DOI: https://doi.org/10.4038/jrcs.v28i1.134
Journal of the Ruhuna Clinical Society 2023 28 (1): 14-20

# Prevalence and the correlations of chronic widespread pain among loaders (Nattami) in Pettah, Sri Lanka

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**Abstract**

**Introduction:**

Chronic widespread pain (CWP) is a cardinal symptom of fibromyalgia, which is a non-inflammatory condition of the musculoskeletal system. It has become a highly prevalent condition and a major health problem in the community and working population. Loaders are a vulnerable group of people engage in an occupation that has a higher risk of developing musculoskeletal pain. Psychological distress is also associated with CWP. The main aim of this study was to identify the prevalence and associated factors of CWP among loaders in Pettah, Sri Lanka. Further, the association of psychological distress and the health-seeking behaviors of loaders with CWP was assessed in this study.

**Methods:**

A cross sectional study was carried out in a convenience sample of 174 loaders in the main bazaar, Pettah, Sri Lanka. A criterion given in the "Manchester Definition" for CWP was used for the identification of CWP. Data were collected using a self-administered structured questionnaire and Perceived Stress Scale was used to identify the psychological distress. Descriptive and inferential statistics were used to analyze the data with SPSS version 21.

**Results:**

The mean age (SD) of the study participants was 42.65 (±12.21)ranged between 19 and 66 years. The level of education of the majority (61.5%) were between grade 6-11. The mean working years as a loader was 20.84 years and the mean weight that the participants carried per turn was 62kg. The prevalence of CWP was 18.4% (n=32) and the lower back pain was the most prevalent (64%) individual problem. High level of stress was perceived by 51.7% of the study participants. Age and the perceived stress were significantly associated with the CWP ($p<0.05$). Most of the participants (88%) used substances and among them 29.6 % used substances to relieve pain. High level of perceived stress was found in 51.7% of loaders.

**Conclusion:**

CWP is a significant occupational health issue which is associated with high level of stress among loaders in Pettah, Sri Lanka.

## Introduction

Chronic widespread pain (CWP) is a cardinal symptom of fibromyalgia (FM), which is a non-inflammatory condition of the musculoskeletal system.[1] CWP is characterized as long lasting pain in multiple body regions which is associated with physical and psychological problems.[2] It was found that the prevalence of CWP among the general public ranged from 1.4% to 24.0% showing 0.8% to 15.3% in men and 1.7% to 22.1% in women.[3] Moreover, it has become a highly prevalent condition and a major health problem within the community and working population.[4] Also it has been identified as one of the commonest complaints in rheumatology clinics.[4]

While FM has been considered in some theories to be a distinct disorder, recent research inclines toward the idea that the conditions of FM and CWP are parts of a severity continuum of pain and distress, along with other chronic pain conditions.[5,6,7] Characteristic features of FM are musculoskeletal pain, chronic diffuse tension and/or stiffness in joints and muscles, fatigue, sleep and emotional disturbances, and pressure pain sensitivity in

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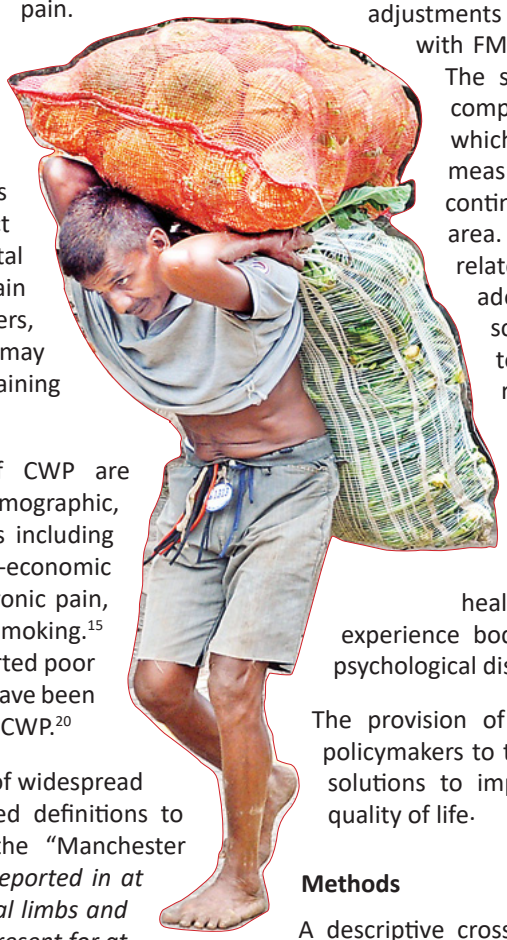
at least 11 of 18 tender points.[8]

