

INFLUENCE OF WORK ABILITY ON THE QUALITY OF LIFE OF MILITARY FIREFIGHTERS*

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ABSTRACT: Objective: to evaluate the influence of the work ability on the quality of life of military firefighters. Method: a cross-sectional, population-based, census study, conducted from January to March 2015, with 101 firefighters from the Military Fire Brigade Group of municipalities in the South and Southwest of Bahia. Self-report instruments were used in the study to evaluate the sociodemographic and work characteristics, quality of life and work ability. Results: it was found that military firefighters with five years or less of service obtained better perceptions of quality of life in the physical and social relationships domains. Regarding the work ability, it was observed that workers with good and very good ability obtained better perceptions in the physical, psychological, social relationships and environment domains. Conclusion: the results can support interventions and improvements in the working conditions of rescue professionals such as firefighters, nurses and physicians. **DESCRIPTORS:** Firefighters; Work conditions; Quality of life; Worker's health.

INFLUÊNCIA DA CAPACIDADE PARA O TRABALHO NA QUALIDADE DE VIDA DE BOMBEIROS MILITARES

RESUMO: Objetivo: avaliar a influência da capacidade para o trabalho na qualidade de vida de bombeiros militares. Método: estudo censitário de base populacional do tipo transversal, realizado de janeiro a março de 2015, com 101 bombeiros do Grupamento de Bombeiros Militares de municípios da região Sul e Sudoeste da Bahia. Foram utilizados no estudo instrumentos autoaplicáveis para avaliar as características sociodemográficas e laborais, qualidade de vida e capacidade para o trabalho. Resultado: constatou-se que os bombeiros militares com menor ou igual a cinco anos de serviço obtiveram melhores percepções de qualidade de vida nos domínios físico e relações sociais. Quanto à capacidade para o trabalho, observou-se que os trabalhadores com boa e ótima capacidade obtiveram melhores percepções nos domínios físico, psicológico, social e meio ambiente. Conclusão: os resultados podem auxiliar nas intervenções e melhorias nas condições de trabalho de profissionais de resgate como bombeiros, enfermeiros e médicos.

DESCRIPTORIOS: Bombeiros; Condições de trabalho; Qualidade de vida; Saúde do trabalhador.

INFLUENCIA DE LA CAPACIDAD LABORAL EN LA CALIDAD DE VIDA DE BOMBEROS MILITARES

RESUMEN: Objetivo: Evaluar la influencia de la capacidad laboral en la calidad de vida de bomberos militares. Método: Estudio censario de base poblacional, tipo transversal, realizado de enero a marzo de 2015 con 101 bomberos del Cuartel de Bomberos Militares de municipios del sur y sureste de Bahia. Fueron utilizados instrumentos autoaplicables para evaluar características sociodemográficas y laborales, calidad de vida y capacidad laboral. Resultado: Se constató que los bomberos militares con cinco años o menos de servicio mostraron mejores percepciones de calidad de vida en los dominios físico y relaciones sociales. Respecto a la capacidad laboral, se observó que los trabajadores con buena y óptima capacidad mostraron mejores percepciones en los dominios físico, psicológico, social y medio ambiente. Conclusión: Los resultados pueden colaborar en intervenciones y mejoras de las condiciones de trabajo de los profesionales de rescate, como bomberos, enfermeros y médicos.

DESCRIPTORIOS: Bomberos; Condiciones de Trabajo; Calidad de Vida; Salud Laboral.

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● INTRODUCTION

Military Firefighters (MFs) constitute one of the professional categories that most face adverse conditions at work, due to performing services that require great physical effort, precision and swift action during the incidents, where any slip can put them at risk of death⁽¹⁾. These situations can cause both physical and mental impairment for the professional⁽²⁾. For this reason, the study of their Quality of Life (QoL) has aroused interest in seeking improvements in their working conditions and psychosocial environment, in the promotion of health and in the development of the competence of each professional in the work context⁽³⁻⁴⁾.

It should be emphasized that QoL is a subjective, multidimensional concept that involves elements of both positive and negative evaluation and establishes relationships between different domains (physical, psychological, level of independence, social and environment)⁽⁵⁻⁶⁾. Due to its multidimensional nature, QoL can have different repercussions on the work aspects of individuals, from aspects related to health promotion to illness due to work-related diseases, which are fundamental to the maintenance of their work ability⁽⁷⁾.

