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Knowledge, Attitude, And Practice of Ergonomics Among Physiotherapy Undergraduates in Malaysia
(Pengetahuan, Sikap, Dan Amalan Ergonomik Dalam Kalangan Prasiswazah Fisioterapi di Malaysia)

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ABSTRACT

Ergonomic posture can be defined as neutral positions of the body that is aligned and balanced while either sitting or standing, placing minimal stress on the body and keeping joints aligned. A good posture can help to prevent musculoskeletal disorders (MSDs). However, MSD cases are the most common health problem among physiotherapists including undergraduates. The aim of this study was to identify the knowledge, attitude, and practice of ergonomics among physiotherapy undergraduates in Malaysia. An online survey involving 116 physiotherapists undergraduates from learning institutions all over Malaysia was conducted. All the participants were provided a Google Form comprising 18 questions about demographic data, knowledge, attitude, and practice. The data were analyzed using the frequency table and chi-square test. Out of 116 respondents, 76.72% had good knowledge of ergonomics, almost all the respondents accounting for 96.35% had a positive attitude towards ergonomics, and 82.55% practiced good ergonomics. A statistically significant association was shown between attitude and level of education ($p<0.05$) and year of study ($p<0.05$), and knowledge with the year of study ($p<0.05$). The results showed that physiotherapy undergraduates in Malaysia have good knowledge and positive attitude towards ergonomics and they practiced good ergonomics in their working life.

Keywords: knowledge, attitude, practice, ergonomics, physiotherapy students

ABSTRAK

Postur ergonomik boleh ditakrifkan sebagai kedudukan neutral badan yang sejajar dan seimbang semasa sama ada duduk atau berdiri, meletakkan tekanan minimum pada badan dan mengekalkan sendi sejajar. Postur yang baik boleh membantu mencegah masalah muskuloskeletal (MSD). Walau bagaimanapun, kes MSD adalah masalah kesihatan yang paling biasa dalam kalangan ahli fisioterapi termasuk prasiswazah. Matlamat kajian ini adalah untuk mengenal pasti pengetahuan, sikap dan amalan ergonomik dalam kalangan prasiswazah fisioterapi di Malaysia. Satu tinjauan dalam talian yang melibatkan 116 prasiswazah fisioterapi dari institusi pembelajaran di seluruh Malaysia telah dijalankan. Semua peserta diberikan Borang Google yang mengandungi 18 soalan tentang data demografi, pengetahuan, sikap dan amalan. Data dianalisis menggunakan jadual kekerapan dan ujian khi kuasa dua. Daripada 116 orang responden, 93 orang responden (80.2%) mempunyai tahap pengetahuan ergonomik yang baik, hampir kesemua responden merangkumi 112 (96.6%) mempunyai sikap yang positif terhadap ergonomik, dan 92 (79.3%) mengamalkan ergonomik yang baik dalam kehidupan bekerja. Perkaitan yang signifikan secara statistik ditunjukkan antara sikap dengan tahap pendidikan ($p<0.05$) dan tahun pengajian ($p<0.05$), dan pengetahuan dengan tahun pengajian ($p<0.05$). Keputusan menunjukkan prasiswazah fisioterapi di Malaysia mempunyai pengetahuan yang baik, sikap positif terhadap ergonomik dan mereka mengamalkan ergonomik yang baik dalam kehidupan bekerja mereka.

Kata kunci: pengetahuan, sikap, amalan, ergonomik, pelajar fisioterapi

INTRODUCTION

Work-related musculoskeletal disorders (WMSD) refer to an injury or musculoskeletal pain aggravated by the working environment or working procedure (Chen et al., 2022). In 2019, an analysis by Global Burden of Disease states that almost 1.71 billion people are living with musculoskeletal conditions (World Health Organization, 2022). In India, among professional healthcare, physiotherapists reported the second highest cases of WMSDs which accounted for 55%, while the highest was among nurses (56%) (Yasobant & Rajkumar, 2014). In Malaysia, work-related injuries are higher among physiotherapists compared with many other countries. Therapists working in the pediatric specialty were reported to have a higher incidence of work-related musculoskeletal disorders (Nordin et al. 2011). This includes physiotherapy students, who require to work for long hours of strenuous activities along with the attainment of unavoidable prolonged static postures during classes and attachments or practical.