It is believed that CWP co-occurs with various symptom-based conditions such as chronic fatigue syndrome and psychiatric disorders.[4,9,10] Several studies have shown that CWP is associated with depression and other symptoms of psychological distress.[11] However, the long-term health consequences of CWP are unclear.[12]

The strongest risk factor for developing CWP is the presence of long-standing regional pain. Spreading of pain from local or regional pain to widespread pain occurs in a large proportion of the general population.[13]



The pathogenesis of CWP in FM is not entirely understood. It can affect any part of the body. Environmental factors such as physical trauma, certain infections, autoimmune disorders, and other regional pain conditions may play a role in triggering and maintaining widespread pain in FM. [14]

Development and persistence of CWP are associated with several socio demographic, psychosocial and lifestyle risk factors including low educational level, low socio-economic class,[15] having a family history of chronic pain, not having social support and smoking.[15] Features of somatization,16 self-reported poor health status and sleep disturbances have been shown to predict the development of CWP.[20]

The ACR and Manchester definitions of widespread pain are the most commonly applied definitions to diagnose the CWP. According to the "Manchester definition", CWP is defined as*"pain reported in at least two sections of two contralateral limbs and in the axial skeleton, and have been present for at least three months*". [11] This definition was used in the current study.

Although CWP can occur at any age and sex, it has been recognized increasingly in teenagers and most commonly in middle aged women between 40 to 65 years of age.[1,17]

Pettah is one of Sri Lanka's busiest commercial areas, where most of the trades take place. One of the biggest market complexes in Sri Lanka called Pettah market is also located in this area.

Most of these shops and shopping complexes use physical man power to load and unload heavy weights and to carry loads from one place to another. People who are engaged in loading and carrying weights as their occupation are called loaders or "Nattami". Almost all of these loaders are found to be males and they are of low socio economic status and low educational level compared to the general population in Sri Lanka. One of the common problems identified among these loaders are musculoskeletal pain in multiple sites of the body. Further, they have psychological distress with their busy and heavy work accompanying this body pain which has not been studied systematically.[18]

It is believed that majority of patients with FM and CWP experience work limitations due to their pain, fatigue and cognitive symptoms.[19,20] However, with individual adjustments to their work, many patients with FM manage to stay active at work.[19] The symptoms of CWP often have a complex etiology with multiple causes, which makes it's challenging to find measures to support these patients and continuous research is needed in this area. In Sri Lankan context, occupation-related CWP was not assessed adequately. Globally also there is a scarcity of research findings related to loaders and their occupation related CWP.

This research is aimed to identify the prevalence and associated life style and occupational risk factors of CWP among loaders in Pettah area and to identify the health seeking behaviors when they experience body pain and its association with psychological distress.

The provision of such information will facilitate policymakers to take necessary steps and propose solutions to improve their state of health and quality of life.

**Methods**

A descriptive cross sectional study was conducted using 174loaders who occupied as fulltime loaders in Main Bazaar in Pettah. Loaders who were employed in Pettah area for a continuous period of more than 6 months, participated in the study. Data was collected using a pre-tested, interviewer administered, structured questionnaire which included socio demographic data, data on occupational factors, body pain and health seeking behavior and substance use. Validated perceived stress scale was used to identify the psychological distress among the loaders. Collection of data was done with minimum disturbance to the routine activities of the loaders.

