DOI: https://doi.org/10.54393/pjhs.v5i02.1295

PAKISTAN JOURNAL OF HEALTH SCIENCES
https://thejas.com.pk/index.php/pjhs
ISSN (P): 2790-9352, (E): 2790-9344
Volume 5, Issue 2 (February 2024)

Original Article

Attributes of Low Back Pain among Physical Therapists and Nurses in Pakistan

Shahid Badar[1], Sara Aamir Abro[2], Bushra Marium Zaman[1], Kashmala Zia[3], Obaida Arzoo[3], Khadijatul Ain Sandeela[4], Madiha Peer Muhammad[5] and Komal Jamil[6*]

[1]Department of Rehabilitation Sciences, Dr. Ziauddin Hospital, Karachi, Pakistan
[2]Liaquat National School of Physiotherapy, Karachi, Pakistan
[3]Northwest Institute of Health Sciences, Peshawar, Pakistan
[4]Isra Institute of Rehabilitation Sciences, Karachi, Pakistan
[5]Department of Physical Therapy, Patel Hospital, Karachi, Pakistan
[6]Department of Physical Therapy, Bahria University Health Sciences, Karachi, Pakistan

ARTICLE INFO

Keywords:
Back Pain, Physical Therapy, Musculoskeletal, Nurse Education, Oswestry Disability Index scale

How to Cite:
Badar, S., Abro, S. A., Zaman, B. M., Zia, K., Arzoo, O., Sandeela, K. A., Peer Muhammad, M., & Ansari, K. (2024). Attributes of Low Back pain among Physical Therapists and Nurses in Pakistan : Low Back Pain among Physical Therapists and Nurses . Pakistan Journal of Health Sciences, 5(02). https://doi.org/10.54393/pjhs.v5i02.1295

Corresponding Author:
Komal Jamil
Department of Physical Therapy, Bahria University Health Sciences, Karachi, Pakistan.
komalansari4@gmail.com

Received Date: 26th January, 2024
Acceptance Date: 15th February, 2024
Published Date: 29th February, 2024

ABSTRACT

Low back pain is localized between the region of the 12th rib and less to the gluteal folds either radiating or not radiating to the lower limb. The prevalence of low back pain in Pakistan is about 41.4 percent. But all over the world, the Physical therapist's rate of work-related musculoskeletal problems is about 57 percent. **Objective:** To determine the attributes of low back pain among physical therapists and nurses in Pakistan. **Methods:** A cross-sectional study was done from August 2023 to January 2024, throughout Pakistan. A sample size of 661 was divided into two groups. The sampling technique was non-probability purposive sampling. There were two measurement tools used Visual Analog Scale and the Oswestry Disability Index scale to rule out pain and the level of disability. The data were analyzed through SPSS version 23.0 software. **Results:** The total number of participants was 661, of which 247 were physical therapists and 414 were nurses recruited from all over Pakistan. The pain was measured through the VAS and disability was measured by ODI. The Physical therapists felt mild pain in about 123(49.79%), and they faced no disability in about 127(51.41%) and nurses felt moderate pain in about 212(51.20%) and they have not faced disability in about 306(73.91%). **Conclusions:** Our study concluded the prevalence of low back pain is found in both nurses and physical therapists but the level of pain is higher in nurses as compared to a physical therapist due to the lack of ergonomics knowledge among the nurse population.

INTRODUCTION

Around the world, the basic reason for disability in a human being is LBP (low back pain) [1]. In the United States, LBP is a musculoskeletal problem and it is a second reason that can cause a person to be physically disabled [2]. During their life span, people face the complaint of LBP at least 1 time in their life. Low back pain is not considered a disease itself because it is a symptom of any other disease like low back pain radiating to the lower limb and region of the hip and the pain is dependent on the site of pain and this condition is known as lumbago [3]. In the U.S., the rate of low back pain is about 80 to 85 percent of people and it is a very costly and major concern of health issue [4]. Low back pain causes a muscle spasm on the specific pain region or sometimes it covers the surrounding areas of the site of pain. Sometimes, people face spasms as well as a tingling sensation in the lower leg or hip region which is also related to the back ache [5]. Low back pain can be divided into three stages: acute, sub-acute, and chronic pain. In the acute stage pain faces less than 6 weeks, sub-acute stage pain persists for 6-12 weeks, and in the chronic stage, people face the intensity of pain for more than 12 weeks [6]. If low back pain occurs then it takes at least 1 month for

