International Journal of Physiotherapy and Research,
Int J Physiother Res 2023, Vol 11(1):4442-52. ISSN 2321-1822
DOI: https://dx.doi.org/10.16965/ijpr.2022.184

Original Research Article

Influence of work, home and lifestyle related factors during COVID-19 lockdown on presentation of pain and functional status among school teachers with chronic nonspecific low back pain – An Online Survey

Anisha Gulati [*1], Sharvari Sardeshmukh [2], Suruchi Sawant [2], Seeba Mohamed Ibrahim[2], Avani Shah [2], Shreeya Salunkhe [2].

[*1] Assistant Professor, Musculoskeletal Physiotherapy, Department of Physiotherapy, MGM School of Physiotherapy, Navi Mumbai, India.

[2] Intern, MGM School of Physiotherapy, Navi Mumbai, India.

ABSTRACT

Introduction: Large numbers of teachers are affected by Low Back Pain (LBP) and often report limitations in performing daily activities. The prevalence of LBP was high in the population that was confined to their houses due to COVID-19 lockdown.

Objective: To study the Influence of Work, Home and Lifestyle related factors during COVID-19 lockdown on presentation of pain and functional status among school teachers with chronic nonspecific LBP.

Methods: A total of 229 school teachers residing in India participated in the study. A self-administered, structured questionnaire, composed of 18 questions including various domains of life was administered; along with 13 activities of daily living and a scale to rate the difficulty level while performing.

Results: Among work related activities: Prolonged sitting (p = 0.022), Gadget use (p=0.058), Twisting and turning (p = 0.035) and walking (0.036); whereas, among Home related activities: Lifting and carrying (p = 0.060) and House chores (p = 0.036) had an influence on pain. Body mass index (p=0.005) and emotional status (p=0.01) had significant correlation with intensity of pain. The most difficulty was reported in performing prolonged sitting activity.

Conclusion: Covid-19 lockdown had a significant influence on work and home-related activities and lifestyle of Indian school teachers which ultimately had an effect on LBP and functional status.

KEYWORDS: Low back pain, school teachers, functional status, COVID-19 lockdown.

Address for correspondence: Dr. Anisha Gulati (PT), Assistant Professor, Musculoskeletal Physiotherapy, Department of Physiotherapy, MGM School of Physiotherapy, Navi Mumbai, India. **E-Mail**: agulati@mgmsopnm.edu.in

Access this Article online	Journal Information
Quick Response code	**International Journal of Physiotherapy and Research** ISSN (E) 2321-1822 | ISSN (P) 2321-8975 **https://www.ijmhr.org/ijpr.html** **DOI-Prefix:** https://dx.doi.org/10.16965/ijpr
DOI: 10.16965/ijpr.2022.184	**Article Information** Received: 23 November 2022 Peer Review: 25 November 2022 Accepted: 11 Januray 2023 Published (O): 11 February 2023 Published (P): 11 FEbruary 2023

INTRODUCTION

Low back pain (LBP) is defined as any pain or discomfort localized between the costal margin (bottom of ribs) and above the inferior gluteal folds (top of legs), with or without related leg pain from any cause [1].

LBP has a strong tendency to develop into a chronic pain. Work-related LBP is any back pain originating in the context of work and considered clinically to have been probably caused, contributed or exacerbated by the job demands [2].

The World Health Organization (WHO) reported that up to 70% of the population in industrialized countries will experience non-specific LBP in their lifetime [3]. World Health Organization has identified LBP as one of the top three occupational health issues to be targeted by surveillance within the WHO [4].

Literature available on LBP and its prevalence among teachers suggest that teachers are subject to various occupational stressors. Considering the current situation, work conditions, hours and pattern of work has changed remarkably, the effect of which is not well studied in detail. There is a paucity of literature about impact of effects of lockdown on teachers, specifically those employed in India. Thus, with present research an attempt has been made to study the impact of Covid-19 lockdown on the presentation of pain among school teachers who experience chronic non-specific low back pain. Along with presentation of pain, this research also attempts to study its implications on the functional status of these school teachers.

MATERIALS AND METHODS

Ethical approval: Present Study commenced after approval of research proposal by the Institutional Ethics Review Committee, MGM Institute of Health Sciences, Kamothe, Navi Mumbai. Dated – 15th March, 2021. (MGM/DCH/IED/47/2021)

Inclusion criteria: The inclusion criteria were - school teachers with work experience of 2 years or more; currently conducting online lectures for at least 2 hours/day and 5 days/week; school teachers experiencing nonspecific LBP since more than 12 weeks (before lock-down).

Exclusion criteria: The exclusion criteria were school teachers with experience of less than 2 years; those who are not teaching currently; teachers with Acute/ Sub-acute (less than 12 weeks) LBP; Pregnant women; recently suffered from musculoskeletal injuries or neurological conditions; those who had suffered from back injury or undergone spinal surgery.

Sample selection process Table 1)

Outcome variables:

Pain presentation; Visual Analogue Scale was used to measure the intensity of pain, which is a valid and reliable scale for the same [5].

Functional status: A self-administered, structured questionnaire, composed of 18 questions was circulated which included the following dimensions: (a) demographic characteristics (age, gender, height, weight etc.), (b) work- or academic-related aspects (the type of work or academic activity performed before and after the quarantine and type of activities performed while working or studying), (c) Physical activity (type, frequency, duration), (d) daily habits and tasks (sitting, moving), (e) Pain-related aspects (location and intensity before and after the quarantine), and (f) Psychological aspects (stress level before and during quarantine) along with a table consisting of 15 functional activities and a scale to rate the difficulty level of these functional activities.