Collection of data was carried out after obtaining informed consent from the study subjects. Ethical clearance for the study was obtained from the Ethical Review Committee of the Faculty of Medicine, University of Ruhuna, Galle.

Statistical analysis was done using Statistical package of

Social Sciences (SPSS) software. At appropriate places, data was expressed as means and standard deviations. Differences between proportions of groups were tested for a statistical significance using the Chi square test. Probability values less than 0.05 were considered significant.

**Table 1.** Frequency distribution of socio demographic data (N=174)

| Demographic variable | Frequency | Percentage |
|---|---|---|
| **1. Age group (years)** | | |
| 18-29 | 30 | 17.2 |
| 30-39 | 48 | 27.6 |
| 40-49 | 31 | 17.8 |
| 50-59 | 48 | 27.6 |
| 60 and above | 17 | 9.8 |
| **2.Ethnicity** | | |
| Tamil | 93 | 53.4 |
| Muslim | 56 | 32.2 |
| Sinhala | 25 | 14.4 |
| **3. Religion** | | |
| Hindu | 80 | 46 |
| Islam | 56 | 32.2 |
| Buddhist | 23 | 13 |
| Christian | 15 | 8.8 |
| **4. Marital status** | | |
| Married | 146 | 83.9 |
| Single | 19 | 10.9 |
| Separated | 4 | 2.3 |
| Widowed | 5 | 2.9 |
| **5. Educational level** | | |
| Never schooled | 16 | 9.2 |
| Up to Grade 5 | 47 | 27 |
| Between Grade 6-11 | 107 | 61.5 |
| A/L and above | 4 | 2.3 |

**Results**

**Demographic Data**

Total number of respondents was 174.All were males. The majority of the participants (27.6%) were within 30-39year and 50-59-year age groups. The mean age of the study population was 42.65 and ranged between 19 and 66 years of age with a standard deviation (SD) of 12.21. The majority of them were Tamils (53.4%) followed by Muslims (32.2%) and Sinhalese (14.4%). The majority (46%) of participants' religion was Hindu followed by Islam (32.2%). Majority of the participants (83.9%) were married. The level of education was average (grade 6-11) among 65.1% and 9.2% of participants had never gone to school.

**Table 2.** Frequency distribution of pain at different sites of the body (N=167)

| Pain Site | Frequency | Percentage % |
|---|---|---|
| Lower Back pain | 107 | 64 |
| Shoulder pain | 65 | 39 |
| Calf pain | 65 | 39 |
| Knee pain | 55 | 33 |
| Spinal pain | 28 | 16.8 |
| Foot pain | 25 | 15 |
| Elbow pain | 21 | 12.6 |
| Neck pain | 17 | 10.2 |
| Fore arm pain | 16 | 9.6 |
| Chest pain | 14 | 8.4 |

Most of the participants had worked as a loader for more than 5 years. The mean (SD) value of working years was 20.84 (12.51) years ranged from 1.5 to 50. Majority of the participants (64.4%) worked 6 days per a week and (95.4%) worked more than 8 hours per a day. The mean weight that participants carried at once was62kg ranged from 8kg to 125kg with a SD of 20.47. Most of the participants (48.3%) stayed within 2-20km of distance from their working place and 42.5% of participants lived less than 2km of distance from their working place. Most of the participants (60.9%) traveled to their working place through public transport service (Bus).

Hundred and sixty-five participants (96%) had suffered from body pain at multiple sites of the body during the last year. Lower back pain (64%) was the major complaint of the participants who suffered from pain followed by shoulder pain (39%), calf pain (39%) and knee pain (33%).

Among the loaders who complained of pain during the last year, 29.4% loaders had pain for more than 3 months. A considerable number of loaders (44.3%) were unable to attend their routine work due to the pain. However, most of the loaders (55.7%) who complained of chronic pain had not taken leave.

