

Predictors of quality of life in workers with repetitive strain injuries/work-related musculoskeletal disorders: cross-sectional study

Fatores preditores de qualidade de vida em trabalhadores com lesões por esforços repetitivos/distúrbios osteomusculares relacionados ao trabalho: estudo transversal

Factores predictivos de la calidad de vida en trabajadores con lesiones por esfuerzo repetitivo/trastornos musculoesqueléticos relacionados con el trabajo: un estudio transversal

Received: 29/07/2024 Accepted: 12/09/2024 Published: 12/10/2024

 Anna Neri Batista da Silva¹,  Patrícia Ribeiro Marcacine²,  Lislei Jorge Patrizzi Martins³
 Henrique Porcatti Walsh⁴,  Eduardo Elias Vieira Carvalho²,  Isabel Aparecida Porcatti de Walsh⁵

Abstract:

Objective: to evaluate the predictors of quality of life in workers with Repetitive Strain Injuries/Work-Related Musculoskeletal Disorders. **Methods:** a descriptive, cross-sectional study with an exploratory and quantitative nature, developed in 2019. Sociodemographic aspects, the intensity of musculoskeletal symptoms, musculoskeletal and emotional comorbidities, and the quality of life of workers were evaluated. Linear regression analysis was performed to identify predictors of quality of life. **Results:** a total of 68 workers participated, with an average age of 50.1±7.25 years. The lowest quality of life mean score was for the Physical Domain, and the highest was for the Social Domain. A higher number of musculoskeletal comorbidities predicted greater impairment in the Physical Domain ($\beta = -0.280$, $p=0.048$) and Social Domain ($\beta = -0.390$, $p=0.006$); a higher number of emotional comorbidities predicted greater impairment in the Psychological Domain ($\beta = -0.332$, $p=0.005$); and older age ($\beta = -0.415$, $p=0.001$) predicted greater impairment in the Environmental Domain of quality of life. **Conclusions:** in the evaluated workers with Repetitive Strain Injuries/Work-Related Musculoskeletal Disorders, a higher number of musculoskeletal comorbidities predicted greater impairment in the Physical Domain and Social Domain; a higher number of emotional comorbidities predicted greater impairment in the Psychological Domain; and older age predicted greater impairment in the Environmental Domain of quality of life. The findings of this study highlight important aspects for the formulation of specific public policies aimed at promoting health and preventing complications to improve the quality of life of this population.

Keywords: Quality of life; Workers; Cumulative trauma disorders.

Resumo:

Objetivo: avaliar os fatores preditores da qualidade de vida em trabalhadores com Lesões por Esforços Repetitivos/Distúrbios Osteomusculares Relacionados ao Trabalho. **Método:** estudo descritivo, transversal, com metodologia exploratória e quantitativa, realizado em 2019. Foram avaliados aspectos sociodemográficos, intensidade dos sintomas musculoesqueléticos, comorbidades musculoesqueléticas e emocionais e qualidade de vida dos trabalhadores. Foi realizada análise de regressão linear para identificar os preditores dos domínios da qualidade de vida. **Resultados:** participaram 68 trabalhadores, com média de idade de 50,1±7,25 anos. A menor média de escore de qualidade de vida foi para o Domínio Físico e a maior para o Domínio Social. Maior número de comorbidades musculoesqueléticas predisse maior comprometimento no Domínio Físico ($\beta = -0,280$, $p=0,048$) e nas Relações Sociais ($\beta = -0,390$, $p=0,006$); maior número de comorbidades emocionais previu maior comprometimento no Domínio Psicológico ($\beta = -0,332$, $p=0,005$); e idade avançada ($\beta = -0,415$, $p=0,001$) previu maior comprometimento no Meio Ambiente da qualidade de vida. **Conclusões:** nos trabalhadores avaliados com Lesões por Esforços Repetitivos/Distúrbios Osteomusculares Relacionados ao Trabalho, maior número de comorbidades musculoesqueléticas previu maior comprometimento no Domínio Físico e Relações Sociais; maior número de comorbidades emocionais previu maior comprometimento no Domínio Psicológico; e idade avançada previu maior comprometimento no Meio Ambiente da qualidade de vida. Os achados deste estudo destacam aspectos importantes para a formulação de políticas públicas específicas voltadas à promoção da saúde e prevenção de complicações para melhoria da qualidade de vida dessa população. **Palavras-chave:** Qualidade de vida; Trabalhadores; Transtornos traumáticos cumulativos.