Difficulty level was rated from 'no difficulty at all' to 'cannot perform'. To facilitate the understanding of questionnaire, all items were written in simple, short, and easily understandable language. Before drafting the questionnaire, it was subjected to a validation process.

Table 1: Sample selection process.

Target population	Indian School teachers
Sample frame selection	According to Inclusion and exclusion criteria as mentioned above
Sampling technique selection	Purposive sampling
Determine sample size	GPower application was used. The interval of confidence was set at 95%, the margin of error at 5%, and the probability of success at 0.5. Once the calculation was performed, it was determined that the minimum number of subjects that the on-line survey should reach was approximately 555 in order have a representative sample to of the studied population of 222 with a response rate of minimum 40%.
Data collection	Data was collected using a self-administered structured questionnaire distributed through Google forms.

METHODS

Explorative study was undertaken via online survey. A pilot study was conducted to evaluate validity and reliability of the questionnaire to be used. The pilot study included teachers from MGM School of Physiotherapy, Navi Mumbai. After successful completion of the pilot study, the present study was undertaken. (figure 1)

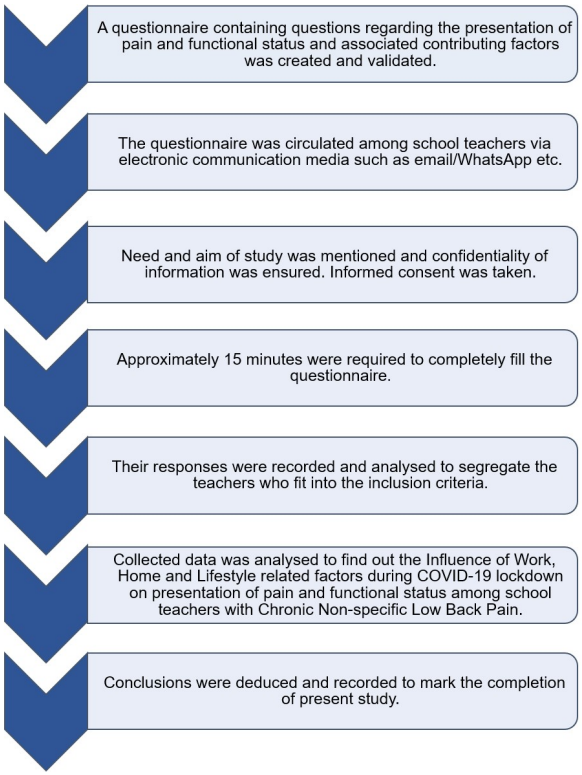


Fig.1: Plan of Study

Statistical analysis: Analysis was carried out using IBM SPSS tool version 24.

The level of statistical significance was set at $p \leq 0.05$. Variables - Age, Body Mass Index (BMI) and Numerical Pain Rating Scale (NRS) are presented as Mean and Standard Deviation. Kolmogorov-Smirnov (K-S) and Shapiro-Wilk tests were used to verify normality. The data collected regarding pain presentation and Functional status is presented as Descriptive Analysis (Measures of Variability and Measures of Position). The distribution of reported work and home related activities were compared with the types of pain and sites of pain. Since the data set was ordinal and nominal, Kruskal-Wallis H test and Jonckheere-Terpstra test were used. Since the data set was ordinal, non-parametric co-relation test was used. Thus, the Spearman test was used to calculate the correlation between Lifestyle factors like, Body Mass Index (BMI), Emotional Status and Physical Activity level during lock-down with Intensity of pain experienced [Numerical Pain Rating Scale (NRS)]. The level of significance was set at $p < 0.05$. The percentage of change was calculated using the following formula: percentage change = ([final value - initial value]/initial value) x 100.

RESULTS AND TABLES

The Google form reached approximately more than 555 school teachers, 393 filled the Google form, out of which 229 school teachers fulfilled the inclusion criteria which is a 58% response rate. Participants' ages ranged from 24 years to 64years (M=42.81, SD=8.78).

Work related activities that the participants were involved in, before and during lockdown, were analysed. During lockdown majority of participants were involved in Prolonged sitting (74.6%). Least common activity was Prolonged standing (2.62%). However, out of 229 partici-pants, 48.47% reported that the time spent in work related activities had increased during lockdown, 45.85% reported time spent in work related activities was same as before and 5.68% reported time spent in work related activities had decreased during lockdown.

Home related activities that the participants were involved in, before and during lockdown, were analysed. During lockdown majority of participants were involved in Prolonged sitting (78.6%). Least common activity was Prolonged standing (7.86%). Out of 229 participants, 69.87% reported that the time spent in home related activities has increased during lockdown as compared to that before lockdown; 29.69% reported that the time spend in home related activities remained the same during lockdown. Whereas only 0.44% reported that the time spent in home related activities decreased during lockdown.

The Nutritional status of the participants was identified using Body Mass Index and categorised according to the WHO criteria. The mean body mass index was found to be 25.9, SD= 4.56. (Minimum = 17.23, Maximum = 46.64).

Table 2: Comparison of work-related activities with type, intensity and site of pain.