In the study population, 18.4% (n=32) of loaders fulfilled the criteria for chronic widespread pain. Participants who complained of pain were 167 and among them 8(4.8%) did not use any medication when they suffered from pain. The major mode of getting medication was buying medication or painkillers from a pharmacy without consulting a medical practitioner. Some used several methods to get medication. But only the main method they practiced is mentioned here.

**Table 3.** Frequency distribution of way of taking treatment/medication (N=167)

| Treatment method | Frequency | Percentage |
|---|---|---|
| None | 8 | 4.8 |
| Taking medications/pain killers from a pharmacy without consulting a medical practitioner | 76 | 45.5 |
| Consulting a medical practitioner | 27 | 16.1 |
| Home remedies | 18 | 10.8 |
| Getting rest for some hours/days | 13 | 7.8 |
| Following Ayurveda medications/ treatments | 13 | 7.8 |
| Other | 12 | 7.2 |

Among the participants, 153 (88%) used one or more substances, 9(5%) did not use any substance and 12 (7%) had never used any substances.

Translated and validated Sinhala version of the perceived stress scale was used to identify the psychological distress among the loaders. According to that, all the loaders had stress due to their lifestyle and occupational factors. According to the scoring system given in the perceived stress scale, scores ranging from 27 to 40 were considered as high perceived stress. Fifty-one-point-seven percent of loaders were found to have high levels of perceived stress.

**Results on correlated factors of chronic widespread pain**

To find out the correlated factors of CWP among loaders, the correlated factors were mainly divided into two groups as life style risk factors and occupational risk factors. Age and substance use were considered as life style risk factors and number of working years and amount of weight carry at once were considered as occupational risk factors. Moreover, the association between the perceived level of stress and CWP among these loaders was significant.

**Table 4.** Frequency distribution of practice of substance use (N=153)

| Statement | Yes | |
|---|---|---|
| | F | P% |
| Have consumed alcohol anytime during life | 143 | 93.5 |
| Currently consuming alcohol | 131 | 85.6 |
| Have smoked anytime during life | 112 | 73.2 |
| Currently smoking | 99 | 64.7 |
| Have chewed beetle anytime during life | 66 | 43.1 |
| Currently chewing beetle | 64 | 41.8 |
| Have used any other substances anytime during life | 17 | 11.1 |
| Currently using those substances | 16 | 10.5 |
| Using any of above substances to relieve pain when suffering from body aches or pain | 45 | 29.4 |

Chi square($X^2$) test was used to find out the significant difference between two groups. At 95% confidence interval, p-value was observed. The p-value less than 0.05 was considered as statistically significant. It revealed that there was a highly significant association between chronic widespread pain with ascending order of age and perceived stress. Substance use, number of working years as a loader and amount of weight carried at once did not show any association with CWP.

**Discussion**

This study was carried out to identify the prevalence and the correlated factors of CWP among loaders in Pettah area, Sri Lanka. According to the results, there was a significant prevalence (18.4%) of CWP among loaders in Pettah. Age and psychological distress were significantly associated with the CWP. When compared to the prevalence of CWP in the general public, the prevalence of CWP among loaders showed a comparatively similar prevalence.[2] Increasing age showed a significant association with musculoskeletal pain.