Musculoskeletal disorders are one broad condition that may affect different parts of the body for example shoulder, neck, wrist, and back. The common affected sites reported among physiotherapists are elbow (28.6%), wrist (23.5%), neck pain (22.5%), and back pain (18.8%) (Yasobant & Rajkumar, 2014). Meanwhile, among physiotherapy students, there are 46.5% of cases of WMSDs reported and the most common areas were the lower back, neck, and upper back (Tišlar et al., 2022). Even concerning, physiotherapy students have pain in the lower back even more often than their older senior colleagues, and an extremely high percentage of physiotherapy students have poor flexibility (Tišlar et al. 2022).

WMSDs cause is multifactorial and associated with different risk factors for example gender, weight, age group, and working environment (Yasobant & Rajkumar, 2014). Females were reported to have a higher risk of WMSDs, 1.5 times more than male workers meanwhile the risk increases gradually with age (Jia et al., 2021). A working environment that is unsafe contributes to the increasing number of cases of WMSDs and exposes workers to occupational health and safety issues (Yang et al., 2020). In addition, working for more than 8 hours a day may result in a risk of WMSDs (Oluka et al., 2020). Physiotherapists are prone to WMSDs due to the nature of their work, for example, repetitive work, working in the same position for long periods, and excessive patient loads (Vieira et al., 2016). This includes students who learn practical work through cooperation between school and working life. Practical work is learned by the integration of theoretical, practical, tacit and situational knowledge in a socialization process. Furthermore, physiotherapists' job involves a lot of manual handling, physical movement, and high overloading of the musculoskeletal system (Truszczyńska et al., 2016). Therefore, it is important for physiotherapists to have optimum knowledge, positive attitude and correct practice from their training to prevent WMSDs among themselves besides educating their clients regarding WMSDs.

Knowledge, attitude, and practice (KAP) of ergonomics can help to prevent WMSDs by providing risk factor identification (Kumar et al., 2020). Knowledge is the awareness of the participants about ergonomics, attitude is the way a person thinks and behaves toward ergonomics and practice is the habitual participant's involvement to prevent WMSD. Ergonomic posture can be defined as neutral positions of the body where the muscles, joints, and bones are aligned and balanced either during standing or sitting thus putting only minimal stress on the body (Majeed et al., 2018). Good knowledge but a poorer practice of ergonomics might be a contributing factor to the increase in WMSDs cases (Adje et al., 2019). According to El-sallamy et al., 2018, nearly half of the dentistry students have fair ergonomics knowledge, with 84.8% having a positive attitude towards ergonomics but only 4.5% practicing good ergonomics. Similarly, good knowledge of ergonomics and a positive attitude towards ergonomics was reported among physiotherapy undergraduate at the University Institute of Physical Therapy in Pakistan (Kousar et al., 2022). However, these students were noted not to practice good ergonomics (Kousar et al., 2022). There is a discrepancy between knowledge, attitude and practice regarding ergonomics which may be related to many factors such as increased workload, time constraints and lack of resources (Ephraim et al. 2019).

Previous studies regarding KAP of ergonomics mostly focus on studies overseas and dentistry students. Physiotherapy undergraduates receive WMSDs knowledge in their training but its translation into practice is questionable, more so during clinical placements. The information regarding KAP among undergraduates may be helpful in the development of related courses if necessary and in nurturing them for early WMSD prevention strategies. Thus, the objective of this study was to identify the KAP regarding ergonomics among physiotherapy undergraduates in Malaysia. This study can help to increase awareness about the importance of ergonomics among physiotherapy undergraduates and its prevention strategies.

METHODOLOGY

A cross-sectional study design was used with data collected via an online self-administered questionnaire. A total of 116 physiotherapies undergraduates from various IPTA/IPTS in Malaysia participated through a convenient sampling method. The inclusion criteria included respondents who are physiotherapy undergraduates in any IPTA or IPTS in Malaysia, aged between 18 to 25. However, graduated students were excluded from participating in this study. The undergraduates were contacted via social media such as WhatsApp, Twitter, and Facebook and were given the questionnaire link. The study was approved by The Research Ethics Committee of Universiti Kebangsaan Malaysia (Ethic no: UKM PPI/111/8/JEP-2022-140). Consent from each participant was taken before data collection.