Grouping Variable	Test Variable		Chi-square (Kruskal Wallis test) and Joncheere – Terpstra Test	Significance level (p value)
Site of pain	Work related activities – During lockdown	Prolonged sitting	7.506	p = 0.022 (2-tailed)
		Gadget use	4.036	p = 0.058 (2-tailed)
Type of pain	Work related activities – During lockdown	Twisting and turning	10.36	0.035
		Commute	10.52	0.032
		Walking	10.25	0.036
Intensity of pain (NRS)	Work related activities – During lockdown	Gadget use	27.56	p = 0.001
Site of pain	Work related activities – Before lockdown	Bending activities	12.244	p = 0.032
		Commute	11.469	p = 0.005 (2-tailed)
		Carrying heavy backpack/purse	2.714	p = 0.042 (2-tailed)
Type of pain	Work related activities – Before lockdown	Prolonged sitting	7.423	p = 0.045 (2-tailed)
		Bending activities	8.866	p = 0.065 (weakly significant)
		Twisting and turning	14.485	p = 0.006
		Walking	10.806	p = 0.029
Intensity of pain (NRS)	Work related activities – Before lockdown	Twisting and turning	23.369	p = 0.002 (2-tailed)
		Walking	30.424	p = 0.004 (2-tailed)

Table 3: Comparison of home-related activities with type, intensity and site of pain.

Grouping Variable	Test Variable		Chi-square (Kruskal Wallis test) and Joncheere – Terpstra Test	Significance level (p value)
Type of pain	Home related activities – During lockdown	Lifting and carrying activities	9.032	p = 0.060 (Weakly significant)
Intensity of pain (NRS)	Home related activities – During lockdown	House chores	17.898	p = 0.036
		Lifting/ Carrying activities	16.306	p = 0.061 (Weakly significant)
Site of pain	Home related activities – Before lockdown	Lifting/ carrying activities	14.83	p = 0.011
Type of pain	Home related acti vities – Before lockdown	Lifting/ Carrying activities	10.359	p = 0.035
		Child care/ care of dependent	13.284	p = 0.010
		Twisting and turning	14.485	p = 0.006
		Prolonged sitting	3.808	p = 0.072 (2-tailed) (Weakly significant)
Intensity of pain (NRS)	Home related activities – Before lockdown	House chores	15.677	p = 0.074 (weakly significant)

Table 4: Correlation of intensity of pain with body mass index, emotional status and physical activity level.

Variable 1	Variable 2	Correlation coefficient	Significance level (p value)
Body Mass Index (BMI)	Intensity of pain (Numerical pain rating scale - NRS)	Spearman's rho (rs) = 0.169	p = 0.005 (Significant)
Emotional status	Intensity of pain (Numerical pain rating scale - NRS)	Spearman's rho (rs) = -0.203	p = 0.01 (Significant)
Physical activity level	Intensity of pain (Numerical pain rating scale - NRS)	Spearman's rho (rs) = -0.066	p = 0.161 (non-significant)

Fig. 2: Scatter plot representing positive correlation between Body Mass Index and intensity of pain.

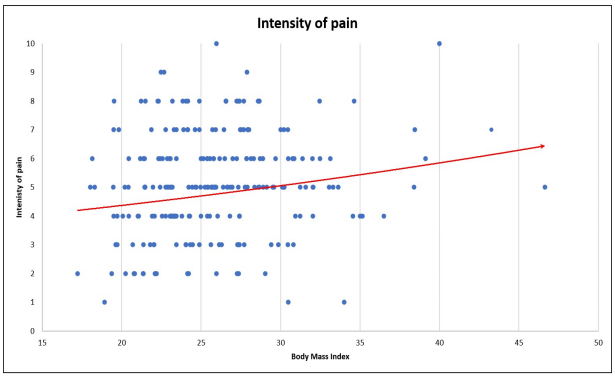
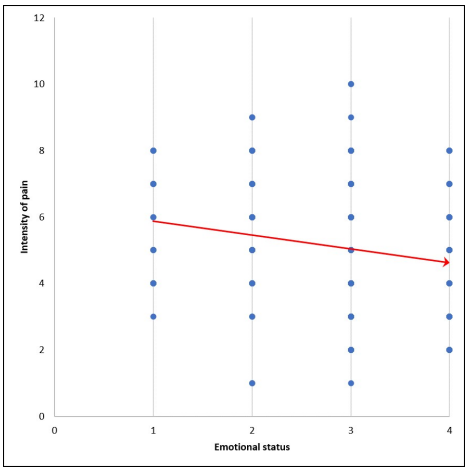


Fig. 3: Scatter plot representing negative correlation between emotional status during lockdown and intensity of pain.



Majority of the participants belonged to Normal BMI (43.23%) category, followed by Pre-obesity (35.81%), followed by Obesity Class I (10.92%), followed by Obesity Class III (5.68%), followed by Obesity Class II (2.62%). The remaining 1.75% participants belonged to the underweight category.

Lifestyle of the participants were analysed. During lockdown 80.34% participants reported sedentary lifestyle, 11.79% participants reported Active lifestyle, and only 1.74% reported Sporty/Athletic lifestyle.

Emotional status of the participants during lockdown was analysed. Significant increase was seen in number of participants who reported that they "often felt sad or low in energy during lockdown" (percentage change of 147.36%) and those who reported that they "always felt sad or low in energy during lockdown" (percentage change of 100%). 25.84% increase was found in number of participants who reporter they "sometimes felt sad or low in energy during lockdown." Whereas the number of participants who reported that they "never felt sad or low in energy" declined by -40.54%.