**Table 5.** Association between CWP with some general factors

| | CWP | | Total | $X^2$ value | P-Value | $H_0$ |
|---|---|---|---|---|---|---|
| | Positive | Negative | | | | |
| **1.Age** | | | | | | |
| Below 30 years | 02 | 32 | **34** | 6.210 | 0.045 | R |
| 31-49 years | 13 | 62 | **75** | | | |
| 50 years and above | 17 | 48 | **65** | | | |
| **Total** | **32** | **142** | **174** | | | |
| **2.Substance use** | | | | | | |
| Currently using | 26 | 127 | **153** | 1.649 | 0.199 | A |
| Currently not using | 06 | 15 | **21** | | | |
| **Total** | **32** | **142** | **174** | | | |
| **3.Working years** | | | | | | |
| Below 20 years | 17 | 80 | **97** | 0.109 | 0.741 | A |
| Above 20 years | 15 | 62 | **77** | | | |
| **Total** | **32** | **142** | **174** | | | |
| **4.Amount of weight carry at once** | | | | | | |
| 62kg and lower | 20 | 87 | **107** | 0.017 | 0.897 | A |
| Higher than 62kg | 12 | 55 | **67** | | | |
| **Total** | **32** | **142** | **174** | | | |
| **5.Percieved stress** | | | | | | |
| Average | 06 | 78 | **84** | 13.690 | 0.000 | R |
| High | 26 | 64 | **90** | | | |
| **Total** | **32** | **142** | **174** | | | |

A= Null hypothesis accepted
R= Null hypothesis rejected

35.5 percent of participants had been working as a loader for more than 26 years which indicates most of them had started working as a loader at their teen age. As the main mode of income of loaders depend on the amount of weight they carry, most of them (55.2%) carried 31-60kg of weight and 27% of loaders carried 61-90kg at one time, and many turns in a day. Nearly 80% of loaders worked more than five days per week and 95% of loaders worked more than eight hours per day. According to loaders, the reason for this was if they did not attend work for one day, they were unable to compensate their own and family living cost for several days. 91% percent of loaders lived less than 20km distance from their working place. 27% percent attended their workplace on foot and public transport service (bus) was the main mode of transport of others (60.9%). Some of the loaders were from long distance (up-country) and had boarded in Colombo, living apart from their family members and visiting their family once a month or once in two months.

This study revealed that 96% of loaders had suffered from body pain at single or multiple sites of the body during last year. Lower back pain was the most prevalent (64%) individual problem. Other commonly reported problems included shoulder pain (39%), calf pain (39%), knee pain (33%), spinal pain (16.8%), foot pain (15%), elbow pain (12.6%), neck pain (10.2%), forearm pain (9.6%) and chest pain (8.4%). Seventy point six percent of loaders revealed that they had persistent pain for more than three months mainly when they got some rest or during nighttime. This indicates that their chronic pain was masked by their heavy work during the daytime. Although the majority of them suffered from body pain, only 44.3% of them revealed that they were unable to attend work due to pain. Among them, 41.3% had taken leave for less than one week due to body pain. Because of their low socio-economic background, even with the pain, they attended their work and had medication to relieve the pain. Some of them used more than one method to get medication for pain. Buying medication or painkillers from a pharmacy without consulting a medical practitioner was the health seeking behavior practiced by the majority of these loaders.

According to the Manchester definition of chronic widespread pain, 18.4% of loaders fulfilled the criteria for chronic widespread pain and were found to have CWP. Even if the information on research studies carried out to identify CWP among loaders in Sri Lanka or in other countries is lacking several research studies carried out to identify the prevalence and associated factors of CWP in different populations in Sri Lanka and other countries are available.

A cross sectional study of 2,034 adults in North England revealed that the point prevalence of CWP was 11.2% and pain was strongly associated

with other somatic complaints, depression and anxiety.[4] Another study conducted among 361 community-dwelling elderly individuals living in São Paulo, Brazil revealed the prevalence of CWP was 14.1%. [21]

Some studies have revealed that the use of substances is a common behavior among people with low socio economic background and it is a triggering factor for CWP. A study conducted among 2148 wage and salary workers in the United States explored that approximately 63.09% could easily bring alcohol into work, use alcohol while working, use alcohol during lunch and other breaks, or obtain alcohol at work. Similarly, 59.05% could easily engage in the same behaviors regarding illicit drugs. [22]

Our study revealed that 88% of participants currently use substances. Among them 85.6% consume alcohol, 64.7% are smokers, 41.8% chew beetle and 10.5% use other substances. Heroin (6.6%) and cannabis (3.9%) were the commonly used other substances in this study. Also 70.6% of participants used substances to relieve pain when they suffered from body pain.