Resumen:

Objetivo: evaluar los factores predictivos de la calidad de vida en trabajadores con Lesiones por Esfuerzo Repetitivo/Trastornos Musculoesqueléticos Relacionados con el Trabajo. **Método:** estudio descriptivo, transversal, de carácter exploratorio y cuantitativo, desarrollado en 2019. Se evaluaron aspectos sociodemográficos, la intensidad de los síntomas musculoesqueléticos, las comorbilidades musculoesqueléticas y emocionales, y la calidad de vida de los trabajadores. Se realizó un análisis de regresión lineal para identificar predictores de la calidad de vida. **Resultados:** participaron un total de 68 trabajadores, con una edad media de 50,1±7,25 años. La puntuación media de calidad de vida más baja correspondía al Dominio Físico, y la más alta, al Dominio Social. Un mayor número de comorbilidades musculoesqueléticas predijo un mayor deterioro en el Dominio Físico ($\beta = -0,280$; $p=0,048$) y en el Dominio Social ($\beta = -0,390$; $p=0,006$); un mayor número de comorbilidades emocionales predijo un mayor deterioro en el Dominio Psicológico ($\beta = -0,332$; $p=0,005$); y una mayor edad ($\beta = -0,415$; $p=0,001$) predijo un mayor deterioro en el Dominio Ambiental de la calidad de vida. **Conclusiones:** en los trabajadores evaluados con Lesiones por Esfuerzo Repetitivo/Trastornos Musculoesqueléticos Relacionados con el Trabajo, un mayor número de comorbilidades musculoesqueléticas predijo un mayor deterioro en el Dominio Físico y el Dominio Social; un mayor número de comorbilidades emocionales predijo un mayor deterioro en el Dominio Psicológico; y una mayor edad predijo un mayor deterioro en el Dominio Ambiental de la calidad de vida. Los hallazgos de este estudio destacan aspectos importantes para la formulación de políticas públicas específicas dirigidas a promover la salud y prevenir complicaciones para mejorar la calidad de vida de esta población.

Palabras clave: Calidad de vida; Trabajadores; Trastornos traumáticos acumulativos.

Corresponding Author: Eduardo Elias Vieira Carvalho– eduardo.carvalho@uftm.edu.br

1. Municipality of Uberaba. Uberaba/MG, Brazil

2. Rehabilitation Center of the Municipality of Uberaba. Uberaba/MG, Brazil

3. Undergraduate Program in Physical Therapy of the Universidade Federal do Triângulo Mineiro. Uberaba/MG, Brazil

4. Fundação Padre Albino. Catanduva/SP, Brazil

5. Postgraduate Program in Physical Therapy of the Universidade Federal do Triângulo Mineiro. Uberaba/MG, Brazil

INTRODUCTION

Repetitive Strain Injuries/Work-Related Musculoskeletal Disorders (RSI/WRMSDs) represent a group of diseases that affect muscular, tendinous, and peripheral nerve structures, primarily in the upper limbs. The main symptom are musculoskeletal pain, caused or aggravated by occupational activities, leading to varying degrees of damage. They affect approximately 1.71 billion workers worldwide, representing a significant health problem, with important socioeconomic consequences.^{1,2}

Studies indicate their impact on the Quality of Life (QoL) of affected workers.³⁻⁵ Therefore, assessing QoL can provide relevant elements for adequate assistance to these workers.

Furthermore, self-reported assessment of morbidities has been evaluated as a good measure of health conditions, corroborating medical records or clinical examinations⁶ and can be used by formal workers, as well as informal workers or those with precarious employment situations, with long-term illnesses requiring treatment and longer recovery periods⁷.

Thus, this study aims to evaluate the predictors of quality of life in workers with Repetitive Strain Injuries/Work-Related Musculoskeletal Disorders.

METHODS

A descriptive, cross-sectional study with an exploratory and quantitative approach was conducted in 2019, at a secondary care unit in a municipality in the interior of the state of Minas Gerais, Brazil, which provides rehabilitation services in physical therapy, speech therapy, and psychology. Users with musculoskeletal conditions are referred to the physical therapy service of this unit by physicians, with a clinical/musculoskeletal diagnosis on the referral form, but do not specify whether there is a relationship between clinical condition and work, with a diagnosis of RSI/WRMD.