Among the listed work-related activities (Refer Table 2), during lockdown, prolonged sitting ($p = 0.022$), gadget use ($p=0.058$) had an influence on site of pain, twisting and turning ($p = 0.035$), commute ($p=0.032$) and walking (0.036) had an influence on type of pain and gadget use ($p = 0.001$) influenced the Intensity of pain. [Table 2]

Among the listed home-related activities during lockdown (Table 3), lifting and carrying activities had a weak influence on type of pain ($p = 0.060$), intensity of pain ($p = 0.061$) and House chores ($p = 0.036$) had an influence on intensity of pain.

Using Spearman test (Refer Table 4) on the data ($r_s = 0.169$, $N = 229$) the results were found to be significant ($p = 0.005$ for a one tailed test) (Table 4.9-mentioned below). Thus, there is a positive correlation between the variables, such that Higher the BMI of an individual, Higher the intensity of pain experienced among school teachers with chronic nonspecific LBP (Figure 2).

Using Spearman test on the data ($r_s = -0.203$, $N = 229$) the results were found to be significant ($p = 0.01$ for a one tailed test) thus there is a negative correlation between the variables, such that Better the emotional status, lower the intensity of pain experienced among school teachers with chronic nonspecific Low back pain. (table 4).

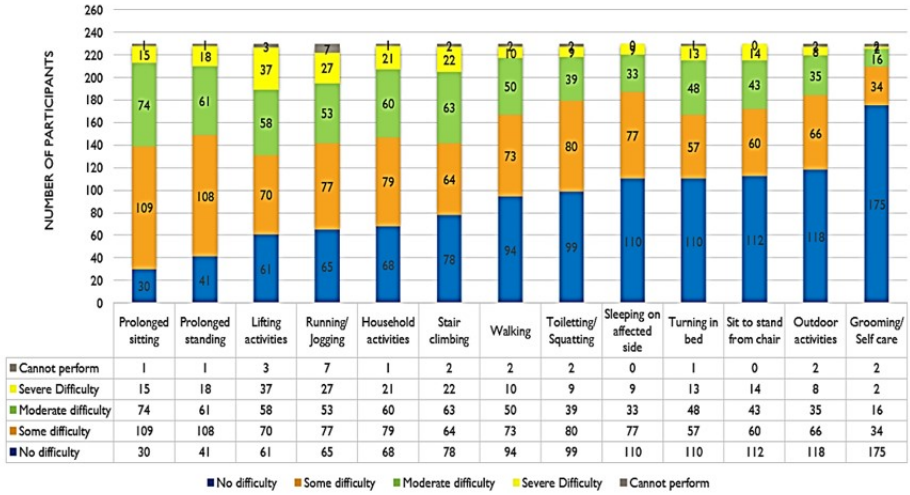
Mean Intensity of pain rated on numerical pain rating scale (NRS) was found to be 5.14 and Standard Deviation of 1.85.

The most common site of pain reported was localised to low back (69.87%). the most common type of pain reported was Muscle pain (50.66%), majority of the participants (79.91%) reported Intermittent pain. Majority of the participants (41.92%) reported pain during Lumbar Flexion.

Functional status of participants during lockdown was identified.

The most limited functional activity was prolonged sitting and the least limited was Grooming/self-care activities (Figure 4).

Fig. 4: Bar chart representing Functional status in decreasing order of difficulty experienced.



	Prolonged sitting	Prolonged standing	Lifting activities	Running/ Jogging	Household activities	Stair climbing	Walking	Toiletting/ Squatting	Sleeping on affected side	Turning in bed	Sit to stand from chair	Outdoor activities	Grooming/ Self care
Cannot perform	1	1	3	7	1	2	2	2	0	1	0	2	2
Severe Difficulty	15	18	37	27	21	22	10	9	9	13	14	8	2
Moderate difficulty	74	61	58	53	60	63	50	39	33	48	43	35	16
Some difficulty	109	108	70	77	79	64	73	80	77	57	60	66	34
No difficulty	30	41	61	65	68	78	94	99	110	110	112	118	175

DISCUSSION

COVID – 19 is a virulent communicable disease caused by severe acute respiratory syndrome. It was first found in December 2019 in Wuhan, Hubei, China and has led to a global wide-spread pandemic. The entire population of the world is facing challenges due to the impact of COVID-19 lockdown [6]. The COVID -19 lockdown started in India from midnight of 25th march, 2020 and had negative impact on physical health, mental health, social well-being [7].

Low back pain (LBP) is found to be one of the most common debilitating musculoskeletal conditions among adults affecting their quality of life and physical activities [8]. 46% of teachers in India are affected by LBP [9]. Age, body Mass Index, job satisfaction and length of working hours are associated with LBP among school teachers. Desk related work, paper correction, prolonged standing and sitting has highest impact on LBP amongst the school teachers [10]. Prolonged sitting, static posture, and insufficient back support are positively associated with both neck pain and low-back problems among teachers [11]. Bauer J, et al, found that certain specific characteristics of teachers' occupational physical activities may induce strain and therefore have an effect on their perceived physical and mental health [12]. Significant differences in LBP intensity are reported by the subjects who conducted teleworking or distance learning during the lockdown but not before. A feasible explanation of this matter could be related to the workload that was undertaken [13].

