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The Relationship between Alexithymia and Functional Disability Among IT Professionals with Chronic Low Back Pain

Budamala Pavani, Milan Anand* and Sudhakar Subramanian

Department of Physiotherapy, Krupanidhi College of Physiotherapy, Bangalore – 560035, Karnataka, India; physio.kric@krupanidhi.edu.in

Abstract

Background: Chronic low back pain is an exceptionally predominant and exorbitant musculoskeletal pain syndrome. Low Back Pain is the primary cause of movement restriction and records for 33% of all worker's compensation claims. Utilizing the customary characterization framework, Low back pain is additionally arranged by its duration of onset like acute (<6 weeks), sub-acute (6 weeks-12 weeks), and chronic (>12 weeks). Usually, people who have back pain experience acute occurrence of pain, which heals on their own in roughly 3 months. Individuals with alexithymia will in general show lower empathy with others' beliefs, feelings, and desires maybe in light of their absence of information on their own enthusiastic experience. This absence of sympathy may likewise add to the higher rates of relational issues reported by people with alexithymia. Oswestry Low Back Pain Disability questionnaire is an important tool to evaluate functional disability. Therefore, in this study, the association between alexithymia and functional disability in chronic low back pain was discussed. **Aim:** The study aims to evaluate the correlation between alexithymia and functional disability among IT professionals with chronic low back pain. **Materials and Methods:** This study involves 246 IT professionals between ages 25-50 years of male and female genders in Bangalore were taken based on inclusion and exclusion criteria. The online survey was performed by using google forms. **Outcome Measures:** Nordic Musculoskeletal Questionnaire (NMQ), Toronto Alexithymia Scale (TAS-20), and Oswestry Low Back Pain Disability Questionnaire (ODI) were used. **Result:** A POSITIVE correlation is observed in both cases where the relationship is very weak. T-test for dependent means between those with CLBP and without CLBP the result implies that there is a significant difference between the individuals with CLBP and without CLBP in both the tests. The t-value of alexithymia shows 15.6960 and Oswestry shows -4.7784. the p-value for alexithymia is 0.001 which is significant and the p-value for Oswestry is <0.00001 which is significant. **Conclusion:** There is a significant difference between alexithymia and functional disability among individuals with CLBP and without CLBP. There is a positive correlation seen in CLBP and without low back pain.

Keywords: Alexithymia, Chronic Low Backpain, Functional Disability, Nordic Scale, Oswestry Low Back Pain Disability, Toronto Alexithymia Scale, Work-Related Musculoskeletal Problems

1. Introduction

Chronic low back pain is an exceptionally predominant and exorbitant musculoskeletal pain syndrome[1]. Low Back Pain is the primary cause of movement restriction and records for 33% of all worker's compensation claims[2]. Low back pain is given the far-reaching part of the population, in terms of physician visits, surgical procedures, and deciding on medications, it is the second most common reason for seeing a physician[3]. Utilizing the customary characterization framework, Low back pain is additionally arranged by its duration of onset like acute

*Author for correspondence

(<6 weeks), sub-acute (6 weeks-12 weeks), and chronic (>12 weeks)[4]. Work-related back pain is the most widely recognized reason for back pain among people younger than 45 years. The majority of the people who develop back pain effects from acute episodes heals on their own for roughly 3 months.

As a result, 90% of the workers complain about the pain in the back and return to work and experience relief from back pain within 3 months time[5]. However, it is commonly considered back pain that lasts for more than a year, which is also associated with tissue recovery[6]. Musculo skeletal Disorders (MSDs), particularly in the neck, shoulders, and lower back regions are regular among office workers around the world, because of the nonappearance of physical action, absence of movement as well as the adopted sedentary behavior[7]. The absence of physical exercises may prompt LBP and may negatively affect work satisfaction. Delayed sitting or standing, static stance and awkward back help were completely seen as related to LBP, shoulder pain and upper back pain[8]. CLBP is linked to many psychological factors, such as depression, anxiety, difficulty with daily activities, and bad quality of life[9]. Alexithymia is a multidimensional development, seen in a few clinical conditions, especially in "psychosomatic disorder"[10].