Initially, contact was made via telephone with users to identify those who were workers, considering as such all those who performed activities to support themselves and/or their dependents, regardless of their position in the labor market. Were also included individuals retired due to work-related disability, unemployed, or on sick leave for health reasons.⁸

Those who agreed to participate in the research were scheduled to attend the unit at a date and time of their convenience, where an interview was conducted to assess sociodemographic aspects, detailed medical history (history of the current illness), occupational aspects, musculoskeletal symptoms, and a detailed physical examination. Normative Instruction No.98, of 5 December, 2003, which approves the Technical Standard on

RSI/WRMD,⁹ indicates that the diagnostic conclusion should consider the clinical picture, its evolution, possible etiological factors, with emphasis on anamnesis and occupational factors. Thus, based on these assessments, it was possible to establish the diagnosis of the evaluated workers.

Exclusion criteria were having a diagnosis of musculoskeletal conditions unrelated to work; cognitive decline (assessed by the clock-drawing test, which aids in the detection of cognitive disorders and dementia, considering a cutoff score below six points);^{10,11} and failure to complete data collection.

A list of 605 users was provided by the service. The sample size calculation was performed according to the formula for calculating the sample size for simple proportion for a finite population, with a margin of error of 10% and a confidence level of 95%, which indicated a sample of 65 affected individuals.

The variables and data collected were sociodemographic aspects, data regarding age, sex, marital status, education, and family income.

To assess the intensity of musculoskeletal symptoms, a Numeric Rating Scale from 0 to 10 was used for each body region evaluated by the Nordic Musculoskeletal Questionnaire (NMQ), which is frequently used to identify WMSDs¹². This questionnaire considers nine body regions for more precise localization and description, facilitating comparison of results with other studies. The last 12 months preceding the interview were considered¹³.

Musculoskeletal (back injuries; arm/hand injuries; leg/foot injuries; injuries in other areas of the body; upper back or neck disease with frequent pain; lower back disease with frequent pain; back pain radiating to the leg; musculoskeletal disease affecting limbs with frequent pain; rheumatoid arthritis and other musculoskeletal diseases) and emotional morbidities (severe emotional disorder or mild emotional disorder) were assessed based on a list derived from the Work Ability Index questionnaire.¹⁴

QoL was assessed using the World Health Organization Quality of Life brief (WHOQOL brief), validated in Brazil, a questionnaire used to assess overall QoL and perceptions of general health. It contains 26 questions that evaluate four domains: Physical (PD), Psychological (PS), Social Relationships (SR), and Environment (EN), with responses to questions within each domain on a Likert-type scale, and higher scores indicating better QoL¹⁵.

The collected data underwent descriptive analysis, using mean and standard deviation, frequency, and percentage. The Kolmogorov-Smirnov and Shapiro-Wilk tests were used to assess data normality. For inferential analysis, chi-square tests, Mann-Whitney tests, and Pearson and Spearman correlations were applied. Characteristics that showed associations

with QoL domains in the bivariate analysis, with p-values <0.20, were used in linear regression analysis to identify predictors of QoL domains. The significance level was set at 5% ($p < 0.05$).

The study was approved by the Research Ethics Committee of our Institution (No.08688818.0.0000.5154–June/2019). All participants were informed about the research objectives and signed the Informed Consent Form.

RESULTS

Of the 605 users, 244 answered to the telephone contact and were scheduled. However, 78 did not attend the evaluation, 24 did not present a causal link to RSI/WRMD; 24 did not achieve a score on the clock-drawing test, and 50 did not complete the assessments. Therefore, 68 workers with RSI/WRMD were included in the present study. These workers were all aged 18 years and older, with an average age of 50.1 ± 7.3 years, and mostly women (76.5%). The average QoL results showed the greatest impairment in the PD, followed by the EN, PS, and SR. The sociodemographic characteristics, environmental risks, morbidities, and QoL of the evaluated individuals are presented in Table 1.

Table 2 presents the associations between QoL domains and sociodemographic characteristics and morbidities in the evaluated individuals. Lower averages in the PD and PS were correlated with higher intensity of symptoms and a higher number of musculoskeletal and emotional morbidities. Lower averages in the EN were correlated with a higher number of musculoskeletal and emotional morbidities and older age. Lower averages in the SR were correlated with a higher number of musculoskeletal and emotional morbidities and associated with having a partner.