The current lockdown which brought work from home situation has impacted physical and mental health of the teachers [14].

The percentage of people using computers is increasing in home, school and work environments. Increased computer usage may lead to increased incidence of work-related musculoskeletal injuries. Yet, proper computer workstation ergonomics training is not readily available [15]. Studies have also confirmed that sitting for more than 3 hours daily could be a risk factor for LBP [16]. Individuals with LBP have higher intervertebral disc compressive forces during standing than those without LBP. Even though the intervertebral disc compressive forces during static standing was small, the increase in these forces contributed to LBP [17]. Uneven pressure on the intervertebral discs has been reported when the lumbar vertebrae are in a flexed or an excessively extended position. Consequently, poor posture may lead to LBP from a mechanical point of view [18].

Obese females who predominantly perform manual activity or heavy lifting, bending or squatting at work have higher intensities of LBP and disability, independent of their recreational activities [19]. Modifications of ergonomics in working conditions may reduce the frequency of these complications. The habit of carrying heavy loads, awkward back postures, long term repetitive physical activities, psychosocial stressors and long-term standing must be reduced [20].

Female teachers are culturally and socially obliged to perform almost all home activities which results in a heavier work load and greater risk to LBP than male teachers [21]. Women frequently perform household tasks such as mopping/cleaning in narrow or difficult to reach spaces that require awkward postures, such as bending, kneeling and squatting. Along with it the time management with respect to household chores and taking online classes, preparing for lectures, seminars and tests was a challenge. The lack of experience in conducting online lectures, use of technology, challenges faced in effective communication, altered/reduced quality of lectures and a general state of anxiety because of the lockdown situation and the spread of the infection, were also the causative factors for stress among teachers [12].

Non-specific LBP affects people of all ages. It is a leading contributor to worldwide disease burden [22]. A positive correlation was found between Body Mass Index (BMI) and intensity of pain such that participants with higher BMI reported higher intensity of pain. Various studies support this finding. Study conducted by Rita Neil Vilar Furtado, et al, found that there was a negative association between nonspecific LBP and BMI among young adults [23,24]. Spinal loads markedly increased with body weight, especially with greater waist circumferences. The risk of vertebral fatigue fracture is also substantially increased with greater waist circumferences [25]. Obesity may increase the load on lumbar intervertebral disc, affect its metabolism and accelerate its degeneration. Thus, obesity is a significant risk factor of lumbar disc herniation [26].

A meta-analysis conducted by Ting-ting Zhang, et al, concluded that maintaining a healthy body weight may be one of the factors for preventing the occurrence of LBP [27].

A study conducted by Heneweer et al., found that sedentary lifestyle was associated with 1.41 times greater risk of developing back pain, whereas people who do not comply with the current recommendations of physical activity have 1.23 times more chances of developing LBP [28]. In a meta-analysis of 14 studies, an inverse relationship between physical disability due to LBP and physical activity was observed, indicating that lower levels of physical activity correspond with higher levels of disability [29]. Both obesity and low level of physical activity are independent risk factors for radiating LBP. Hence Moderate level of physical activity is recommended for the prevention of LBP, especially in obese individuals [30].

Depressive and anxiety neuroses are the most common psychiatric disorders associated with back pain [31]. A systematic review by J bletzer, et al, stated that the pain perception in individuals with LBP is associated with depression and fear. The correlation between depression and pain perception was highly significant in 5 studies and significant in 8 studies. Fear and pain perception were highly significant in 4 studies and significant in 3 studies [32]. A study conducted by Daniela Oliveira, et al, found that among older adults majority of patients had both anxiety and depression and experienced higher intensity of pain and higher pain-related disability [33]. Although a definitive answer on the effect of depression on the course of LBP is not available, the findings of this systematic review suggest that depression might have an adverse effect on the prognosis of LBP [34].

To find the intensity of pain experienced by school teachers a numerical pain rating scale was used. A numerical rating scale (NRS) requires the patient to rate their pain on a defined scale. An 11-point scale was used (0–10), where 0 is no pain and 10 is the worst pain imaginable [35]. Bone pain tends to be deep, boring and localized. Vascular pain tends to be diffuse, aching, and poorly localized, sometimes presenting as sharp shooting pain. Muscle pain is usually dull and aching or stretch type. Radiating pain or radicular pain occurs when pressure is applied to a nerve root and results from pressure on the dura mater, which is the outermost covering of the spinal cord. Continuous or Constant pain suggests chemical irritation, tumours, or possibly visceral lesions. This type of pain is always present, although its intensity may vary. While, Intermittent (including occasional and Episodic pain) is more likely to be mechanical

and related to movement, stress or specific activities [36]. Maximum patients with LBP report pain during lumbar flexion. The passive flexion stiffness of the lumbar spine increases due to prolonged sitting and increase the risk of LBP [37]. LBP patients have reduced lumbar movements, and the variation from normal movements may point towards the pathology and the functioning of the lumbar spine [38]. Association of the active lumbar flexion ranges measures and disability were low, hence people with LBP shouldn't be given flexion active range exercises for management [39].