All loaders in this study were found to have stress and among them 51.7% had high level of stress with their life style and occupational factors.

The prevalence of CWP showed an increasing trend with ascending order of age group (p=0.045) and revealed highly significant association with stress (p=0.000) which was in accordance with the findings of previous studies. No association was found between CWP and the use of substance, number of working years as a loader and amount of weight carried at once. Consuming alcohol or substances was the most common habit and pleasure activity among the loaders.

Selecting the sample conveniently is a limitation of this study. In addition, the perception regarding the severity of musculoskeletal pain is highly subjective which limits the accuracy of the results.

A significant proportion of loaders suffer from CWP and it is associated with psychological distress. CWP adversely affects the activities of daily living and the quality of life of individuals. Loaders continue to work despite pain and tend to use substances as a pain relief method. Therefore, implementing programs to routinely screen loaders for chronic widespread pain and to increase awareness on proper treatment modalities is important. They should be introduced on the methods to minimize chronic pain including modified ergonomics for carrying load. There should be a system where loaders can have adequate rest in between their working days and practice relaxation therapies. Rehabilitation therapies along with pain coping strategies should be offered to the detected loaders with chronic widespread pain at the time of detection and they should be facilitated during recovery periods.

**References**


1. Kumar, P. & Clark, M., 2017. *Clinical medicine,18,pp* 663-665, 9th ed. Spain: Saunders Elsevier.
2. Mansfield KE, Sim J, Croft P, Jordan KP., 2017. Identifying patients with chronic widespread pain in primary care. *Pain*, 158(1):110-119.
3. Andrews, P., Steultjens, M. and Riskowski, J., 2018. Chronic widespread pain prevalence in the general population: a systematic review. *European Journal of Pain*, *22*(1), pp.5-18.
4. Croft, P. et al., 1996. More pain,more tenderpoints:is fibromyalgia just one end of a continuous spectrum. *Annals of rheumatic diseases*, 55(7), pp.482-85. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1010214/.
5. Staud, R., 2009. Chronic widespread pain and fibromyalgia: two sides of same coin? *Current rheumatology reports*, 11(6), pp.433-36. Available at: http://www.practicalpainmanagement.com/painscan/abstract/chronic-widespread-pain-fibromyalgia-two-sides-same-coin.
6. Ablin, J.N. et al., 2012. Is fibromyalgia a discrete entity? *Autoimmune reviews*, 11, pp.585-88. Available at: http://library.tasmc.org.il/Staff_Publications/publications%202012/ablin.pdf.
7. Wolf, F. & Michaud, K., 2009. Outcome and predictor relation relationship in fibromyalgia and rheumatoid arthritis:evidence concerning the continuum versus discrete disorder hypothesis. *Journal of Rheumatology*, 36(4), pp.831-36. Available at: http://www.ncbi.nlm.nih.gov/pubmed/19228653.
8. Fabiola Atzeni, Marco Cazzola, Maurizio Benucci, Manuela Di Franco, FaustoSalaffi, PiercarloSarzi. 2011. Chronic widespread pain in the spectrum of rheumatological diseases. *Best Practice & Research Clinical Rheumatology* 25(2), 165-171. Available at:https://www.sciencedirect.com/science/article/pii/S1521694211000040.
9. Kato, K., Sullivan, P.F., Evengard, B. & Pederson, N.L., 2006. Chronic widespread pain and its cormorbidities: a population based study. *Archives of internal medicine*, 166(15), pp.1649-54. Available at: www.ncbi.nlm.nih.gov/pubmed/16908799.
10. Bigatti, S.M., Hernandez, A.M., Cronan, T.L. & Rand, K.L., 2008. Sleep disturbances in fibromyalgia syndrome: Relationship to pain and depression. *Arthritis and Rheumatism*, 59(7), pp.961-67. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3691959/.
11. MacFarlane, G.J., Croft, P.R., Schollum, J. & Silman, A.J., 1996. Widespread pain: is an improved classification posibble? *Journal of Rheumatology*, 23(9), pp.1628-32. Available at: http://www.ncbi.nlm.nih.gov/pubmed/8877936.