The work ability of MFs may be influenced by their health status; in addition, the interactions established between these aspects can cause an increase in symptoms such as stress, anxiety, changes in sleep quality and mental disorders, as well as the development of psychosomatic and cardiovascular diseases⁽⁸⁻⁹⁾.

The MFs encounter conditions of exposure to risks at work, either through contact with physical and biological agents during the incidents or through long working hours in the service, which cause fatigue and overload, affecting the performance and work routine, thus reducing their work ability⁽¹⁰⁾.

In view of the above, this study aimed to contribute to the improvement of the QoL of the MF, in addition to encouraging both structural and functional (re)organization of the health services, in order to provide health promotion actions for this group of workers. The aim was to evaluate the influence of the work ability on the quality of life of military firefighters.

● METHOD

This was an epidemiological, population-based, cross-sectional study carried out in the Military Fire Brigade Group (*Grupamento de Bombeiros Militares - GBM*) of municipalities in the South and Southwest of Bahia, Brazil, from January to March 2015. The 8th GBM is composed of 128 firefighters that work in the operational and administrative service in 24 municipalities in the South and Southwest region of Bahia.

Military firefighters of both sexes that performed operational services and, after explanation of the study objectives, agreed to participate and signed the consent form, were included in the study. A total of 25 firefighters carrying out administrative activities were excluded, as well as two that were on vacation. Thus, the sample consisted of 101 firefighters.

The application of the instruments was accompanied by trained and instructed researchers in order to avoid possible biases. A form consisting of three thematic blocks: sociodemographic and work characteristics, QoL survey and work ability survey, was used.

The sociodemographic variables evaluated were: gender, age, marital status, education, race/skin color⁽¹¹⁾ and monthly income as a firefighter. With regard to the work characteristics, the following variables were verified: other employment relationships, hierarchical position, punishment in the service, satisfaction with the work environment and emergency situations. Considering that the length of service may affect the work ability of the individuals⁽⁷⁾, it was chosen to present the characterization of the study population with the variable categorized as five years or less (≤ 5) or more than five years (> 5).

The QoL was assessed using the World Health Organization Quality of Life instrument (WHOQOL-Bref), which was validated for use in Brazil⁽⁶⁾. The instrument consists of 24 issues grouped into four

domains:

- Physical: 3. Pain and discomfort; 4. Energy and fatigue; 10. Sleep and rest; 15. Mobility; 16. Activities of everyday living; 17. Dependence on medicinal substances and medicinal aids; 18. Work ability.
- Psychological 5. Positive feelings; 6. Thinking, learning, memory and concentration; 7. Self-esteem; 11. Bodily image and appearance; 19. Negative feelings; 26. Spirituality/religion/personal beliefs
- Social relationships: 20. Personal relationships; 21. Social Support; 22. Sexual activity
- Environment: 8. Freedom, physical safety and security; 9. Home environment; 12. Financial resources; 13. Health and social care: accessibility and quality; 14. Opportunities for acquiring new information and skills; 23. Participation in and opportunities for recreation/leisure activities; 24. Physical environment: (pollution/noise/traffic/climate); 25. Transport.
- Two questions assessing QoL in general and satisfaction with one's own health⁽⁶⁾.

To evaluate the work ability, the Work Ability Index (WAI), translated and validated in Brazil⁽¹²⁾, was used. This instrument provides a score ranging from 7 (worst index) to 49 (best index), which is categorized into four levels: bad (7-27), moderate (28-36), good (37-43) and very good (44-49).

The data analysis was processed using the Statistical Package for the Social Sciences (SPSS) 21.0. The Kolmogorov-Smirnov test was applied to verify the data distribution pattern, showing no normality ($p < 0.05$).

The qualitative variables were described using absolute and relative frequencies, while the interquartile range was used for the quantitative variables. The Mann Whitney test was used to determine the differences between the QoL domains and the length of service of the MFs. Similarly, the Kruskal-Wallis test was used to compare the QoL domains with the categories of the WAI. The level of significance adopted in the tests was $p < 0.05$. The results were presented as median and interquartile range.

