

Original Article

# Prevalence of fear-avoidance belief in patients with neck and back pain seeking physiotherapy.

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## Abstract

**Background:** Fear-avoidance beliefs and signs specifically non-organics are considered the psychological factors that have been determined in playing a major role in the advancement of prolonged disability. The current study was directed to explore the prevalence of fear-avoidance belief in patients with neck and back pain seeking physiotherapy and identifying the superior level of fear-avoidance beliefs regarding work or bodily performances which causes chronicity and disability in patients.

**Methodology:** An observational study was conducted at the Institute of Physical Medicine & Rehabilitation, Dow University of Health Sciences, Ojha Campus, Karachi-Pakistan, from 1<sup>st</sup> Dec 2019 to 29<sup>th</sup> Feb 2020. Standard Fear Avoidance Belief Questionnaire (FAB-Q) was used to assess the fear level. The queries determined from the questionnaire were distributed into two types; FABQ-work-related and FABQ-physical activity-related.

**Results:** A total of 100 patients were included in the study, with a mean age of  $45.76 \pm 13.75$  years. 39.0% patients reported neck pain, whereas 61.0% reported back pain. The prevalence of fear-avoidance belief related to physical activity was 90% and related to work was 91%. The results also showed a significant association between gender and work-related fear-avoidance belief with a p-value of 0.024 ( $\leq 0.05$ ).

**Conclusion:** It is concluded that neck and backache sufferers show a high prevalence of fear-avoidance behavior of physical pastime and work score, confining their daily activities and not taking part in any bodily activities due to fear.

## Keywords

Fear-Avoidance Belief, Disability, Cervical Pain, Lumbar Pain, Psychological Factors.



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## Introduction

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Cervical pain and back pain are the most common type of pain related to musculoskeletal problems<sup>1</sup>. Backache creates discomfort in the lower back area, while cervical cause's pain in the upper back region. The clinical cause of both cervical as well as back pain is non-threatening with indications of muscle ache, shooting, or severe pain with incapacity to stand up or bend<sup>2</sup>. Estimated ratio suggest that around 70% of the population suffer from low back pain, while 50% of the individuals go through neck pain<sup>2,3</sup>. Back pain is one of the reasons that causes neck pain<sup>4</sup>, but some other elements may also trigger it including, spondylosis, disk herniation, and nerve impingement<sup>5</sup>.

Neck and back pain are the often-leading cause of somatic activity limitations or nonappearance from work and are suggested to be a cause of prolong disability in the world of medicine<sup>6,7</sup>. Poor body posture and ergonomics also play a vital role in disturbing our body mechanics<sup>8</sup>. Literature research on poor body mechanics suggest that there is still some barrier which halts the individual to progress from these problems. With the data of earlier studies, it was concluded that some psychological hindrance results in late recovery or stops an individual from a physical activity even though they are taking the treatment<sup>9</sup>. According to Waddell's model, fear is one of the psychological factors, which stop the individual with pain from performing and doing any movement<sup>10</sup>. Fear Avoidance Belief is a fragment of the fear-avoidance model. This psychological model defines how individuals change and maintain chronic musculoskeletal pain due to attentional methods and avoidant actions that are built on the pain-related fear<sup>11</sup>. It is suggested that fear-avoidance belief and pain have a strong association. As the pain concentration increases, individuals started to restrict their movements as well. Due to the pain severity, individuals tend to stay away from physical activity and develop avoidance behavior, converting an acute condition to chronic and deteriorates the reconditioning that leads to disability. It is reported that lack of exercise, neglect, or deconditioning can lead to emotional disturbances such as anxiety, depression, and

aggression, eventually disturbing an individual's personality<sup>12</sup>.

Lethem enlighten the fact that if an individual experiences acute discomfort and delay the condition by using evasive actions, would soon get prone to chronicity, as suggested by this model. Apprehension of pain is predictable to drop between confrontation (adaptive behavior) and avoidance<sup>13</sup>. It is suggested that elusion performance is healthy when boosting the individual to evade stressing damages, since this allow them to heal but can be injurious when discouraging the person from activity after an injury is cured. This constrains the regular use of tissue and worsens the individual physically, mentally, and leads to disability. Avoiding work or activity due to fear can also be a risk element for long illness. Future intervention ought to target fear-avoidance ideals through information and campaigns concerning the blessings of staying active once having contractile organ pain<sup>14</sup>. Therefore, FAB-Questionnaire should now include a physical therapy assessment to recognize the level of fear, which could be a poor prognosis, since it is a simple and short screening tool<sup>15</sup>.