The results of the linear regression analysis are presented in Table 3. A higher number of musculoskeletal morbidities predicted greater impairment in the PD ($\beta = -0.272$, $p = 0.05$) and SR ($\beta = -1.206$, $p = 0.01$) of QoL. A higher number of emotional morbidities predicted greater impairment in the PS ($\beta = -0.357$, $p = 0.003$) and EN ($\beta = 0.283$, $p = 0.04$) of QoL. Older age ($\beta = 0.221$, $p = 0.01$) predicted greater impairment in the EN.

Table 1: Sociodemographic and Clinical Characteristics (N=68). Uberaba/MG, 2019.

	M±DP	N(%)
Age (years)	50.1±7.3	
Education (years)	8.3±4.7	
Per capita income (reais)	1953.7±1069.8	
Female		52(76.5)
Marital status		
With partner		36(52.9)
Without partner		32(47.1)
Symptoms		
Intensity	5.73±2.12	
Musculoskeletal	6.13±2.01	
Emotional	1.12±0.66	
Quality of Life		
Physical Domain	39.61±18.59	
Psychological Domain	53.49±20.02	
Social Domain	62.62±17.66	
Environmental Domain	49.54±13.55	

M: Mean; SD: Standard Deviation; n: Frequency

Table 2. Associations between Quality of Life and Sociodemographic and Clinical Characteristics (N=68). Uberaba/MG, 2019.

	Physical Domain			Psychological Domain			Environmental Domain			Social Domain		
	M±DP	p	r	M±DP	p	r	M±DP	p	r	M±DP	p	r
Age		0.52	-0.080		0.10	-0.204		0.01*	-0.339		0.24	-0.145
Education		0.14	0.179		0.11	0.198		0.32	0.122		0.80	0.031
Per capita income												
Gender		0.49			0.11			0.35			0.12	
Male	42.41±19.9			60.42±21.46			52.34±14.09			69.27±15.43		
Female	38.74±18.28			51.36±19.28			48.68±13.41			60.58±17.94		
Marital status		0.81			0.89			0.31			0.01***	
With partner	40.18±16.15			53.13±18.27			47.75±12.17			58.85±15.4		
Without partner	39.09±20.74			53.82±21.72			51.13±14.66			65.97±19.04		
		Morbidities										
Musculoskeletal morbidities		0.001*	-0.409		0.01*	-0.321		0.01*	-0.329		0.001*	-0.420
Intensity of symptoms		0.02**	-0.291		0.05**	-0.243		0.13	-0.183		0.09	-0.210
Emotional morbidities		0.01*	-0.326		0.001*	-0.458		0.01*	-0.339		0.01*	-0.307

*p<0.05, Spearman correlation; **p≤0.05, Pearson correlation; ***p<0.05, Mann Whitney Test.

Table 3. Linear Regression (N=68). Uberaba/MG, 2019.

	β	Standard Error	T	p	95% Confidence interval	
					Lower limit	Upper limit
Physical Domain						
Intensity of symptoms	-0.081	1.215	-0.586	0.56	-3.141	-0.081
Musculoskeletal morbidities	-0.272	1.283	-1.967	0.05*	-5.086	-0.272
Emotional morbidities	-0.216	3.255	-1.875	0.07	-12.609	-0.216
Education	0.094	0.470	0.800	0.43	-0.564	0.094
Psychological Domain						
Intensity of symptoms	-0.119	1.303	-0.864	0.39	-3.730	-0.119
Musculoskeletal morbidities	-0.054	1.418	-0.377	0.71	-3.370	-0.054
Emotional morbidities	-0.357	3.527	-3.074	0.003*	-17.896	-0.357
Education	0.048	0.504	0.413	0.68	-0.799	0.048
Gender	-0.078	5.413	-0.679	0.50	-14.500	-0.078
Age	-0.126	0.328	-1.059	0.29	-1.002	-0.126
Environmental Domain						
Intensity of symptoms	0.863	-0.086	-0.633	0.53	-2.271	0.863
Musculoskeletal morbidities	0.959	-0.028	-0.197	0.84	-2.106	0.959
Emotional morbidities	2.383	-0.244	-2.108	0.04*	-9.787	2.383
Age	0.221	-0.308	-2.601	0.01*	-1.017	0.221
Social Domain						
Intensity of symptoms	1.105	0.002	0.018	0.99	-2.189	1.105
Musculoskeletal morbidities	1.206	-0.390	-2.849	0.01*	-5.847	1.206
Emotional morbidities	3.068	-0.136	-1.190	0.24	-9.784	3.068
Marital status	3.917	0.193	1.729	0.09	-1.056	3.917
Gender	4.699	-0.080	-0.707	0.48	-12.713	4.699

*p<0.05; β = Standardized coefficient.