DOI: https://doi.org/10.54393/pjhs.v5i02.1295

relief. The commonest age of Low back pain is more common in middle and young age people [7]. Mostly low back pain is related to their working or job status. Around the world, it is calculated that 37 percent of people face the problem of pain in the back caused by their job occupation. It is approximately 818,000 cases the disability in a year [8]. Pain is localized between the region of the 12th rib and less to the gluteal folds either radiating or not radiating to the lower limb. The prevalence of low back pain in Pakistan is about 41.4 percent [5]. But all over the world, the Physical therapist's rate of work-related musculoskeletal problems is about 57 percent [9]. In comparison nurses suffer from low back pain is about 58.1 percent [10]. Classification of Low back pain is comprised of specific and non-specific pain. Specific pain is caused by any type of disease or anatomical issues of the spine and also shows the red flags of signs and symptoms, yellow flags show the factors of prognosis with long-term disability of the condition, and in non-specific pain, it is difficult to find the actual cause of pain [11]. Around 10 percent of cases are identified, but most of the cases are suggested to be non-specific low back pain. There are many approaches to treating pain which include anti-inflammatory drugs, cryotherapy, heat therapy, exercises, and analgesic creams. When the treatment takes place it decreases the pain, improves function, and also enhances the capacity of performance of doing their work [12].A very serious issue which is faced by the nurses and the physical therapists is the diseases of the musculoskeletal region. Lower back pain is one of the biggest problems they are suffering from. The combined prevalence rate of low back pain is about 30 to 60 percent [13]. Nurses and Physical therapists mostly suffer from mechanical lower back pain in their daily activities of life especially when they are working for the patient and performing their duties. While the patient is independent or they are bedridden [14]. There are many risk factors for lower back pain age, gender, working hours, body weight, mental stress, lifestyle, patient mobilization, improper ergonomics of the body, and lack of working accessories. In both health care professionals face very common issues which are related to their work environment including patient lifting, bad postures, repeated body movements, and sudden twisting of the body all these issues they are commonly faced [15]. When back pain reaches a serious level it can have a bad impact on the employment of physical therapists and nurses which includes loss of functional activity, increases in the financial status for the treatment, and most of them are absent from their work [16].

The study aimed to know the characteristics of pain, intensity of pain, and level of disability in the nurses and physical therapists population.

METHODS

It was a cross-sectional survey conducted among physical therapists and nurses from August 2023 to January 2024 throughout Pakistan. We collected the data by sending the online Google forms. The sample size of this study was 661 and it can be calculated through the RaoSoft software according to the physical therapists and nurses population of Pakistan with a confidence interval level was 99. The total no of participants was divided into two groups: 247 physical therapists and 414 nurses in this study. The technique of sampling which we used in this study was the non-probability purposive sampling technique. The inclusion criteria of the study were we include both genders, the age between 20 to more than 50 years, those participants were included in this study whose working experience was 1 to more than 30 years. Participants who suffered from any spinal injury, surgery of the spine, any deformity, or pregnant females were excluded from the study. We used the validated questionnaire VAS(Visual Analog Scale) to measure the pain intensity of the participants, and the ODI (Owestry Disability Index) scale to rule out the level of disability of the research participants of the study. The data were analyzed through SPSS version 23.0 software. The frequencies and percentages were calculated and the p-value less than≤ 0.05 was considered as a level of significance.

RESULTS

The total number of participants in the study was 661, of which 247 were physical therapists and 414 were nurses recruited from all over Pakistan. The demographics of the research variables are comprised of gender, age, body mass index, and working hours as shown in table 1.

Table 1: Demographics details

Variables		Total population (N=661)	Total Physical Therapists (N=247)	Total Nurses (N=414)
Gender	Male	347 (52.49%)	103 (41.70%)	215 (51.93%)
	Female	314 (47.50%)	144 (58.29%)	199 (48.06%)
Age	20-29	295 (44.62%)	114 (46.15%)	181 (43.71%)
	30-39	221 (33.43%)	70 (28.34%)	151 (36.47%)
	40-49	89 (13.46%)	34 (13.76%)	55 (13.28%)
	≥ 50	56 (8.47%)	29 (11.74%)	27 (6.52%)
Body Mass Index	Normal (18.5-24.9)	316 (47.80%)	129 (52.22%)	251 (60.62%)
	Overweight (≥25.0)	236 (35.70%)	74 (29.95%)	98 (23.67%)
	Obese (≥30.0)	109 (16.49%)	44 (17.81%)	65 (15.70%)
Working years	1-10	151 (22.84%)	78 (31.57%)	114 (27.53%)
	11-20	265 (40.09%)	69 (27.93%)	74 (17.87%)
	21-30	134 20.27%)	51 (20.64%)	141 (34.05%)
	>30	111 (16.79%)	49 (19.83%)	85 (20.53%)