Sifneos (1973) first coined the term Alexithymia (literally, "no words or feelings") to be most intently related to the lack of emotional awareness[11,12]. There may be the following associated characteristics: 1. Lack of awareness of emotions; 2. Inability to identify and describe emotions; 3. A low level of fantasy life; 4. Excessive attention to external circumstances, such as physical symptoms. The prevalence of alexithymia is estimated to be between 14-19% in the general adult population and between 30-40% in the general adult population of psychologically ill outpatients[13].

Individuals with alexithymia will in general show lesser empathy with others' beliefs, feelings, and desires maybe in light of their absence of information on their own enthusiastic experience. This absence of sympathy may likewise add to the higher rates of relational issues reported by people with alexithymia[14]. Previous research has indicated chronic pain which is not caused by a specific natural illness to a variety of psychosocial characteristics that are likely linked to emotional functioning, such as a history of sexual and physical abuse, personality types, and psychological trauma[15]. Individuals with alexithymia will generally show lower sympathy[16] with others' beliefs, feelings, and desires[17], perhaps given their absence of information on their enthusiastic experience[16]. This absence of empathy may also add to the higher rates of relational issues detailed by people with alexithymia[18]. Toronto Alexithymia Scale-20 is a 20-item self-report questionnaire which is used to assess participants' stage of alexithymia[19].

Back Pain is one of the important causes of functional disability. It is the major leading cause of activity limitation among adults[20]. However, despite this impact, little is thought about prognostic components for inability due to back pain. Oswestry Low Back Pain Disability questionnaire is an important tool to evaluate functional disability[21]. Therefore, in this study, we report the association of alexithymia and functional disability in chronic low back pain.

The extensive using of desktops in the working environment carries with it the musculoskeletal issues related to desktop use in IT employees. The presentation of the desktop into working environments expanded profitability, resulting in changes in work associations and the improvement of new risk factors, prompting numerous health issues, which include work-related musculoskeletal problems[22]. Due to covid-19 pandemic, more people are working from home, i.e., home durance as a measure to reduce disease outbreaks but sometimes significantly can affect most people's physical and mental well-being[23]. The pandemic effect has pushed more than 60 % of the world inside. The investigation discovered that the majority of homes are not designed for work-from-home-office environments, and while the members were aware of the workspace and postural difficulties, the pain level indicated that if the current home space is not updated for work-from-home-office surroundings, it could quickly escalate to a serious level[24].

2. Methodology

This study involves 246 IT professionals between ages 25-50 years of male and female genders across Bangalore. A cross-sectional correlational study was conducted to know the relationship between the two groups. The online survey was performed by using Google Forms. In this study the inclusion criteria include participants in the age group between 25-50[25], Gender includes both male and female, CLBP for a minimum of 12 weeks[26], Pain in the lumbar region, Psychological illness like mood swings, and anxiety. Then the participants with red flags

(specific cause of LBP, such as disc prolapse with radicular pain, inflammatory disease or other serious pathology), History of spinal surgery, serious mental disorders (e.g., suicidal patients, major depression and psychosis), Using medications for the psychological disorder were excluded from the study. Outcome measures used in this study were Nordic Musculoskeletal Questionnaire (NMQ)[27], Toronto Alexithymia Scale (TAS-20)[28], and Oswestry Low Back Pain Disability Questionnaire (ODI)[29].

2.1 Procedure

The study was approved by the Ethical committee of the Institute (Ref: EC-MPT/20/PHY/003). The questionnaire content and procedures were explained to the participants, and consent was taken from the participants. The study goals and procedures as well as the importance of confidentiality were briefed to the participants. They were also advised that participation was completely optional and that consent may be withdrawn at any moment. Due to the pandemic situation, the survey was completed using the Google form survey website and the participants were selected by convenient sampling method and given an appropriate link to complete the survey[30]. Based on the responses taken from the questionnaires participants were segregated into subjects with CLBP and without CLBP. Then Toronto Alexithymia Scale-20 questionnaire and Oswestry questionnaires were given to the participants with CLBP and without CLBP. Alexithymia will be identified in both groups. Correlational analysis was done to find out the relationship between Alexithymia and Functional disability among Chronic low back pain was analysed.