The study was approved by the Research Ethics Committee of the State University of the Southwest of Bahia, following National Health Council Resolution No. 466/2012⁽¹³⁾, under authorization No. 972.480.

● RESULTS

Among those evaluated, the median age was 39 years (34 - 43.5), ranging from 24 to 51 years. There was a predominance of individuals with more than 5 years of service, 76.2% ($n=77$), 81.8% ($n=63$) were male and 52% ($n=40$) aged over 40 and with high school education.

Concerning the work characteristics, it was found that 94.8% ($n=73$) were satisfied with the work, 79.3% ($n=61$) had never received punishment, 46.7% ($n=36$) occupied the hierarchical position of soldiers and 58.4% had not experience a traumatic moment during the work.

Table 1 presents the sociodemographic and work characteristics of the MFs, according to the length of service (years) in the profession.

Table 1 - Sociodemographic and work characteristics of the firefighters stratified by length of service (years) in the job. Jequié, BA, Brazil, 2015 (continues)

Variables	Length of service as a Firefighter			
	≤ 5 years		>5 years	
	n (24)	%	n (77)	%
SOCIODEMOGRAPHIC CHARACTERISTICS				
Gender				

Male	20	83.3	63	81.8
Female	4	16.7	14	18.2
Age group (years)				
21 30	15	62.5	-	-
31 40	9	37.5	37	48.0
> 40	-	-	40	52.0
Marital status				
With partner	12	50.0	57	74.0
Without partner	12	50.0	20	26.0
Education				
High School Education	5	20.8	34	44.1
Higher Education.	17	70.8	32	41.6
Postgraduate degree/Master's Doctorate	2	8.4	11	14.3
Race/Skin color				
Black	18	75.0	66	85.7
Not Black	6	25.0	11	14.3
Income				
3 4 wages	17	70.8	58	75.3
4 5 wages	3	12.5	9	11.7
5 wages or more	4	16.7	10	13.0
WORK CHARACTERISTICS				
Satisfaction with the work environment				
Yes	-	-	73	94.8
No	24	100	4	5.2
Punishment at work				
Yes	-	-	16	20.7
No	24	100	61	79.3
Hierarchical position				
Soldier	19	79.1	36	46.7
Corporal	-	-	18	23.4
Sergeant	-	-	16	20.8
Official	5	20.9	7	9.1
Traumatic event				
Yes	5	20.9	32	41.6
No	19	79.1	45	58.4

Concerning the comparison between the QoL domains according to length of service in the profession, it was possible to evidence statistically significant differences. The MFs with a length of service ≤ 5 years had a better perception of QoL in the physical and social relationships domains when compared to those with a length of service > 5 years (Table 2).

Table 2 - Median and interquartile range (IR) of the quality of life domains stratified by length of work (years) as a firefighter (N=101). Jequié, BA, Brazil, 2015 (continues)

WHOQOL-Bref domains	Length of Service	Median (IR)	P value
Physical	≤ 5	80.4 (71.4-84.8)	0.049*
	> 5	71.4 (62.5-85.7)	

Psychological	≤5	81.2 (70.8-87.5)	0.273
	>5	75 (70.8-83.3)	
Social relationships	≤5	83.3 (75.0-91.6)	0.029*
	>5	75 (75.0-83.3)	
Environment	≤5	65.6 (53.1-74.2)	0.329
	>5	62.5 (53.1-71.8)	
Self-assessment of QoL	≤5	75.0 (75.0-87.5)	0.643
	>5	75.0 (62.5-87.5)	

Regarding the results of the work ability classification according to the overall WAI score among the MFs, it was found that 5.9% (n=6) presented a bad ability, 34.7% (n=35) moderate, 43.6 % (n=44) good and 15.8% (n=16) a very good ability. Comparing the QoL domains with the work ability categories, it was evidenced that individuals with a good ability presented better perception of QoL in the physical domain. Individuals with a very good ability presented better perception of QoL in the psychological, social relationships and environment domains (Table 3).