DISCUSSION

In order to evaluate the predictors of QoL in workers with RSI/WRMD, the present study assessed 68 individuals diagnosed with RSI/WRMD and documented important aspects of QoL that can assist in the prevention of health deterioration and promotion of health for this population.

The workers had an average age of 50.1 ± 7.25 years, and the majority were women (76.5%). It is important to consider the occupational conditions to which they are subjected. Despite the positive aspect of women's inclusion in the formal economy, it is often in less skilled jobs with poorer working conditions, which can contribute to these illnesses.¹⁶ Furthermore, studies show greater exposure of women to tiring and painful positions, as well as repetitive movements¹⁷.

The QoL results showed lower averages for the PD, followed by the EN, PS, and SR. A study aimed at providing WHOQOL-bref scores in a sample of the general Brazilian population found the same sequence of domain results¹⁸. However, in the workers evaluated here, the average scores were lower across all domains.

A higher number of musculoskeletal morbidities predicted greater impairment in the PD and SR. It is considered that the PD evaluates physical capacity (pain, energy, fatigue, sleep, daily activities, work capacity, among others)¹⁵ and that physical issues are affected by strenuous and repetitive work in various professional categories¹⁹. Musculoskeletal comorbidities are limiting factors during professional activities, with the potential to reduce QoL²⁰.

The SR, which evaluates social relationships involving personal relationships, sexual activity, and social support¹⁵ can be affected by these morbidities, as they can cause absences, difficulties in reintegration into the labour market, and consequently insufficient social support.

A higher number of emotional morbidities predicted greater impairment in the PS, which evaluates psychological well-being (feelings, self-esteem, spirituality, religion, others), and the EN, which evaluates the environment in which the person is - safety, home, financial resources, health, transportation, and others¹⁵. It is worth highlighting the substantial aggravating factor of the feeling of incapacity to perform basic and routine activities presented by workers with RSI/WRMD, who live with chronic pain²¹. Studies have indicated that anxiety and depression are aggravators of chronic musculoskeletal symptoms²². Recent research has found that women have a high prevalence of anxiety disorders and depression due to musculoskeletal injuries²³.

Older age was a predictor of greater impairment in the EN, which evaluates the environment in which the person is - safety, home, financial resources, health, transportation, and others¹⁴. Factors such as concerns about physical health, illness, and the need to prevent it, as well as responsibilities such as family and work, may have contributed to this result. Furthermore, workers may experience a reduction in work capacity as they age, depending on their functional and psychosocial context.

Due to the consequences of RSI/WRMD on physical and mental health, additional studies should consider the importance of evaluating the worker's perception of their QoL to provide better chances of recognizing disorders and offering appropriate care

CONCLUSION

In the workers with RSI/WRMD evaluated, a higher number of musculoskeletal morbidities predicted greater impairment in the PD and SR, while a higher number of emotional morbidities predicted greater impairment in the PS. Older age was a predictor of greater impairment in the EN of QoL.

As limitations of this study, it is important to consider its cross-sectional design, which restricts the ability to establish a causal relationship between occupational aspects, morbidities, and impairment of QoL, as these may vary over time and according to the working conditions faced by those affected by RSI/WRMD, who may be absent from work, exposed to the same adverse conditions that caused their conditions, or have undergone changes in function, among other aspects. However, the study's strength lies in its conduct through a representative sample referred to the service for assistance.

These findings from workers' self-perception signal important aspects for the formulation of specific public policies, aiming at promoting health and preventing harm to improve the quality of life of this population.