3. Statistical Analysis

The data was analysed using SPSS (version 29.0) for windows. Frequency distribution of data was performed to find out the prevalence of alexithymia and functional disability among the participants (Figure 1). Descriptive statistics were performed to find out the mean, and standard deviation for the outcome variables (Figure 2). Pearson correlational analysis was done to find out the relationship between alexithymia and functional disability among IT professionals with CLBP. T-test for dependent means between CLBP and without CLBP. Chi-square values to find out the values of CLBP (with and without) to the male and female population.

4. Result and Interpretation

The participants between the age group 40-49 with CLBP are 7 and without CLBP 1 participant and the participants >=50 with CLBP are 2. It is inferred from Table 2, that the frequency distribution of the Nordic questionnaire during 7 days with LBP was 96 (39) and without LBP was 150 (61). The frequency distribution of the Nordic questionnaire during 12 months with low back pain was 142 (57.7) and without low back pain was 104 (42.3). It is inferred from Table 3, that percentage of alexithymia with CLBP was 70.252% and without CLBP was 45.696 %. The percentage of Oswestry with CLBP was 33% and without CLBP was 17% (Figure 3). It is inferred from Table 4, that the mean TAS-20 with CLBP was 13.498 (3.15) and the mean without CLBP was 6.629 (2.03) (Figure 4(i)). The mean Oswestry with CLBP was 3.915 (1.43) and the mean without CLBP was 0.9732 (0.35) which is not significant between the two groups (Figure 4(ii)). In Table 5, it is inferred that there is a POSITIVE correlation observed in both cases where the relationship is very weak. The p-values are not significant for both cases. In Table 6, the result implies that the individuals are significant with CLBP and without CLBP in both tests. Hence based on the results it is showing that there is a positive correlation between alexithymia and functional disability among individuals with CLBP and those without CLBP among IT Professionals.

Table 1. Frequency of the given data: based on age group

Age GROUP(yrs)	With CLBP	Without CLBP
<20	0	0
20 – 29	107	38
30 – 39	74	17
40 – 49	7	1
>=50	2	0

It is inferred from Table 1, that based on the age group between 20-29 individuals suffering from CLBP 107 and without CLBP 38. The age group between 30-39 individuals with CLBP was 74 and those without CLBP were 17. The age group between 40-49 individuals with CLBP was 7 and without CLBP was 1.

It is inferred from Table 2, that the frequency distribution of the Nordic questionnaire during 7 days with LBP was 96 (39) and without LBP was 150 (61).

Table 2. Frequency distribution table: count (percentage)

Nordic Posture	During 7 Days		During 12 months	
	Yes	No	Yes	No
Neck	59 (24)	187 (76)	76(30.9)	170 (69.1)
Shoulders	35 (14.2)	211 (85.8)	33 (13.4)	213 (86.6)
Elbows	14 (5.7)	232 (94.3)	14 (5.7)	232 (94.3)
Wrists/Hands	25 (10.2)	221 (89.8)	35 (14.2)	211 (85.8)
Upper Back	50 (20.3)	196 (79.7)	38 (15.4)	208 (84.6)
Lower Back	96 (39)	150 (61)	142 (57.7)	104 (42.3)
One or both Hip/Thighs/Buttocks	24 (9.8)	222 (90.2)	12 (4.9)	234 (95.1)
One or both Knees	23 (9.3)	223 (90.7)	27 (11)	219 (89)
One or both Ankle/Feet	15 (6.1)	231 (93.9)	19 (7.7)	227 (92.3)

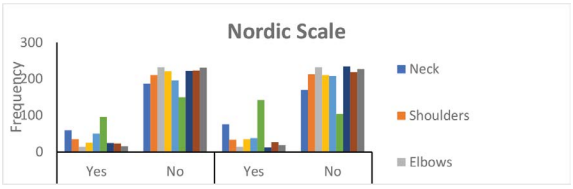

Figure 1. Nordic Scale Score.