Moreover, researchers also find out that Fear-avoidance belief influences chronic neck and back pain and poor performance<sup>16</sup>. This insist the therapists to consider the psychological factors in their patient examination, as it is now one of the leading causes of chronicity and disability. The current study aims to understand the psychological factors contributing to neck and back pain and help in the secondary prevention of pain. Also it also help individuals with pain, seek help from their healthcare professional to overcome this fear, improve health outcomes, and reduce the number of days from their work or activity.

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## Methodology

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This observational study was conducted at the clinic of Dow physical therapy from 1<sup>st</sup> December 2019 to 29<sup>th</sup> February 2020. Patients with neck and back pain who attended the outpatient clinic, aged between 20-85 years, receiving physiotherapy treatment were included in the study. Patients

without physiotherapy treatment were excluded. A total of 100 participants were recruited via non-probabilistic, purposive sampling method. All the participants were informed about the study objectives and were asked to sign the Consent form.

Standard Fear Avoidance Belief Questionnaire (FAB-Q) was used to assess the fear level. The queries determined from the questionnaire were distributed into two types; FABQ-work-related and FABQ-physical activity-related. Besides fear, age, gender and diagnosis was also determine. The FAB-Q was used with 2 subscales, a 4-item FABQ physical activity scale (FABQ-PA, range: 0 to 24) and a 7-item FABQ work scale (FABQ-W, range: 0 to 42). Patients indicated their responses on a 7-point Likert scale, ranging from "completely disagree" to "completely agree." Higher scores indicate elevated levels of fear-avoidance beliefs for both scales. The scoring criteria of FABQ-PA was divided as follows: (0-12) mild, (12-19) moderate, and (19-24) severe, whereas in FABQ-W the score was divided as: (0-19) mild, (19-34) moderate, and (35-42) severe. Data was analyzed using SPSS version 21.0. Since the FABQ-PA & FABQ-W was used in two ways in this study therefore a continuous score, including the mean and standard deviation were reported and a trichotomies category reporting the proportion and frequency of low and high fear related to physical activity and work was determined. Association between categorical variables like age, gender, diagnosis

(neck & back pain) was also explored using the Chi-square test. A p-value of less than 0.05 was considered significant.

## Results

A total of 100 patients were included in the study, with a mean age of  $45.76 \pm 13.75$  years of the total respondents. Most of the participants were young with an age range of 20 to 85 years, having a mean age of  $45.76 \pm 13.75$  years. By computing the age median, 52.0% of the study participants belonged to the younger age group (<45 years) and 48.0% belong to the older age group ( $\geq 45$  years). Majority of the respondents were females (70.0%), with 30.0% males. Along with the fear prevalence, it was also analyzed that 39.0% patients had reported neck pain, whereas 61.0% reported back pain.

Table 1 shows the frequency of FAB-PA. The majority of the patients feared physical activity (90.0%) that makes their pain worse, whereas 74.0% patients believed that bodily action hurt their back or neck. 69.0% of the respondents stop any activity that makes their pain worse. Of the total, 66.0% patients have a set mind that they cannot do any somatic activity with the pain. However, 31.0% respondents still carry on their work with the pain. In addition to this, 25.0% patients reported that continuing their routine activities helps in subsiding their fears.

**Table 1: Fear avoidance belief questionnaire-fear related to physical activity.**

<b>Variables</b>	<b>Completely Disagree</b>	<b>Unsure</b>	<b>Completely Agree</b>
<b>My pain was caused by physical activity</b>	22(22.0)	10(10.0)	68(68.0)
<b>Physical activity makes my pain worse</b>	9(9.0)	1(1.0)	90(90.0)
<b>Physical activity might harm my back or neck</b>	18(18.0)	8(8.0)	74(74.0)
<b>I should not do physical activity, which might make my pain worse</b>	25(25.0)	6(6.0)	69(69.0)
<b>I cannot do physical activity, which might make my pain worse</b>	31(31.0)	3(3.0)	66(66.0)

Table 2 shows the frequency of FAB-W. The majority of the patients (91.0%) believed that work exaggerates their pain, while 54.0% respondents made up their mind that work is too hefty for them, and around 58.0% of them were unable to do day-to-day work. Of the total, 86.0% agreed with the query that works makes their

ache worse, 72.0% patients indicated that pain during work hurt their back or neck. More than half (52.0%) suggested that having fear that they could not go back to their work until their pain is cured completely. Of all, more than two-thirds of the patients enrolled (69.0%) differed with never going back to work, whereas 42.0% showed fear for at least 3 months that they cannot go back to work with their pain.

