(54.8)
Treatment requirement (12-month prevalence)	
None	14(41.17)
Self-medication	12(35.29)
Treated in a hospital	08(23.53)
Highest level of educational attainment	
No formal education	12(12)
Primary education	18(18)
Secondary education	20(20)
Tertiary education	50(50)

TABLE 6- FACTORS THAT AFFECT THE UPPER TRAREZIUS MYOFASICAL PAIN (n=62)

Variables	n=%
FACTORS THAT WORSEN THE PAIN	
Wearing bra for than a few hours	13(20.96%)
Wearing a bra with thin bra strap	17(27.41%)
Wearing tight bra straps	32(51.61%)
FACTORS THAT REDUCES THE PAIN	
Take off bra	46(74.19%)
Loosen the strap	16(25.80%)

Discussion

The purpose of the study was to determine the corelational between breast size and upper trapezius myofasical pain and other corelational betwwen the bust size and brasserie groove deformity .In this study we find that the comparison between the reported bra size and measured bra size and we find that 70% of females wearing incorrect bra size.

The finding that removing the bra gave most respondents relief from upper trapezius myofasical pain. In this study we were find that women with larger breasts, who have been reported to be more prone to myofascial pain. Less reliance on the bra shoulder straps for support may lead to less pressure on the areas of the upper trapezius muscle in contact with the bra strap, and may therefore reduce the possibility of developing upper trapezius myofasical pain

The contour deformity can develop in women with hypertrophied breasts due to pressure exerted by brassiere straps. However, an ill-fitting brassiere with narrow straps can cut into the trapezius muscle running along the top of the shoulder to the neck and cause the deformity to develop and it developing a upper trapezius pain. Though the deformity may be prevented by using wider and/or padded straps and wearing a correct bra size [15]

Wearing a brassiere disturbs the muscle equilibrium of the pectoral girdle. Upper trapezius is the main scapular elevator. The small breast is held in a stable elevated position mainly by static friction between the brassiere structures and skin. As Brasserie groove deformity increases, static friction increases, elevating more strongly and also elevating skin and subcutaneous tissue posteriorly. The total downward forces on the shoulders are, posteriorly, friction plus posterior tissue weight, and anteriorly, friction plus breast weight. Therefore, upper trapezius was able to sustain this small load but with ischemia, which was below its pain threshold.[2,4]

Upper trapezius myofascial pain was common among the respondents, with a 12-month prevalence of 54.8% and a point prevalence of 43.7%

Bra sizing is traditionally done by determining two specific values: band size and cup size. The compressive effect of the bra straps can lead to narrowing of the arteries in the trapezius muscles. The pressure exerted on the trapezius muscles by the bra. Moreover, the majority of the respondents in the present study were younger women, who have been previously reported to experience more breast bounce than older women when walking.

Increased breast bounce is more pronounced in the vertical direction and may increase the compressive pressure exerted by the bra straps on the upper trapezius, thus increasing the possibility of precipitating ischemia in the blood vessels of the trapezius muscles.[15,17]

In this study the factor that actually affect the upper trapezius myofasical pain were noticed.20.96% female

were complaining a pain when they were wearing bra more than few hours.27.41% were those who wearing a thin bra strap and 51.61% were those who complaining a pain because of tight bra straps.

Conclusion

This study was conducted to find the correlation between upper trapezius myofasical pain and measured breast size, and to find the correlation between the brassiere group deformity and measured breast size. There is highly positive correlation between measured breast size and trapezius myofasical pain as with increase in bra size, trapezius myofasical pain also increases, as we can see from the result written in chapter no. 5 that r = 0.815 which shows high degree of positive correlation between both upper trapezius myofasical pain and measured breast size. The wearing of a wrong-sized bra was common among the respondents, who largely depended on self-selection to determine bra size, rather than using professional bra-fitting criteria. Inadequate support as a result of wearing a wrongly sized bra may have increased the possibility of developing upper trapezius myofasical pain. As BSP increases, static friction

Increases, elevating more strongly and also elevating skin and subcutaneous tissue posteriorly. The total downward forces on the shoulders are, posteriorly, friction plus posterior tissue weight, and anteriorly, friction plus breast weight

After the positive correlation of measured bra size and VAS scale .We were correlate the measured bra size and brasserie groove deformity .The correlation coefficient between the tape measured size and deformity is r=0.232 and it is positively correlated that heavy breast size have a brasserie groove deformity. Due to tight bra straps and heavy breast size there is depression occurs between the neck and shoulder junction. The deformity is more likely observed in women with large, heavy breasts, it can affect anyone.

Ethical Clearance- Participants gave informed consent before taking part.

Source of Funding- Self

Conflict of Interest – Nil

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