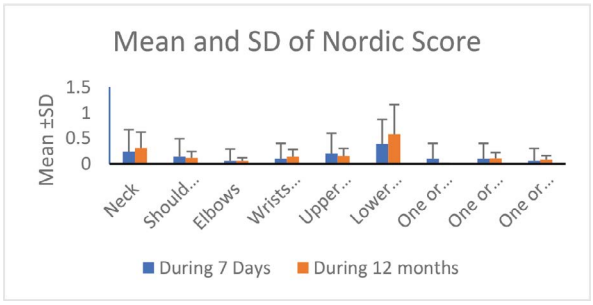

Figure 2. Comparison of Mean and Standard Deviation of Nordic Score.

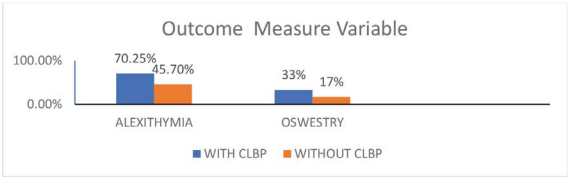

Figure 3. Percentage Comparison of Outcome Measure Variables with and without CLBP.

Table 3. With CLBP and without CLBP percentage

	With CLBP	Without CLBP
ALEXITHYMIA	70.252 %	45.696 %
OSWESTRY	33 %	17%
TOTAL POPULATION	76%	24%

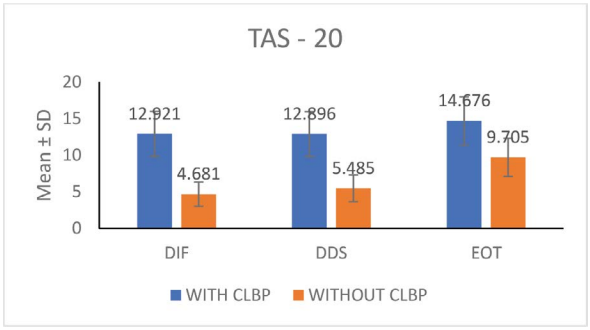

Figure 4(i). Comparison of TAS - 20 with and Without CLBP.

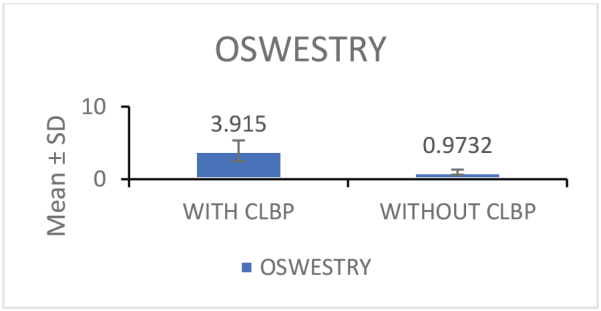

Figure 4 (ii). Comparison of Oswestry Score with and without CLBP.

Table 4. Mean and standard deviation of tests: mean (SD)

TAS-20	With CLBP	Without CLBP
DIF	12.921(3.08)	4.681(1.66)
DDS	12.896(3.07)	5.485(1.83)
EOT	14.676(3.31)	9.705(2.62)
TOTAL SCORE	**13.498(3.15)**	**6.629(2.03)**
OSWESTRY	**3.915(1.43)**	**0.9732(0.35)**

Table 5. Pearson correlation between Alexythymia and Oswestry

$p < .05$

	R	R^2	POSITIVE /NEGATIVE	RELATIONSHIP	p-value	SIGNIFICANCE/NO
With CLBP	0.1301	0.0169	POSITIVE	WEAK	.0736	NOT SIGNIFICANT
Without CLBP	0.2014	0.0406	POSITIVE	WEAK	.1366	NOT SIGNIFICANT

Table 6. T-test for dependent means between with CLBP and without CLBP 2-tailed t-test, at $p < .05$

	t-value	p-value	SIGNIFICANT/ NO
ALEXYTHYMIA	15.6960	.001	SIGNIFICANT
OSWESTRY	-4.7784	< .00001	SIGNIFICANT

The result implies that the individuals are significant with CLBP and without CLBP in both tests.

The frequency distribution of the Nordic questionnaire during 12 months with low back pain was 142 (57.7) and without low back pain was 104 (42.3).

It is inferred from Table 3, that percentage of alexithymia with CLBP was 70.252% and without CLBP was 45.696 %. The percentage of Oswestry with CLBP was 33% and without CLBP was 17%.