LBP causes functional limitations. Sleeping, walking and personal care were the 3 most important functions for adults. However, when the patients report their current experience in functions, greatest difficulty is experienced in lifting [40]. Bontrup, C et al (2019) studied LBP and its relationship with prolonged sitting among sedentary office workers and found an association between prolonged sitting behavior and chronic LBP [41]. There is an association between LBP and functional limitations in activities of daily living in adults, which included getting dressed/Grooming, walking, climbing stairs and bending activities [42]. S G Leveille, et al, conducted a study which examined the relationship between the presence and severity of LBP and disability in women. It was found that women had significant difficulty with light housework and shopping (outdoor activities). Studies also report difficulty with mobility tasks and basic ADLs among those with severe back pain [43]. Squatting is a part of daily activities such as sitting down, standing up or lifting objects etc. The findings of the study done by Magdalena Zawadka, et al, supports the hypothesis that the pattern of squatting is altered in subjects with back pain [44].

Edwige Simonet, et al, concluded that patients with non-specific chronic LBP indicated reduced average Lumbar Lordosis Angles (LLA) during standing, walking and running activities, indicating that the movement pattern is affected [45]. Poor sleep quality among individuals with chronic LBP appears to be related to increased pain, affect and poor physical functioning. According to a study done by James I Gerhart, et al, poor sleepers reported higher pain, and negative mood and low function. Hence Sleep quality is related not only to pain intensity but also to patient mood and function factors [46].

CONCLUSION

COVID-19 lockdown had significant influence on the work, home related activities and lifestyles of Indian school teachers. Which in turn, had an effect on LBP and functional status.

Work related activities during lockdown that had an effect on LBP were - prolonged sitting, gadget use, lumbar rotations and walking. Whereas, home related activities during lockdown that had an effect on LBP were mainly lifting, carrying activities and house chores. Higher the BMI, higher is the intensity of pain.

The most common site of pain was localised to lower back region and type of pain was Myofascial pain. Most limitation was found in Lumbar flexion range of motion.

The most limited functional activities were prolonged sitting, prolonged standing, followed by lifting activities, running/jogging, household activities, stair climbing, walking, toileting/squatting activities, sleeping on affected side, turning in bed, sit to stand, outdoor activities and grooming/ self-care activities in the decreasing order of difficulty.

Limitations: Although the research has reached it aims, present study has a limitation. It was not feasible to compare the changes in pain and functional status before and during the COVID -19 lockdown since recall memory is not reliable to collect the data regarding corresponding parameters before lockdown.

Clinical implication: Present study aids awareness and helps in identification of school teachers with LBP that are most likely to benefit from physical therapy interventions. It also signifies the relation of Age and body mass index on chronic LBP amongst teachers that direct the researchers to provide precise exercises according to the classification of Body

Mass Index and age.

Future scope: There is paucity of literature regarding the presentation of pain and functional status among Indian school teachers. This study also provides direction for further research based on clinical assessment and interventions considering the influence of COVID-19 lockdown.

ABBREVIATIONS

COVID 19 - Corona Virus Disease 19
LBP - Low Back Pain
WHO - World Health Organization
BMI - Body Mass Index
NRS - Numerical Rating Scale
ADLs - Activities of Daily Living
LLA - Lumbar Lordosis Angles

Disclosure of interest: The authors report no conflict of interest.

ACKNOWLEDGEMENTS

First and foremost, thanks to Almighty for his blessings throughout our research work to complete the research successfully. We would like to express our gratitude to our respectable Dean and Professors who showed keen interest in our research, reviewed our work and gave their valuable suggestions. We would like to thank all our research participants (School teachers) for participating in our research and giving their timely response. We would also like to thank our family and friends who supported us during the research work.

Figure legends

Figure 1: This figure explains the steps undertaken for the study. It includes the method of data collection , analysis of the data , documentation and the conclusion drawn from the data.

Figure 2 : On x-axis (Body mass Index): Less than 18.5 is underweight, 18.5-24.9 is normal , 25.0-29.9 is pre- obesity , 30.0-34.0 is obesity class 1, 35.0-39.0 is obesity class 2 , above 40 is obesity class 3. On y-axis (Intensity Of Pain) .The red arrow in the figure display the increase in intensity of pain with increased BMI hence depicts the positive correlation between the BMI and intensity of pain found using the spearman test.

Figure 3 : On x-axis (Emotional status): 1 – Always felt sad or low in energy due to pain; 2 - Often felt sad or low in energy due to pain; 3 - Sometimes felt sad or low in energy due to pain; 4 - Never felt sad or low in energy due to pain. On y-axis (Intensity Of Pain). The red arrow in the figure display that better the emotional status , lower the intensity of pain among the school teachers with chronic nonspecific low back pain ,found using the spearman test.

Figure 4 : The figure illustrates the level of difficulty experienced by the school teachers with chronic nonspecific low back pain in performing various activities. Maximum teachers had no difficulty in grooming and self care. Furthermore, most participants couldn't perform running and jogging.

REFERENCES

[1]. Burton AK, Balagué F, Cardon G, Eriksen HR, Henrotin Y, Lahad A, Leclerc A, Müller G, Van Der Beek AJ, COST B13 Working Group on Guidelines for Prevention in Low Back Pain. European guidelines for prevention in low back pain: November 2004. European Spine Journal. 2006 Mar;15(Suppl 2):s136.

[2]. Beyen TK, Mengestu MY, Zele YT. Low back pain and associated factors among teachers in Gondar Town, North Gondar, Amhara Region, Ethiopia. Occup Med Health Aff. 2013;1(5):10-4172.

[3]. Maher C, Underwood M, Buchbinder R. Non-specific low back pain. The Lancet. 2017 Feb 18;389(10070):736-47.