DOI: https://doi.org/10.54393/pjhs.v5i02.1295

When we asked about the characteristics of pain while working or doing the activity. Firstly, we asked questions regarding their pain whether they were facing it or not when they were working in the office, Physical therapists replied Yes about 151 (61.13%), While nurses replied Yes about 301(72.70%). When we asked the question related to the incidence of pain majority of the physical therapists replied they experience pain once a week around 52 (21.05%), and nurses responded to the same question around 85(20.53%). When asked a question related to the severity of pain by using the VAS visual analog scale physical therapists mostly replied that they felt mild pain about 123(49.79%), and nurses responded about 212(51.20%) highly in moderate pain. The question related to the limitations of performing their activities the physical therapists responded that there is no activity restriction 153(61.94%), and nurses gave the highest response to the same question is about 305(73.67%) as shown in table 2.

Table 2: Attributes of pain among study participants

Variables	Total population (N=661)	Total Physical Therapists (N=247)	Total Nurses (N=414)
Experience Pain during the job			
Yes	476 (72.01%)	151 (61.13%)	301 (72.70%)
No	185 (27.98%)	96 (38.86%)	113 (27.29%)
Episodes of Pain			
No pain	45 (6.80%)	22 (8.90%)	51 (12.31%)
Once in a lifetime	93 (14.06%)	45 (18.21%)	43 (10.38%)
Once a year	121 (18.30%)	34 (13.76%)	57 (13.76%)
Once a month	115 (17.39%)	31 (12.55%)	74 (17.87%)
Once a week	161 (24.35%)	52 (21.05%)	85 (20.53%)
Once a day	93 (14.06%)	41 (16.59%)	81 (19.56%)
All the time	78 (11.80%)	22 (8.90%)	23 (5.55%)
Pain Intensity (VAS)			
No Pain (0)	78 (11.80%)	31 (12.55%)	63 (15.21%)
Mild Pain (1-3)	381 (57.63%)	123 (49.79%)	104 (25.12%)
Moderate Pain (4-7)	115 (17.39%)	65 (26.31%)	212 (51.20%)
Severe Pain (8-10)	87 (13.16%)	28 (11.33%)	35 (8.45%)
Activity Limitations			
No	442 (66.86%)	153 (61.94%)	305 (73.67%)
Minimal	169 (25.56%)	61 (24.69%)	64 (15.45%)
Significant	47 (7.11%)	32 (12.95%)	43 (10.38%)
Disabling	3 (0.45%)	1 (0.40%)	2 (0.48%)

We are asking about the disability level of the participants by using the ODI(Oswestry disability index) scale in which most 127(51.41%) physical therapists replied that they faced no disability during their performing their functions as shown in figure 1.

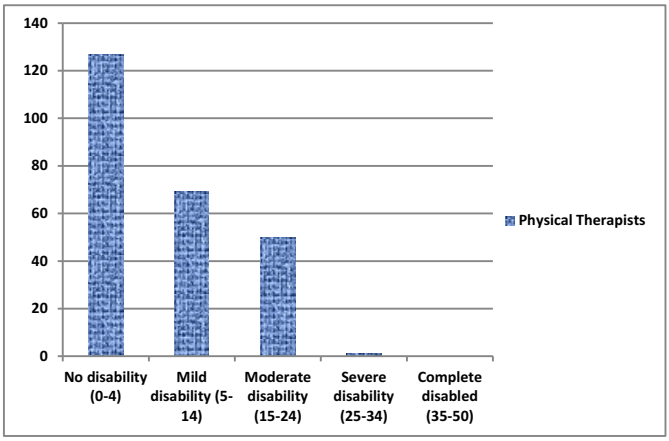

Figure 1: Level of disability in physical therapists

We are asking about the disability level of the participants by using the ODI(Oswestry disability index) scale in which mostly 306(73.91%) nurses replied that they faced no disability during their performing their functions as shown in figure 2.