It is inferred from table 4, that the mean and standard deviation of TAS-20 with CLBP was 13.498(3.15). DIF with CLBP was 12.921(3.08), DDS with CLBP was 12.896(3.07), EOT with CLBP was 14.676(3.31). TAS-20 without CLBP was 6.629(2.03). DIF without CLBP was 4.681(1.66), DDS without CLBP was 5.485(1.83), EOT without CLBP was 9.705(2.03). The mean and standard deviation of the Oswestry score with CLBP was 3.915(1.43) and without CLBP was 0.9732(0.35).

This shows the mean and standard deviation of TAS-20 and Oswestry scores with CLBP and without CLBP.

A POSITIVE correlation is observed in both cases where the relationship is very weak. The p-values are not significant for both cases.

5. Discussion

The purpose of this study was to elicit the relationship between alexithymia and Functional disability among IT professionals with chronic low back pain. This study showed a positive correlation between alexithymia and functional disability among IT professionals with CLBP. It also showed that there is a correlation observed in both cases where the relationship is very weak. The p-values are not significant for both cases. In this result, the R-value with CLBP is 0.1301 and without CLBP is 0.2014, then the R^2 value with CLBP is 0.0169 and without CLBP is 0.0406. Here the t-value for alexithymia showed 15.6960 and the p-value shows 0.001which is significant and the t-value for Oswestry showed -4.7784 and the p-value showed <0.00001 which is significant. Based on the result the percentage of alexithymia with CLBP was 70.252% and without CLBP was 45.696 %. The percentage of Oswestry with CLBP was 33% and without CLBP was 17%. This clearly shows that alexithymia has been seen in IT professionals along with functional disability. In our study the results for alexithymia TAS-20 score showed DIF with CLBP is about 12.921(3.08), DDS with CLBP is about 12.896(3.07), EOT with CLBP is about 14.676(3.31). Then DIF without CLBP is about 4.681(1.66), DDS without CLBP is about 5.485(1.83) and EOT shows 9.705(2.62). The results showed total population with alexithymia and functional disability in CLBP is 76% and without CLBP is 24%. These results show that most IT professionals are suffering from alexithymia and functional disability. As many employees have work from home due to the current pandemic work pressures are a lot more on the workers. Due to the sedentary lifestyle and some psychological feelings, many employees feel difficulty in explaining their problems to others. The explanation could be that people with alexithymia had problems identifying and communicating their emotions and finding difficulty in realizing what exactly caused their feelings. This is affecting functional activities and creates a negative effect on the person. Hence, there are chances of developing depression and other emotional disturbances.

According to Kapadi, *et al.*, five out of the nine investigations that tried a relationship between alexithymia and constant back torment tracked down a

positive affiliation. Be that as it may, the four investigations looking at proportions of agony between members with high versus low alexithymia created all the more reliably sure results, with three of the four detailing positive discoveries and the special case being an investigation of remunerated injury guarantees as opposed to back torment itself. The investigations with the least reliably sure discoveries dissected alexithymia dimensionally rather than utilizing remove scores, of which just two out of five examinations announced positive discoveries. This may recommend that alexithymia must be somewhat serious to impact individuals' experience of ongoing back pain[31].

The exact cause of alexithymia is unknown. There are several approaches to alexithymia development, including genetic factors such as serotoninergic or dopaminergic system dysfunction, anatomical factors such as changes in the inferior frontal gyrus, amygdala, and orbitofrontal cortex, and finally, parenting styles in pre-childhood and traumatic events. This alexithymia has been broadly concentrated in chronic conditions which include fibromyalgia, fundamental lupus erythematous, multiple sclerosis, Rheumatoid inflammation and surprisingly in people with psoriasis, more recently alexithymia has been related to chronic pain in adolescents. A high level of people with persistent pain have at least one comorbidity identified with pain; it has been shown that about 67% of these people have mental disorders, and tension and burdensome issues are the most frequent. Therefore, it is feasible to expect that ongoing pain can be connected to alexithymia as an outflow of psychiatric comorbidity[32].