**Table 2: Fear avoidance belief questionnaire-fear related to work.**

Variables	Completely Disagree	Unsure	Completely Agree
<b>My pain was caused by my work or an accident at work</b>	30(30.0)	7(7.0)	63(63.0)
<b>My work aggravated my pain</b>	6(6.0)	3(3.0)	91(91.0)
<b>I have a claim for compensation for my pain</b>	32(32.0)	11(11.0)	57(57.0)
<b>My work is too heavy for me</b>	32(32.0)	14(14.0)	54(54.0)
<b>My works make or would make my pain worse</b>	12(12.0)	2(2.0)	86(86.0)
<b>My work might harm my back or neck</b>	16(16.0)	12(12.0)	72(72.0)
<b>I should not do my regular work with my present pain</b>	31(31.0)	5(5.0)	64(64.0)
<b>I cannot do my normal work with my present pain</b>	39(39.0)	3(3.0)	58(58.0)
<b>I cannot do my normal work until my pain is treated</b>	45(45.0)	3(3.0)	52(52.0)
<b>I do not think that I will be back to my normal work within 3 months</b>	38(38.0)	20(20.0)	42(42.0)
<b>I do not think that I will ever be able to go back to work</b>	69(69.0)	12(12.0)	19(19.0)

\*Fear Avoidance Belief, Physical Activity (four items 2-5).

\*Fear Avoidance Belief, Work (seven items 1, 2, 4-7, 10).

**Table 3: Fear avoidance belief-physical activity & work.**

Variables	Minimum	Maximum	Mean	Standard Deviation
<b>FABQ- PA*</b>	4	24	17.24	5.97
<b>FABQ- Work **</b>	4	42	27.81	8.74

The average FABQ-PA was  $17.24 \pm 5.97$ , whereas average FABQ-W was  $27.81 \pm 8.74$ , as presented in table 3. Table 4 shows a significant association between gender and FABQ-W ( $p=0.024$ ). It shows that out of 70.0% female, 48.6% seems to have severe fear while 28.6% have moderate and only 22.9% have a mild fear of Physical activity. Moreover, out of 30 males, 30.0% of them reported moderate fear of Physical activity. Work-related fear in male was found to be 43.3% that is higher than female (20.0%). It was also determined that patients with neck pain had severe physical activity fear up to 51.3%, while the fear associated with work was moderate (61.5%). Clinical back pain patients (49.2%) were in severe fear of physical activity, whereas 50.8% had moderate work-related fear. Others have mild (21.3%) and severe work-related fear (27.9%). 21.3% of the study participants reported mild FABQ-PA, while 29.5% of the patients specified moderate fear of physical activity with back pain.

**Table 4: Association of FABQ-PA and FABQ-W with gender and diagnosis.**

Variable	Fear Avoidance Belief-Physical Activity & Work								
	Physical Activity			p-value	Work			p-value	
	Mild	Moderate	Severe		Mild	Moderate	Severe		
<b>Gender</b>	Male	5(16.7)	9(30.0)	16(53.3)	0.781	2(6.7)	15(50.0)	13(43.3)	0.024*
	Female	16(22.9)	20(28.6)	34(48.6)		16(22.9)	40(57.1)	14(20.0)	
<b>Diagnosis</b>	Neck Pain	8(20.5)	11(28.2)	20(51.3)	0.979	5(12.8)	24(61.5)	10(25.6)	0.474
	Back Pain	13(21.3)	18(29.5)	30(49.2)		13(21.3)	31(50.8)	17(27.9)	

\*p ≤ 0.05 is considered significant.