The closed-ended questionnaire had four sections. Section A described the demographic data of the participants. Section B had questions about knowledge of ergonomics. Section C contained questions on the attitude towards ergonomics, while section D had questions about the ergonomic practice. This questionnaire was adapted from studies by Adje et al., 2019 and El-sallamy et al., 2018. The Cronbach α for this adapted questionnaire was 0.684 for knowledge, 0.784 for attitude and 0.810 for practice. Knowledge of ergonomics was assessed on a three-point Likert scale: good, fair and poor. Attitude and practice items were classified into positive/negative and good/bad.

The analysis was performed using Statistical Package of Social Sciences (SPSS) software version 25. The demographic data, knowledge, attitude, and practice data were analyzed using descriptive analysis. Descriptive statistics of frequency, distribution percentages and averages were used to represent the data obtained. The association between the

TABLE 1. Demographic data of the participants

Variable	Frequency	Percent (%)
Gender		
Male	45	38.8
Female	71	61.2
Age		
≤22	82	70.7
>22	34	29.3
Level of Education		
Degree	109	94.0
Diploma	7	6.0
Year of Study		
Year 1	21	18.1
Year 2	28	24.1
Year 3	30	25.9
Year 4	37	31.9

TABLE 2. Knowledge of ergonomics among students

Question	Poor		Fair		Gc
	n	%	n	%	n
Do you know what is ergonomic?	3	2.6	19	16.4	94
Do you know the health hazard of your job without ergonomics?	1	0.9	36	31.0	79
Do you know the benefits of ergonomics?	3	2.6	22	19.0	91
Do you know the correct posture when attending to a patient?	1	0.9	30	25.9	85
Poor ergonomics in physiotherapy practice can predispose one to injury.	1	0.9	9	7.8	106
Does your physiotherapy training include ergonomic principles?	1	0.9	36	31.0	79
Average percentage (%)	1.47		21.85		76

demographic data and knowledge, attitude and practice were analyzed using the Chi-square test.

RESULTS

Table 1 displays the demographic data of the respondents. Table 2 shows the knowledge of the undergraduates about ergonomics. Out of 116, 94 respondents (81.0%) knew what ergonomics was and have heard about ergonomics. Almost all the respondents (91.4%) knew that poor ergonomic practices can lead to injuries. Overall, the knowledge of ergonomics was good based on the score.

For attitude, 98.3% of the respondents agree that ergonomics should be a part of physiotherapy training. Where else, 113 respondents (97.4%) emphasized that physiotherapists should follow ergonomics principles in their practice. Overall, the attitude of respondents towards ergonomics was positive based on the score (Table 3). Table 4 demonstrates the practice of ergonomics among undergraduates in their practice. The results showed that most of the respondents practiced ergonomic principles (70% of respondents).

Table 5 depicts the knowledge, attitude, and practice and its relationship with the undergraduates' demographic data. The results showed that there are significant associations between the year of study with knowledge ($p<0.05$) and attitude ($p<0.05$), respectively. Final-year undergraduates scored highest in terms of work-related musculoskeletal disorders (WMSD) knowledge and positive attitudes. Level of education is also associated with attitude ($p<0.05$), where degree students have a positive attitude compared to diploma students.

DISCUSSION

In this study, we determined the knowledge, attitude, and practice (KAP) of ergonomics among physiotherapy undergraduates in Malaysia. In general, most undergraduates have adequate knowledge, a positive attitude, and good practice related to ergonomics in their training. Even though physiotherapy training is provided, it is concerning that about one-fifth of the physiotherapy undergraduates did not have good practice regarding ergonomics in view of early

TABLE 3. Attitude towards ergonomics among students

Question	Negative		Pos
	n	%	n
Do you think ergonomics should be a part of physiotherapy?	2	1.7	114
Do you think physiotherapists should follow the ergonomic principles in routine PT practice?	3	2.6	113
Do you think the equipment and instruments play any role in following ergonomic principles in routine PT practice?	5	4.3	111
Do you think the Pts should alternate between sitting and standing between patient appointments?	7	6.0	109
Average percentage (%)	3.65		96

Table 4. Practice of ergonomics among students

Question	Bad		Good	
	n	%	n	%
How frequent do you work with your legs separated and your feet flat on the floor?	12	10.4	104	89.6
How frequent do you work in the upright position and your spine resting on the back of the stool?	34	29.3	82	70.8
How frequent do you adjust a workstation to improve the working postures?	22	19.0	94	81.0
How frequently do you make an effort to maintain neutral posture while working?	13	11.2	103	88.8
Average percentage (%)	17.48		82.55	