Sedentary employees have higher levels of latency, which is accumulated to a great extent over a prolonged period of sitting (≥30min). Earlier investigations report stated that extending sitting can produce trunk muscle weakening due to continual tension of trunk muscles. Excessive trunk muscular weariness reduces muscle support to the spine, creating motor coordination problems, just as increased weight on tendons and intervertebral discs narrows the disc space. Hence, prolonged sitting can affect posture and may have an impact on lumbar spine stability, eventually prompting low back pain[33].

Trunk muscles play a major part in improving spinal strength. Reduced deep trunk muscle activity and simultaneous increased large superficial trunk muscle action are thought to alter spinal loading, resulting in a return of low back pain symptoms. These adjustments in trunk muscle activity may increase pressure on the spine, causing height fluctuations and delay in height recovery[33].

Increased compressive pressure on components in the lumbar spine, such as intervertebral discs, segmental nerve roots, and interspinous tendons, as well as activation of trigger nociceptors, can result in pain. These actions are reversed when the spine is unloaded, which results in elastic returning of the annulus fibrosis, water flow and recovery of height[33].

Two of the most well-known positions used in many jobs are sitting and standing. Occupations which include sitting incorporate work area occupations, I.T professionals, bankers, and receptionists. Though occupations that require standing are cosmetologists, safety officers, instructors, and drug specialists. These positions include working in similar stances for an extensive period, which is the reason it is vital to keep up appropriate ergonomics during work[34].

According to Dossou, *et al*., employees spend practically the entire time in a sitting position and just outfit for uncommon moments of recording documents. Moreover, these employees for all time they use vehicles for their everyday trips, which increases the time duration of sitting position at home. Likewise, they are sedentary and inactive in their way of life. Hence, sedentary and prolonged sitting postures are the causes of LBP. Almost all employees complain of LBP and some functional disabilities in performing daily activities after a few years of work[35]. Pecukonis implies that, CLBP patients had similar perceptions of their physical ability as control participants, they were less confident in demonstrating the physical activities, subjects with CLBP might accept they have the right stuff and capacities to manage their pain yet they will most likely be unable to do as such because of an absence of certainty, social uneasiness, or lacking verbal capacities[36].

This study is clearly showing that there is a significance in alexithymia and functional disability among IT professionals who have CLBP. The main reason was the current pandemic most of the IT employees are working from home. Due to the bad sitting postures, and prolonged sitting time, they are finding functional disability in performing daily tasks. Due to work pressures and stress, they are spending most of their time near the desktops and they are having issues explaining their emotions and difficulty in expressing their feelings.

Baiardini, *et al*., stated that although there have been limited studies on the treatment of alexithymia they targeted at increasing the patient's emotional awareness have been documented. In a medical environment, some simple suggestions for better-managing alexithymia individuals can be implemented. According to Adjuvant Psychological Therapy, one of the main goals of psychosocial interventions could be to identify and facilitate the proper expression of feelings[37].

It is the first study to show that alexithymia is related to functional disability in IT professionals with CLBP. However, there have been many studies that focus on the relationship between alexithymia and specific systems. According to the study result alexithymia with CLBP was 70.252% and without CLBP was 45.696 %. The percentage of Oswestry with CLBP was 33% and without CLBP was 17% (Figure 3). This implies that the participants in this study are having alexithymia and functional disability along with chronic low back pain.

Here in this study, there are so many reasons to get the significance of the result mainly due to the current pandemic most of the IT employees are working from home. They have functional disabilities in daily tasks as a result of poor sitting postures and long periods of sitting. They spend most of their time near their computers due to work constraints and stress, and they don't have enough time to spend with their families and participate in social activities, resulting in alexithymia and functional impairment.

6. Limitations

- Less sample size
- Lack of literature on alexithymia and functional disability
- The proper assessment was lacking due to the online survey.

7. Recommendations

- Proper research can be conducted on Alexithymia
- Some occupationally related education camps can be conducted in the office and educate the employees about the risk factors of alexithymia which can relate to functional disability.
- Ergonomics can be advised to the employees to avoid bad postures and back pain.

8. Conclusion

This study concludes that there is a significant difference found between the individuals with alexithymia and functional disability, with CLBP and without CLBP. There is a positive correlation seen in individuals with CLBP and without CLBP among IT professionals with alexithymia and functional disability.

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