## Discussion

The current study was conducted by getting the demographic data and responses of 100 participants who attended the outpatient clinic. The disparity between applicants on the male and feminine scale was: 70 females and 30 males. At the same time, the diagnosis was reported as neck and back pain. Primarily, high prevalence of fear-avoidance belief in physical activity and work was seen. Secondly, the numerous relationship between gender and fear-avoidance belief about work was also reported. In terms of the majority, 90% population showed fear regarding physical activity, and 91% had work-related fear. One in all the rational of high prevalence is that the mainstream of the population was young and had years of life ahead to be covered so had dreaded that by doing any style of physical activity which ends in hurting their neck or back so that they would be unable to cope up with their day to day activities which might be the reason behind their future declining.

As the study was conducted in December 2006, Forecast in backache with fear escaping level was done only on 158 back pain patients. Tamar Pincus et al also shows elevated fear-avoidance level in patients<sup>17</sup>. Also, the study carried out in Japan over nurses shows fear-avoidance beliefs, concerning that physical activity may well be a possible target for low back pain treatment in nurses<sup>18</sup>. Moreover, the association between gender and work-related fear was also reported during this study with the

assistance of the Chi-square test. Out of 100 participants, females have moderate fear-avoidance beliefs, as shown in table 4. Per table, the Likert table scoring of the male population is (50%) that is moderate, (43.3%) severe and (6.7%) Mild, and in the female population the proportion of fear is moderate (57.1%), Severe (20.0%) and Mild (22.9%). As reported, severe work-related fear-avoidance in men (43.3%) compared to females (20.0%) was observe. The previous research on the association between fear avoidance and gender, ache, and exercise was applied by Farheen et al., in December 2007<sup>3</sup>. The study also showed the correlation between fear and gender. With a sample size of 405, she reported that fear was high in females as compare to male<sup>3</sup>. As compared with the previous study conducted in Mexico that determined the association among health problems, discomfort, and avoidance conduct with prolonged low spinal pain. It was discovered that they also reported that females are more prone to avoiding physical activities as compare to males. Our study shows a significant association with FAB-PA<sup>19</sup>. It is suggested that with a long working hour and poor posture, severe consequences will be seen easily in both the gender. One more study shows that office workers with long working hours of more than 6 have shown work-related fear with self-reported neck pain<sup>20</sup>. As specified above, there is a high prevalence of fear-avoidance behavior associated with physical activity or work with neck and back pain. However, no significant association was found between FAB-Physical activity and FAB-

Work among neck or back pain as reported in Table 4. Our finding suggest that the association would be only possible when 100 participants are arranged in subscale 3 of FAB-PA and subscale 6 of FAB-W, which is the main indicator of their anxiety and fear and can stop them from doing any activity or work.

Correspondingly, our study outcomes revealed that prime pain intensity has severe to moderate FAB-Physical Activity and FAB-Work. With the avoidance, participants do not participate in any activity, which can depreciate their condition and cause psychosomatic issues like anxiety, depression and stress. We discovered that people with pain are more in depression and anxiety during the course of our study survey. The study of the association between low back pain and various everyday performances also shows positive association<sup>21</sup>. Therefore, with data of above all mentioned studies we physiotherapist beside assessment also focus on correct education, coaching and geographical point modification ought to even be enclosed in a rehabilitation program which can have a positive influence on the daily performance.

Future research can follow numerical and categorical data for comparing medical affliction and physical wellbeing with a sample of more than 100. Additionally, further exploration can likewise be completed by utilizing equality of gender orientation as in our investigation there has been divergence among the gender. Along with it, this description offers particular direction to look at the precision of FABQ-W as an assessment tool, and it ought to be scrutinized alone in diverse therapeutic setup together with job chores description. Moreover, studies with special age groups, gender, along particular pathology are also recommended to be carried out.

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## Conclusion

It is concluded that neck and backache sufferers shows a high prevalence of fear-avoidance behavior of physical pastime and work score, confining their daily activities and not taking part in any bodily activities due to fear. Thus, fear plays an

unmistakable part in arising chronicity. This record highlights the need to emphasize work-related fear and physical activity, particularly physiotherapy treatment to reduce chronicity.

Many patients with pain, avoid their day-by-day activities and gradually obtain avoidance behaviour as well as restrict the movements that make them vulnerable to disability and keeping away from work. To prevent disability, therapists have to advise and teach them pain management in the early stage of rehabilitation and encourage the patient to subside their fear and initiate the movements with mild pain to enhance practical outcomes.

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## Conflicts of Interest

The authors have declared that no competing interests exist.

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