[4]. Gupta G, Sharma A. Prevalence of Low Back Pain among Higher Secondary School Teachers of Kanpur, India. J Orthop Physiother. 2018;1(1):103.

[5]. Thong IS, Jensen MP, Miró J, Tan G. The validity of pain intensity measures: what do the NRS, VAS, VRS, and FPS-R measure? Scandinavian journal of pain. 2018 Jan 26;18(1):99-107.

[6]. Soni P. Effects of COVID-19 lockdown phases in India: an atmospheric perspective. Environment, Development and Sustainability. 2021 Jan 6:1-2.

[7]. Raman R, Rajalakshmi R, Surya J, Ramakrishnan R, Sivaprasad S, Conroy D, Thethi JP, Mohan V, Netuveli G. Impact on health and provision of healthcare services during the COVID-19 lockdown in India: a multicentre cross-sectional study. BMJ open. 2021 Jan 1;11(1):e043590.

[8]. Wong AY, Forss KS, Jakobsson J, Schoeb V, Kumlien C, Borglin G. Older adult's experience of chronic low back pain and its implications on their daily life: Study protocol of a systematic review of qualitative research. Systematic reviews. 2018 Dec;7(1):1-6.

[9]. Gupta G, Sharma A. Prevalence of Low Back Pain among Higher Secondary School Teachers of Kanpur, India. J Orthop Physiother. 2018;1(1):103.
[10]. Bandpei MA, Ehsani F, Behtash H, Ghanipour M. Occupational low back pain in primary and high school teachers: prevalence and associated factors. Journal of manipulative and physiological therapeutics. 2014 Nov 1;37(9):702-8.
[11]. Yue P, Liu F, Li L. Neck/shoulder pain and low back pain among school teachers in China, prevalence and risk factors. BMC public health. 2012 Dec;12(1):1-8.
[12]. Bauer J, Unterbrink T, Hack A, Pfeifer R, Buhl-Grießhaber V, Müller U, Wesche H, Frommhold M, Seibt R, Scheuch K, Wirsching M. Working conditions, adverse events and mental health problems in a sample of 949 German teachers. International archives of occupational and environmental health. 2007 Apr;80(5):442-9.
[13]. Alias AN, Karuppiah K, How V, Perumal V. Prevalence of musculoskeletal disorders (MSDS) among primary school female teachers in Terengganu, Malaysia. International Journal of Industrial Ergonomics. 2020 May 1;77:102957.
[14]. Bane JV, Aurangabadkar S, Karajgi A. Physical and Self-Perceived Occupational Stress Associated with Work from Home Situation in Teachers during the COVID-19 Pandemic.
[15]. Berner K, Jacobs K. The gap between exposure and implementation of computer workstation ergonomics in the workplace. Work. 2002 Jan 1;19(2):193-9.
[16]. Omokhodion FO, Sanya AO. Risk factors for low back pain among office workers in Ibadan, Southwest Nigeria. Occupational Medicine. 2003 Jun 1;53(4):287-9.
[17]. Hasegawa T, Katsuhira J, Oka H, Fujii T, Matsudaira K. Association of low back load with low back pain during static standing. Plos one. 2018 Dec 18;13(12):e0208877.
[18]. Adams MA, Hutton WC. The effect of posture on the fluid content of lumbar intervertebral discs. Spine. 1983 Sep 1;8(6):665-71
[19]. Urquhart DM, Phyomaung PP, Wluka AE, Sim MR, Forbes A, Jones G, Davies M, Cicuttini FM. Is there a relationship between occupational activities and low back pain in obese, middle-aged women?. Climacteric. 2014 Feb 1;17(1):87-91.
[20]. Kebede A, Abebe SM, Woldie H, Yenit MK. Low Back Pain and Associated Factors among Primary School Teachers in Mekele City, North Ethiopia: A Cross-Sectional Study. Occupational therapy international. 2019 Jul 8;2019.
[21]. Cheung TW, Clemson L, O'Loughlin K, Shuttleworth R. Erognomic education on housework for women with upper limb repetitive strain injury (RSI): a conceptual representation of therapists' clinical reasoning. Disability and rehabilitation. 2018 Dec 18;40(26):3136-46
[22]. Balagué F, Mannion AF, Pellisé F, Cedraschi C. Non-specific low back pain. The lancet. 2012 Feb 4;379(9814):482-91.
[23]. Furtado RN, Ribeiro LH, Abdo BD, Descio FJ, Martucci Junior CE, Serruya DC. Dor lombar inespecífica em adultos jovens: fatores de risco associados. Revista Brasileira de Reumatologia. 2014 Oct;54(5):371-7.
[24]. World Health Organization. WHO guidelines on physical activity and sedentary behaviour: web annex: evidence profiles. InWHO guidelines on physical activity and sedentary behaviour: web annex: evidence profiles 2020.
[25]. Ghezelbash F, Shirazi-Adl A, Plamondon A, Arjmand N, Parnianpour M. Obesity and obesity shape markedly influence spine biomechanics: a subject-specific risk assessment model. Annals of biomedical engineering. 2017 Oct;45(10):2373-82.
[26]. Li Y, Shi JJ, Ren J, Guan HS, Gao YP, Zhao F, Sun J. Relationship between obesity and lumbar disc herniation in adolescents. Zhongguo gu shang= China journal of orthopaedics and traumatology. 2020 Aug 1;33(8):725-9.
[27]. Zhang TT, Liu Z, Liu YL, Zhao JJ, Liu DW, Tian QB. Obesity as a risk factor for low Back pain. Clinical spine surgery. 2018 Feb 1;31(1):22-7.
[28]. Heneweer H, Staes F, Aufdemkampe G, van Rijn M, Vanhees L. Physical activity and low back pain: a systematic review of recent literature. European Spine Journal. 2011 Jun;20(6):826-45.
[29]. Smeets R, Köke A, Lin CW, Ferreira M, Demoulin C. Measures of function in low back pain/disorders: Low back pain rating scale (LBPRS), oswestry disability index (ODI), progressive isoinertial lifting evaluation (PILE), quebec back pain disability scale (QBPDS), and roland morris disability questionnaire (RDQ). Arthritis care & research. 2011 Nov;63(S11):S158-73.
[30]. Shiri R, Solovieva S, Husgafvel-Pursiainen K, Telama R, Yang X, Viikari J, Raitakari OT, Viikari-Juntura E. The role of obesity and physical activity in non-specific and radiating low back pain: the Young Finns study. InSeminars in arthritis and rheumatism 2013 Jun 1 (Vol. 42, No. 6, pp. 640-650). WB Saunders.
[31]. Joukamaa M. Depression and back pain. Acta Psychiatrica Scandinavica. 1994 Feb;89:83-6.
[32]. Bletzer J, Gantz S, Voigt T, Neubauer E, Schiltenwolf M. Chronic low back pain and psychological comorbidity: A review. Schmerz (Berlin, Germany). 2017 Apr 1;31(2):93-101.
[33]. Oliveira DS, Vélia Ferreira Mendonça L, Sofia Monteiro Sampaio R, Manuel Pereira Dias de Castro-Lopes J, Ribeiro de Azevedo LF. The impact of anxiety and depression on the outcomes of chronic low back pain multidisciplinary pain management—A multicenter prospective cohort study in pain clinics with one-year follow-up. Pain Medicine. 2019 Apr 1;20(4):736-46.
[34]. Pinheiro MB, Ferreira ML, Refshauge K, Maher CG, Ordoñana JR, Andrade TB, Tsathas A, Ferreira PH. Symptoms of depression as a prognostic factor for low back pain: a systematic review. The Spine Journal. 2016 Jan 1;16(1):105-16.