REFERENCES

1. Russo F, Tecco CD, Fontana L, Adamo G, Papale A, Denaro V, et al. Prevalence of work related musculoskeletal disorders in Italian workers: is there an underestimation of the related occupational risk factors? *BMC Musculoskelet Disord*. 2020; 21(1):1-16. Available from: DOI: <https://doi.org/10.1186/s12891-020-03742-z>
2. Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the global burden of disease study 2019: a systematic analysis for the

- global burden of disease study 2019. *Lancet*. 2021; 396:2006-2017. DOI: [https://doi.org/10.1016/S0140-6736\(20\)32340-0](https://doi.org/10.1016/S0140-6736(20)32340-0)
3. Kim JS, Kim S. The Influence of Musculoskeletal Symptoms, Perceived Health Status, Self-efficacy on Quality of Life (WHOQOL-BREF) in Korean Industrial Workers. *Journal for ReAttach Therapy and Developmental Diversities*. 2023; 6(3s):153–164.
4. Jeong S, Lee BH. The moderating effect of work-related musculoskeletal disorders in relation to occupational stress and health-related quality of life of construction workers: a cross-sectional research. *BMC Musculoskelet Disord*. 2024;25(1):147. DOI: <https://doi.org/10.1186/s12891-024-07216-4>
5. Souza DBO, Barros MBA, Lima MG. Sex differences in the impact of musculoskeletal disorders on health-related quality of life: a population-based study, Campinas, SP-ISACamp-2014/15. *Ciênc saúde coletiva*. 2024; 29(3):e18802022.
6. Theme-Filha MM, Szwarcwald CL, Souza-Junior PRB. Measurements of reported morbidity and interrelationships with health dimensions. *Rev Saúde Pública*. 2008; 42(1):73-81. DOI: <https://doi.org/10.1590/s0034-89102008000100010>
7. Haeffner R, Kalinke LP, Felli VEA, Mantovani MF, Consonni D, Sarquis LMM. Absenteeism due to musculoskeletal disorders in Brazilian workers: thousands days missed at work. *Rev Bras Epidemiol*. 2018; 21:e180003. DOI: <https://doi.org/10.1590/1980-549720180003>
8. Brasil. Portaria Nº2437/2005. Ministério da Saúde, 2005. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2005/prt2437_07_12_2005.html
9. Brasil. Instrução Normativa Nº98/2003. Norma Técnica sobre Lesões por Esforços Repetitivos-LER ou Distúrbios Osteomusculares Relacionados ao Trabalho-DORT. Available from: <https://www legisweb.com.br/legislacao/?id=75579>
10. Sunderland T, Hill JL, Mellow AM, Lawlor BA, Gundersheimer J et al. Clock drawing in Alzheimer's disease. A novel measure of dementia severity. *JAGS*. 1989; 37(8):725-9. <https://doi.org/10.1111/j.1532-5415.1989.tb02233.x>
11. Mendes-Santos LC, Mograbi D, Spenciere B, Charchat-Fichman H. Specific algorithm method of scoring the Clock Drawing Test applied in cognitively normal elderly. *Dement Neuropsychol*. 2015; 9:128-35. DOI: <https://doi.org/10.1590/1980-57642015DN92000007>
12. Weyh C, Pilat C, Kruger K. Musculoskeletal disorders and level of physical activity in welders. *Occup Med*. 2020;70(8):586–92. <https://doi.org/10.1093/occmed/kqaa169>
13. Pinheiro FA, Tróccoli BT, Carvalho CV. Validity of the Nordic Musculoskeletal Questionnaire as morbidity measurement tool. *Rev Saúde Pública*. 2002; 36(3):307-12. DOI: <https://doi.org/10.1590/s0034-89102002000300008>