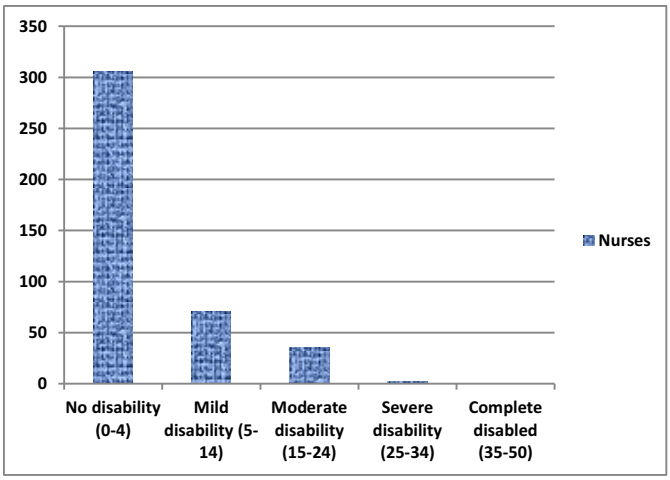

Figure 2: Level of disability in nurses

DISCUSSION

Low back pain is the major cause of disease and disability in developed countries. The most commonly affected working population of LBP are healthcare workers which are dentists, physical therapists, nurses, technicians, occupational therapists, and surgeons [17]. The prevalence of back pain is high in obese people as compared to normal weight. So, the continuous assessment of associated physical and environmental factors is necessary to diagnose the basic issues [18]. In the present study, the episodes of pain throughout the day were found to be 22 (8.90%) in physical therapists and 23 (5.55%) in nurses. As compared to this, a study reported that the majority of their research participants have low back pain associated with functional limitations [19]. The study reported that the higher rate of BMI is the major cause of low back pain in females [4]. Furthermore, a study

DOI: https://doi.org/10.54393/pjhs.v5i02.1295

concluded that low back pain is associated with lifting heavy objects, age, working environment, BMI, gender as well as age [20]. Similarly in our study the BMI (Body Mass Index) of nurses is found to be higher in the obese and overweight category while the BMI of physical therapists is maintained respectively. In the previous study age and year of working experience, both are associated with the severity of back pain [21]. As compared to this our study findings of VAS (Visual analog scale) show 123 (49.79%) of physical therapists had mild pain and 212 (51.20%) of nurses had fallen in moderate pain category. A study reported, that pain intensity was shown to be higher in nurses as compared to physical therapists, they relate their results with the old age of nurses, working experience, and their job description i.e. mobilizing patients, bending of back during lifting of patients [22]. Another study concluded the lack of understanding of standard protocols of posture maintenance during job timings, especially during the mobilization of bed-bound patients and the unavailability of appropriate tools can cause musculoskeletal injuries to the nurses associated with the occupation [23]. In comparison to this, in the present study, the majority of nurses reported the presence of pain in 301 (72.70%) while in physical therapists pain is present in 151 (61.13%) during the job. Additionally, the comparative study between the nurses and physical therapists population reported that the intensity of pain and level of disability was lower in physical therapists according to the ODI (Oswestry disability index) which may be due to the knowledge of ergonomics which physical therapists had that can prevent the musculoskeletal disorders [24]. However, In our study, the results of the level of disability according to the ODI (Oswestry disability index) scale found that the physical therapist was 69 (27.93%) lie in mild disability, 50(20.24%) lie in moderate disability, and 127(51.41%) lie in no disability category. The level of disability of nurses was found to be 71(17.14%) in mild disability, 35(8.45%) in moderate disability, and 306 (73.91%)lie in the no disability category. Furthermore, a study revealed that the limitation of activity was minimal in physical therapists and nurses but the rate of pain was high in the lower region of the back as compared to the upper back region [25]. As compared to this our study results show 169 (25.56%) participants of both groups are affected with minimal limitation in which 61 (24.69%) are physical therapists and 64 (15.45%) are nurses and the total no of 442 (66.86%) research participants have no limitations in which 153 (61.94%) was physical therapists and 305 (73.67%) was nurses. Our study highlights the factors that cause musculoskeletal issues in healthcare professionals, especially in physical therapists and nurses population as well as the need for ergonomics at the workplace to prevent future illness. The age differences, types of jobs, and years of experience are the limitations of the study.