12. Mc Beth, J. et al., 2009. Musculoskeletal pain is associted with a long term increased risk of cardiovascular related mortality. *Rheumatology(oxford)*, 48(1), pp.74-77. Available at: http://www.ncbi.nlm.nih.gov/pubmed/19056799.

13. Larsson B, Jonas BjÖrk, BjÖrnBÖrsbo, BÖjrnGerdle, 2012. A systematic review of risk factors associated with transitioning from regionl musculoskeletal pain to chronic widespread pain. *European Journal of Pain* 16(8), pp1084-1093. Available at: https:/ onlinelibrary.wiley.com/doi/abs/10.1002/j.1532-21492012.00117.x.

14. Claw, D.J., 2007. Fibromyalgia:update on mechanism and management. *Journal of clinical Rheumatology*, 13(2), pp.102-09. Available at: http://www. jclinrheum.com].

15. Bergman, S., 2005. Psychological aspects of chronic widespread pain and fibromyalgia. *Disability and Rehabilitation*, 27(12), pp.675-83. Available at: http://www.ncbi.nlm.nih.gov/pubmed/16012060.

16. Macfarlane, G., Mcbeth, J., Benjammin, S. & Silman, A.J., 2001. Features of somatization predict the onset of chronic widespread pain: results of a large population based study. *Arthritis and Rheumatism*, 44(4), pp.940-46. Available at: http://onlinelibrary.wiley.com/doi/10.1002/1529-0131%28200104%2944:4%3C940:AID-ANR151%3E3.0.CO;2-S/epdf

17. Carmona, L., Ballina, J., Gabriel, R. & Laffon, A., 2001. The burden of musculoskeletal diseases in the general population of spain: results from a national survey. *Annals of the rheumatic diseases*, 60(11), pp.1040-45. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1753418/.

18. Gupta A, Silman AJ, Ray D, Morriss R, Dickens C, MacFarlane GJ, Chiu YH, Nicholl B, John Mcbeth, 2007. The role of psychological factors in predicting the onset of chronic widespread pain:results from a prospective population- based study. *The journal of rheuamatology* 46(4),pp 666-671. Available at: https://academic.oup.com/rheumatology/article-absract/46/4/666/2281779.

19. Henriksson, C.M., Leidberg, G.M. & Gerdle, B., 2005. Women with fibromyalgia:work and rehabilitation. *Disability and rehabilitation*, 27(12), pp.685-94. Available at: http://www.ncbi.nlm.nih.gov/ pubmed/16012061.

20. White, K.P., Speechley, M., Harth, M. & Qstbye, T., 1999. Comparing self reported function and work disability in 100 community cases of fibromyagia symdrome versus controls in london, ontario: the london fibromyalgia epidemiology study. *Arthris and Rheumatism*, 42(1), pp.76-83. Available at: http://www.ncbi.nlm.nih.gov/pubmed/9920017.

21. Frone, M.R., 2012. Workplace substance use climate: Prevalence and distribution in the U.S. *Journal of substance use*, 71(1), pp.72-83. Available at: http:// www.ncbi.nlm.nih.gov/pubmed/23258960.

22. Santos, M.B.A. et al., 2010. Prevalence of fibromyalgia and chronic widespread pain in communiy-dwelling elderly subjects living in Sao Paulo,Beazil. *Maturitas*, 67(3), pp.251-55. Available at: http://www.maturitas.org/article/S0378-5122%2810%2900282-3/fulltext.