14. Ilmarinen J, Tuomi K, Seitsamo J. New dimensions of work ability. *Int Congr Ser.* 2005; 1280:3-7. <https://doi.org/10.1016/j.ics.2005.02.060>
15. Fleck MP, Louzada S, Xavier M, Chachamovick E, Vieira G, Santos L, et al. Application of the Portuguese version of the abbreviated instrument of quality life WHOQOL-bref. *Rev.Saude Publica.* 2000; 34(2):178-83. DOI: <https://doi.org/10.1590/s0034-89102000000200012>
16. Cotrim LR, Teixeira MO, Proni MW. Desigualdade de gênero no mercado de trabalho formal no Brasil. Instituto de Economia, Unicamp, 2020. <https://www.eco.unicamp.br/images/arquivos/artigos/TD/TD383.pdf>
17. Crawford JO, Davis A. Work-related musculoskeletal disorders: why are they still so prevalent? Evidence from a literature review. European Agency for Safety and Health at Work; 2020. <https://osha.europa.eu/en/publications/summary-work-related-musculoskeletal-disorders-why-are-they-still-so-prevalent-evidence>
18. CRUZ, Luciane N. et. al. Qualidade de vida no Brasil: valores normativos para o Whoqol-bref em uma amostra da população geral do sul. *Pesquisa de qualidade de vida.* 2011;20(7):1123-1129.
19. Mergener CR, Kehrig RT, Traebert J. Sintomatologia músculo-esquelética relacionada ao trabalho e sua relação com qualidade de vida em bancários do Meio Oeste Catarinense. *Saude soc.* 2008; 17(4):171-81. <https://scielosp.org/article/sausoc/2008.v17n4/171-181/>
20. Natividade PCS, Spagnol CA, Vieira A, Guerra VA, Pereira KD. Contribuições das práticas integrativas e complementares em saúde na qualidade de vida dos trabalhadores. *Brazilian Journal of Development.* 2021; 7(8):78873-89. DOI: <https://doi.org/10.34117/bjdv7n8-213>
21. Zavarizzi CP, Carvalho RMM, Alencar MCB. Worker's groups affected by RSI/ WRMSD: report of experience. *Cad Bras Ter Ocup.* 2019; 27(3):663-670. <https://doi.org/10.4322/2526-8910.ctoRE1756>
22. Härter, M. et. al. Triagem para ansiedade, transtornos depressivos e somatoformes na reabilitação - validade da HADS e GHQ-12 em pacientes com doença musculoesquelética. *Deficiência e reabilitação.* 2001; 23(16):737-44. Available from:
23. Jones AM, Koehoorn M, Bültmann U, McLeod CB. Prevalence and risk factors for anxiety and depression disorders in workers with work-related musculoskeletal strain or sprain in British Columbia, Canada: a comparison of men and women using administrative health data. *Occup Environ Med.* 2021; 22:oemed-2020-106661. DOI: <https://doi.org/10.1136/oemed-2020-106661>

Associated Publisher: Rafael Gomes Ditterich

Conflict of Interests: the authors declared there is no conflict of interests.

Financing: to the Coordination for the Improvement of Higher Education Personnel (CAPES) for the support

CONTRIBUTIONS

Concept – Silva ANB, Marcacine PR, Martins LJP, Walsh HP, Carvalho EEV, Walsh IAP

Investigation – Silva ANB, Marcacine PR, Martins LJP, Walsh HP, Carvalho EEV, Walsh IAP

Writing – first draft - Silva ANB, Marcacine PR, Martins LJP, Walsh HP, Carvalho EEV

Writing – revision and editing - Silva ANB, Carvalho EEV, Walsh IAP

How to cite this article (Vancouver)

Silva AVHS, Campos JS, Machado AH, Araújo APM, Dias BAC, Silva DDO. Predictors of quality of life in workers with Repetitive Strain Injuries/Work-Related Musculoskeletal Disorders: cross-sectional study. Rev Fam, Ciclos Vida Saúde Contexto Soc. [Internet]. 2024 [cited in *insert day, month and year of access*]; 12(4):e7782. DOI: <https://doi.org/10.18554/refacs.v12i2.7782>.

How to cite this article (ABNT)

SILVA, A. V. H. S.; CAMPOS, J. S.; MACHADO, A. H.; ARAÚJO, A. P. M.; DIAS, B. A. C.; SILVA, D. D. O. Predictors of quality of life in workers with Repetitive Strain Injuries/Work-Related Musculoskeletal Disorders: cross-sectional study. **Revista Família, Ciclos Vida e Saúde no Contexto Social**, Uberaba, MG, v. 12, n. 4, e7782, 2024. DOI: <https://doi.org/10.18554/refacs.v12i2.7782>. Access in: *insert day, month and year of access*.

How to cite this article (APA)

Silva, A. V. H. S., Campos, J.S., MACHADO, A.H., ARAÚJO, A.P.M., DIAS, B.A.C., Silva, D. D. O. (2024). Predictors of quality of life in workers with Repetitive Strain Injuries/Work-Related Musculoskeletal Disorders: cross-sectional study. Rev. Fam., Ciclos Vida Saúde Contexto Soc., 12(4), e7782. Retrieved in *insert day, month and year of access* from <https://doi.org/10.18554/refacs.v12i2.7782>.



This is an open access article distributed under the terms of the Creative Commons License