CONCLUSIONS

The present study concluded that the score of pain (VAS-visual analog scale) is high in nurses as compared to physical therapists because of their job description and lack of knowledge regarding correct posture as compared to nurses. In addition to this, the working environment and job description of physical therapists and nurses cause pain in the lower side of the back and the association of pain and disability is the incorrect posture, unavailability of equipment, and lack the ergonomic application of protocols during the job. To prevent lower back pain proper ergonomics and healthcare facilities are required at workplaces that can facilitate the patients as well as reduce future issues for healthcare providers.

Authors Contribution

Conceptualization: SB
Methodology: SAA, BMZ, KZ, OA
Formal analysis: KAS
Writing-review and editing: BMZ, SB, SAA, KZ, MPM, KJ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The authors received no financial support for the research, authorship and/or publication of this article.

REFERENCES

[1] Bryndal A, Glowinski S, Grochulska A. Influence of occupation on the prevalence of spinal pain among physiotherapists and nurses. Journal of Clinical Medicine. 2022 Sep; 11(19): 5600. doi: 10.5694/mja2.51788.

[2] Budhrani-Shani P, Berry DL, Arcari P, Langevin H, Wayne PM. Mind-body exercises for nurses with chronic low back pain: an evidence-based review. Nursing Research and Practice. 2016 Jul; 2016. doi: 10.1002/ajim.23444.

[3] Wilczynska A, Cabrita J, Parent-Thirion A, Biletta I, Vargas O, Wilkens M *et al.* 6th European working conditions survey : 2017 update. Publications Office; 2017. doi: 10.2806/422172.

[4] Evans L, O'Donohoe T, Morokoff A, Drummond K. The role of spinal surgery in the treatment of low back pain. The Medical Journal of Australia. 2023 Jan; 218 (1): 40. doi: 10.5694/mja2.51788.

[5] Ferreira ML, de Luca K, Haile LM, Steinmetz JD, Culbreth GT, Cross M *et al.* Global, regional, and

DOI: https://doi.org/10.54393/pjhs.v5i02.1295

national burden of low back pain, 1990–2020, its attributable risk factors, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. The Lancet Rheumatology. 2023 Jun; 5(6): e316-29. doi: 10.2139/ssrn.4318392.

[6] Jahn A, Andersen JH, Christiansen DH, Seidler A, Dalbøge A. Association between occupational exposures and chronic low back pain: Protocol for a systematic review and meta-analysis. Plos One. 2023 May; 18(5): e0285327. doi: 10.1371/journal.pone.0285327.

[7] Jamil K, Baqir SR, Badar S. Workplace evaluation of computer users of the medical university; an ergonomic perspective. Foundation University Journal of Rehabilitation Sciences. 2023 Jan; 3(1): 3-8. doi: 10.33897/fujrs.v3i1.295.

[8] Jamil K and Baqir SR. Comparative Effects of McKenzie Technique versus Swiss Ball Exercises Along with Hot Pack in Patients with Low Back Pain.

[9] Kanaan SF, Alhendi ZM, Almhdawi KA, Aldahamsheh Z, Ismail N, Khalil H. Evaluating the effectiveness of a comprehensive education on low back pain treatment outcomes: A controlled clinical study. Clinical Rehabilitation. 2023 Jan; 37(1): 98-108. doi: 10.1177/02692155221122661.

[10] Lee B, Kwon CY, Lee HW, Nielsen A, Wieland LS, Kim TH *et al.* Needling point location used in sham acupuncture for chronic nonspecific low back pain: a systematic review and network meta-analysis. JAMA Network Open. 2023 Sep; 6(9): e2332452-. doi: 10.1001/jamanetworkopen.2023.32452.

[11] Matsangidou M, Solomou T, Høegh Langvad C, Xynari K, Papayianni E, Pattichis CS. Virtual Reality Health Education to Prevent Musculoskeletal Disorders and Chronic Low Back Pain in Formal and Informal Caregivers. Adjunct Proceedings of the 31st ACM Conference on User Modeling, Adaptation and Personalization. 2023 Jun. doi: 10.1145/3563359.3596991.