TABLE 5. Association between demographic data and knowledge, attitude, and practice of ergonomics

Demographic characteristics	Knowledge, No (%)			X^2 (*p*)	Attitude, No (%)		X^2 (*p*)	Practice, No (%)		X^2 (*p*)
	Poor	Fair	Good		Negative	Positive		Bad	Good	
Gender										
Male	0 (0)	13 (28.9)	32 (71.1)	5.20 (0.07)	3 (6.7)	42 (93.3)	2.29 (0.13)	8 (17.8)	37 (82.2)	0.380 (0.54)
Female	1 (1.4)	9 (12.7)	61 (85.9)		1 (1.4)	70 (98.6)		16 (22.5)	55 (77.5)	
Age group										
≤ 22	0 (0.0)	19 (23.2)	63 (76.8)	5.41 (0.07)	3 (3.7)	79 (96.3)	0.04 (0.85)	15 (18.3)	67 (81.7)	0.98 (0.32)
> 22	1 (2.9)	3 (8.8)	30 (88.2)		1 (2.9)	33 (97.1)		9 (26.5)	25 (73.5)	
Level of education										
Degree	1 (0.9)	19 (17.4)	89 (81.7)	2.80 (0.25)	2 (1.8)	107 (98.2)	14.12 (< 0.05) *	23 (21.1)	86 (78.9)	0.19 (0.67)
Diploma	0 (0.0)	3 (42.9)	4 (57.1)		2 (28.6)	5 (71.4)		1 (14.3)	6 (85.7)	
Year of study										
Year 1	0 (0.0)	11 (52.4)	10 (47.6)	24.63 (< 0.05) *	0 (0.0)	21 (100)	13.02 (< 0.05) *	4 (19.0)	17 (81.0)	0.90 (0.83)
Year 2	0 (0.0)	5 (17.9)	23 (82.1)		4 (14.3)	24 (85.7)		5 (17.9)	23 (82.1)	
Year 3	1 (3.3)	5 (16.7)	24 (80.0)		0 (0.0)	30 (100)		8 (26.7)	22 (73.3)	
Year 4	0 (0.0)	1 (2.7)	36 (97.3)		0 (0.0)	37 (100)		7 (18.9)	30 (81.1)	

prevention of WMSDs.

Our study results revealed that 76.72% of the physiotherapy undergraduates have adequate knowledge pertaining to ergonomics. This was supported by a previous study, whereby most of the respondents had sufficient knowledge about ergonomics (Adje et al. 2019). However, it is contrary to a study conducted among dentistry undergraduates in India with nearly half of the students having only a fair knowledge level of ergonomics (El-sallamy et al., 2018). Furthermore, in a study among Malaysian students, it was reported that the students have moderate knowledge of ergonomics (Jaafar et al., in 2021). The difference between knowledge levels can be due to a lack of prior knowledge and training in the particular course. According to the Dental Council of India, there is no ergonomic training-related course in the undergraduate and postgraduate syllabus (Anu et al., 2018). Lack of knowledge regarding ergonomics among students in Malaysia was also deduced to be a result of inadequate related training in the teaching and learning programs (Loo, 2012).

In our current study, most physiotherapy undergraduates (96.35%) had a positive attitude toward ergonomics. This is also found in another study by El-sallamy et al., (2018), whereby most of the dentistry students (85.0%) showed a positive attitude towards ergonomic practice. Our study results also showed that more than two-thirds of the respondents practiced good ergonomics during their practical placements.

In contrast, participants in another study of physiotherapy students had inadequate ergonomic skills in their practice (Kousar et al., 2022). Moreover, only 4.6% of dental students practiced good ergonomics (El-sallamy et al., 2018). One of the reasons for these contrary results could be due to the difference in the related training in the course per se. However, other environmental factors should be taken into consideration for the discrepancy in knowledge and practice. For instance, the increasing cases of WMSDs among physiotherapists in Nigeria were believed to be due to the theory-practice of manual handling disparity (Mbada et al., 2015). Furthermore, the unavailability of moving and handling equipment could be the reason

for non-compliance with ergonomics principles in the workplace (Adje et al., 2019).