[35]. Edwards R, Berde C. Pain assessment. Essentials of pain medicine. 3rd ed. USA: Elsevier Saunders. 2011 Jan 1:28-33.

[36]. Magee DJ, Manske RC. Orthopedic physical assessment-E-Book. Elsevier health sciences; 2020 Dec 11.

[37]. Beach TA, Parkinson RJ, Stothart JP, Callaghan JP. Effects of prolonged sitting on the passive flexion stiffness of the in vivo lumbar spine. The Spine Journal. 2005 Mar 1;5(2):145-54.

[38]. Pearcy MA, Portek I, Shepherd JA. The effect of low-back pain on lumbar spinal movements measured by three-dimensional X-ray analysis. Spine. 1985 Mar 1;10(2):150-3

[39]. Sullivan MS, Shoaf LD, Riddle DL. The relationship of lumbar flexion to disability in patients with low back pain. Physical therapy. 2000 Mar 1;80(3):240-50.

[40]. Kemppi C, Laimi K, Salminen JJ, Tuominen R. Perceived relative importance of pain-related functions among patients with low back pain. Journal of rehabilitation medicine. 2012 Feb 5;44(2):158-62.

[41]. Zhao Y, Yu B, Yu G, Li W. Study on the water-heat coupled phenomena in thawing frozen soil around a buried oil pipeline. Applied thermal engineering. 2014 Dec 22;73(2):1477-88.

[42]. Yiengprugsawan V, Hoy D, Buchbinder R, Bain C, Seubsman SA, Sleigh AC. Low back pain and limitations of daily living in Asia: longitudinal findings in the Thai cohort study. BMC musculoskeletal disorders. 2017 Dec;18(1):1-7.

[43]. Leveille SG, Guralnik JM, Hochberg M, Hirsch R, Ferrucci L, Langlois J, Rantanen T, Ling S. Low back pain and disability in older women: independent association with difficulty but not inability to perform daily activities. Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences. 1999 Oct 1;54(10):M487-93.

[44]. Zawadka M, Smo³ka J, Skublewska-Paszkowska M, £ukasik E, Zieliñski G, Byœ A, Gawda P. Altered squat movement pattern in patients with chronic low back pain. Annals of Agricultural and Environmental Medicine: AAEM. 2020 Feb 27;28(1):158-62.

[45]. Simonet E, Winteler B, Frangi J, Suter M, Meier ML, Eichelberger P, Baur H, Schmid S. Walking and running with non-specific chronic low back pain: What about the lumbar lordosis angle?. Journal of Biomechanics. 2020 Jul 17;108:109883.

How to cite this article: Anisha Gulati, Sharvari Sardeshmukh, Suruchi Sawant, Seeba Mohamed Ibrahim, Avani Shah, Shreeya Salunkhe. Influence of work, home and lifestyle related factors during COVID-19 lockdown on presentation of pain and functional status among school teachers with chronic nonspecific low back pain – An Online Survey. Int J Physiother Res 2023;11(1):4442-4452. **DOI:** 10.16965/ijpr.2022.184