[12] Pei J, Yu A, Geng J, Liu Y, Wang L, Shi J *et al.* The lumbar spinal endplate lesions grades and association with lumbar disc disorders, and lumbar bone mineral density in a middle-young general Chinese population. BMC Musculoskeletal Disorders. 2023 Apr; 24(1): 258. doi: 10.1186/s12891-023-06379-w.

[13] Pires D, Cruz EB, Gomes LA, Nunes C. How do physical therapists measure treatment outcomes in adults with chronic low back pain? A systematic review. Physical Therapy. 2020 Jun; 100(6): 1020-34. doi: 10.1093/ptj/pzaa030.

[14] Ratajczak M, Waszak M, Śliwicka E, Wendt M, Skrypnik D, Zieliński J *et al.* In search of biomarkers for low back pain: can traction therapy effectiveness be prognosed by surface electromyography or blood parameters? Frontiers in Physiology. 2023; 14. doi: 10.3389/fphys.2023.1290409.

[15] Riddle DL. Classification and low back pain: a review of the literature and critical analysis of selected systems. Physical Therapy. 1998 Jul; 78(7): 708-37. doi: 10.1093/ptj/78.7.708.

[16] Sharma S, Traeger AC, Reed B, Hamilton M, O'Connor DA, Hoffmann TC *et al.* Clinician and patient beliefs about diagnostic imaging for low back pain: a systematic qualitative evidence synthesis. BMJ Open. 2020; 10(8). doi: 10.1136/bmjopen-2020-037820.

[17] Stevans JM, Delitto A, Khoja SS, Patterson CG, Smith CN, Schneider MJ *et al.* Risk factors associated with transition from acute to chronic low back pain in US patients seeking primary care. JAMA Network Open. 2021 Feb; 4(2): e2037371-. doi: 10.1001/jamanetworkopen.2020.37371.

[18] Sultana R, Cheeme S, Cheema U, Parveen S, Cheema SA. Contributing Factors Towards Low Back Pain Among Front Line Health Care Workers in Lahore, Pakistan: Contributing Factors Towards Low Back Pain. Pakistan Journal of Health Sciences. 2023 Feb; 154-9. doi: 10.54393/pjhs.v4i02.629.

[19] Tagliaferri SD, Miller CT, Owen PJ, Mitchell UH, Brisby H, Fitzgibbon B *et al.* Domains of chronic low back pain and assessing treatment effectiveness: a clinical perspective. Pain Practice. 2020 Feb; 20(2): 211-25. doi: 10.1111/papr.12846.

[20] Takasaki H. Predictors of 1-Year Perceived Recovery, Absenteeism, and Expenses Due to Low Back Pain in Workers Receiving Mechanical Diagnosis and Therapy: A Prospective Cohort Study. Healthcare. 2023 Apr; 11(9): 1293. doi: 10.3390/healthcare11091293.

[21] Vadalà G, Russo F, De Salvatore S, Cortina G, Albo E, Papalia R *et al.* Physical activity for the treatment of chronic low back pain in elderly patients: a systematic review. Journal of Clinical Medicine. 2020 Apr; 9(4): 1023. doi: 10.3390/jcm9041023.

[22] Wang L, Ye H, Li Z, Lu C, Ye J, Liao M *et al.* Epidemiological trends of low back pain at the global, regional, and national levels. European Spine Journal. 2022 Apr; 31(4): 953-62. doi: 10.1007/s00586-022-07133-x.

[23] Wu A, March L, Zheng X, Huang J, Wang X, Zhao J *et al.* Global low back pain prevalence and years lived with disability from 1990 to 2017: estimates from the

DOI: https://doi.org/10.54393/pjhs.v5i02.1295

Global Burden of Disease Study 2017. Annals of Translational Medicine. 2020 Mar; 8(6). doi: 10.21037/atm.2020.02.175.

[24] Yang H, Lu ML, Haldeman S, Swanson N. Psychosocial risk factors for low back pain in US workers: Data from the 2002–2018 quality of work life survey. American Journal of Industrial Medicine. 2023 Jan; 66(1): 41-53. doi: 10.1002/ajim.23444.

[25] Zhang Z, Pasapula M, Wang Z, Edwards K, Norris A. The effectiveness of cupping therapy on low back pain: a systematic review and meta-analysis of randomized control trials. Complementary Therapies in Medicine. 2024 Jan: 103013. doi: 10.1016/j.ctim.2024.103013.