The findings of our study also showed that there was a significant association between the level of education and attitude toward ergonomics. Similar results were reported in the study by Adje et al., (2019). In addition, a significant association between years of study, knowledge and attitude toward ergonomics was found in our study. A study by Mbada et al., in 2015, reported the contrary. The difference in the finding could be due to the confusion among physiotherapist students as there is a variety and diverse theories, resources and techniques (Mbada et al., 2015). It is expected that more hands-on experience can improve awareness and practice about ergonomics (Sirat et al., 2018). Moreover, ergonomics education may help in reducing workplace injuries, increase the quality of the service delivered and reduce the risk of WMSDs (Abdollahi et al., 2020).

One of the limitations of this research is that this study is an online survey questionnaire and KAP of ergonomics may not be best assessed using this method. There may a difference between the actual and perceived knowledge as well as practice. Therefore, the results might not be the true reflection of clinical practice. However, our study findings provide information regarding KAP on ergonomics among physiotherapy undergraduates that can be further investigated using observational studies during practice.

CONCLUSION

In conclusion, our study results suggest that Malaysian physiotherapy undergraduates have good KAP about ergonomics. It is important for undergraduates to continue receiving sufficient and updated knowledge and training regarding ergonomics that could be translated into practice in view of the prevention of WMSDs in the future.

REFERENCES

Abdollahi, T., Pedram Razi, S., Pahlevan, D., Yekaninejad, M. S., Amaniyan, S., Leibold Sieloff, C., & Vaismoradi, M. (2020). Effect of an Ergonomics Educational Program on Musculoskeletal Disorders in Nursing Staff Working in the Operating Room: A Quasi-Randomized Controlled Clinical Trial. *International Journal of Environmental Research and Public Health*, *17*(19), 7333. https://doi.org/10.3390/ijerph17197333

Adje, M., Odebiyi, D. O., Okafor, U. A., & Kalu, M. E. (2019a). Ergonomic principles in patient handling: Knowledge and practice of physiotherapists in Nigeria. *Work*, *64*(4), 825–832. https://doi.org/10.3233/WOR-193044

Adje, M., Odebiyi, D. O., Okafor, U. A., & Kalu, M. E. (2019b). Ergonomic principles in patient handling: Knowledge and practice of physiotherapists in Nigeria. *Work*, *64*(4), 825–832. https://doi.org/10.3233/WOR-193044

Anu, V., Babu, A. M. S., & Kumar, P. D. M. (2018). Insights about Dental Ergonomics among Dental Students: The Need of the Hour to Recommend Dental Ergonomics in Academic Curriculum. *Journal of Advanced Oral Research*, *9*(1–2), 49–54. https://doi.org/10.1177/2320206818812538

Chen, C.-Y., Lu, S.-R., Yang, S.-Y., Liang, F., Wang, J.-J., Ho, C.-H., & Hsiao, P.-C. (2022). Work-related musculoskeletal disorders among physical therapists in Taiwan. *Medicine*, *101*(7), e28885. https://doi.org/10.1097/MD.0000000000028885

El-sallamy, R. M., Atlam, S. A., Kabbash, I., El-fatah, S. A., & El-flaky, A. (2018). Knowledge, attitude, and practice towards ergonomics among undergraduates of Faculty of Dentistry, Tanta University, Egypt. *Environmental Science and Pollution Research*, *25*(31). https://doi.org/10.1007/s11356-017-8615-3

Ephraim-Emmanuel, B. C., Ogbomade, R., Idumesaro, B. N., & Ugwoke, I. (2019). Knowledge, attitude and practice of preventing the occurrence of work-related musculoskeletal disorders among doctors in University of Port-Harcourt Teaching Hospital. *Journal of Medical Research and Innovation*, *3*(2), e000161-e000161. https://doi.org/10.32892/jmri.161

Jaafar, R., Akmal, A., & Zuraira, L. (2021). Ergonomics Knowledge Among Engineering Students in Pulau Pinang, Malaysia. *Journal of Modern Manufacturing Systems and Technology*, *5*(2), 9–14.

Jia, N., Zhang, H., Ling, R., Liu, Y., Li, G., Ren, Z., Yin, Y., Shao, H., Zhang, H., Qiu, B., Zhang, M., Wang, D., Zeng, Q., Wang, R., Chen, J., Zhang, D., Mei, L., Liu, Y., Liu, J., … Wang, Z. (2021). Epidemiological Data of Work-Related Musculoskeletal Disorders —China, 2018–2020. *China CDC Weekly*, *3*(18), 383–389. https://doi.org/10.46234/ccdcw2021.104

Kousar, R., Mir, S. S., Sarfaraz, S., Fatima, K., Islam, F., & Raza, A. (2022). Knowledge, Attitude and Practice Survey on Body Posture Among Undergraduate Physiotherapy Students. *Pak-Euro Journal of Medical and Life Sciences*, *5*(2), 337–342.

Krishnan, K. S., Raju, G., & Shawkataly, O. (2021). Prevalence of Work-Related Musculoskeletal Disorders: Psychological and Physical Risk Factors. *International Journal of Environmental Research and Public Health*, *18*(17), 9361. https://doi.org/10.3390/ijerph18179361

Kumar, Pm., Sahitya, S., Penmetsa, G., Supraja, S., Kengadaran, S., & Chaitanya, A. (2020). Assessment of knowledge, attitude, and practice

related to ergonomics among the students of three different dental schools in India: An original research. *Journal of Education and Health Promotion*, *9*(1), 266. https://doi.org/10.4103/jehp.jehp_208_20

Loo. (2012). Ergonomics Issues in Malaysia. *Journal of Social Sciences*, *8*(1), 61–65. https://doi.org/10.3844/jssp.2012.61.65

Majeed, S., Warraich, H. A., Majedd, F., & Azeem< Muhammad. (2018). Knowledge, attitude and practices about posture ergonomics among dental surgeons of Punjab Dental Hospital (PDH). *Pakistan Journal of Medical and Health Sciences*, *12*(3), 977–979.

Mbada, C., Adejuyigbe, O., Omole, J., Idowu, O., Okafor, U., Adekanla, B., & Okonji, A. (2015). ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PERCEPTION OF NIGERIAN PHYSIOTHERAPISTS ON MANUAL HANDLING TECHNIQUES. *Journal of Environmental and Occupational Science*, *4*(4), 203. https://doi.org/10.5455/jeos.20151217013219

Nordin, N. A. M., Leonard, J. H., & Thye, N. C. (2011). Work-related injuries among physiotherapists in public hospitals—a Southeast Asian picture. *Clinics*, *66*(3), 373-378.

Oluka, C. D., Obidike, E., Ezeukwu, A. O., Onyeso, O. K., & Ekechukwu, E. N. D. (2020). Prevalence of work-related musculoskeletal symptoms and associated risk factors among domestic gas workers and staff of works department in Enugu, Nigeria: a cross-sectional study. *BMC Musculoskeletal Disorders*, *21*(1), 587. https://doi.org/10.1186/s12891-020-03615-5

Sirat, R. M., Rohani, J. M., Ahmad, N., Shaharoun, A. M., & Haron, H. (2018). Education level, working experiences and ergonomics training effect on ergonomics awareness and practices in Malaysia. *International Journal of Engineering & Technology*, *7*(3.24), 12–17.

Tišlar, M. H., Starc, G., & Kukec, A. (2022). Work-related musculoskeletal disorders among physiotherapists and physiotherapy students in Croatia and their association with physical fitness. *Slovenian Journal of Public Health*, *61*(3), 171–180. https://doi.org/10.2478/sjph-2022-0023

Truszczyńska, A., Scherer, A., & Drzał-Grabiec, J. (2016). The occurrence of overload at work and musculoskeletal pain in young physiotherapists. *Work*, *54*(3). https://doi.org/10.3233/WOR-162343

Vieira, E. R., Schneider, P., Guidera, C., Gadotti, I. C., & Brunt, D. (2016). Work-related musculoskeletal disorders among physical therapists: A systematic review. *Journal of Back and Musculoskeletal Rehabilitation*, *29*(3), 417–428. https://doi.org/10.3233/BMR-150649

World Health Organization. (2022, July 14). *Musculoskeletal health*. https://www.who.int/news-room/fact-sheets/detail/musculoskeletal-conditions

Yang, S., Li, L., Wang, L., Zeng, J., & Li, Y. (2020). Risk Factors for Work-Related Musculoskeletal Disorders Among Intensive Care Unit Nurses in China: A Structural Equation Model Approach. *Asian Nursing Research*, *14*(4), 241–248. https://doi.org/10.1016/j.anr.2020.08.004

Yasobant, S., & Rajkumar, P. (2014). Work-related musculoskeletal disorders among health care professionals: A cross-sectional assessment of risk factors in a tertiary hospital, India. *Indian Journal of Occupational and Environmental Medicine*, *18*(2), 75. https://doi.org/10.4103/0019-5278.146896

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