Table 3 - Comparison of quality of life domains with the stratified WAI categories of the firefighters (N=101). Jequié, BA, Brazil, 2015

WHOQOL-Bref domains	Ability	Median (IR)	P
Physical	Bad	53.5 (45.5-65.1)	0.006*
	Moderate	71.4 (60.7-82.1)	
	Good	78.5 (67.8-84.8)	
	Very good	73.2 (65.1-85.7)	
Psychological	Low	60.1 (58.3-68.7)	0.017*
	Moderate	79.1 (70.8-87.5)	
	Good	79.1 (70.8-87.5)	
	Very good	81.2 (75.0-90.6)	
Social relationships	Low	70.8 (50.0-75.0)	0.001*
	Moderate	75.0 (66.6-83.3)	
	Good	75.0 (75.0-83.3)	
	Very good	87.5 (77.1-100)	
Environment	Low	51.6 (43.7-57.0)	0.038*
	Moderate	62.5 (53.1-68.7)	
	Good	62.5 (56.2-71.8)	
	Very good	67.1 (57.8-82.8)	
QoL evaluation index	Low	75.0 (59.3-75.0)	0.389
	Moderate	75.0 (62.5-87.5)	
	Good	75.0 (75.0-75.0)	
	Very good	75.0 (75.0-87.5)	

● DISCUSSION

The work activity of MFs is conditioned to adverse situations and high risk in the incidents during the period of service, which reveals the degree of demand of this type of work and preparation for its performance⁽¹⁴⁾. As evidenced here, it is a profession exercised mainly by men with a stable economic

situation, both nationally⁽¹⁵⁾ and internationally⁽¹⁶⁻¹⁷⁾.

Regarding the age group, it was possible to notice that the majority of the MFs were over 40 years of age. The fact that the workers are older can reduce the work ability, with this type of situation requiring the incorporation of prevention and care measures in relation to the activities performed by a worker of this age⁽¹⁸⁾.

It was observed in the study that generally the MFs who had been in the service longer cohabited with a partner. The marital status favors the interaction of emotional well-being and development with the work, contributing to better working conditions⁽¹⁹⁾. Therefore, the interaction between working conditions and family life is considered a factor for a better QoL, reinforcing the premise of reflection on the influence of the family on the psychological aspect of the individual and its consequences in the professional life⁽²⁰⁾.

Good psychological preparation is of fundamental importance for the performance of the work, since experiencing emergency situations, which require a high degree of commitment and swift action, such as dealing with the death of people, not being able to carry out the rescue in a timely manner and being exposed to adverse events, causes the professional to experience traumatic situations. These events can have consequences such as posttraumatic stress, which directly compromises the health, as well as affecting the QoL of the worker^(1,21).

Because of these possibilities of deterioration of health and consequences for the QoL, it is of paramount importance to study the relationship between this and the work characteristics. The MFs with less than five years of service presented a better perception of QoL in the physical and social relationships domains. Thus, it was highlighted that individuals with less time working in this activity probably do not present physical compromise. This could be due to being in their early career, as well as not having been exposed to the stressor factors for long. In addition, other studies have shown that workers who have been working for a longer time suffer with the physical conditions and working hours, due to the process of fatigue and aging, which may compromise the ability to work^(2,22).

It should be noted that, with the performance of the work over the years and with the physiological process of aging, physical and psychic problems begin, impairing the interpersonal relationships with work colleagues and family, potentializing the compromise of health and QoL⁽²²⁾. Individuals in the emergency services are exposed to situations that compromise health and QoL because of the conditions related to the work⁽²³⁾.

In addition, the work of the professional firefighter is mediated by situations that lead to occupational, physical and ergonomic risks. Climbing stairs, removing victims trapped in vehicles after an accident and the weight of the equipment, can favor the development of musculoskeletal problems, which would make it impossible for the worker to carry out the work, compromising the health and QoL⁽²⁴⁾.

The firefighters with less than five years of service showed a better perception of QoL in the social relationships domain, perhaps because of the short length of work experience, with greater support and conviviality with colleagues being necessary, in order to acquire more security and command of the service activities. Social interaction is a factor that allows greater interaction and dialogue in decision making and is a contributing factor for better QoL⁽²⁵⁾.

Regarding the relationship between QoL and the work ability, the results presented here showed a significant association between the two. Other studies have shown that this association can be due to the fact that the work ability is related to both work factors and external factors, which can be directly associated with the perception of QoL^(18,26).

It was possible to verify that the MFs with good work ability had a better perception of the QoL physical domain. Factors related to the work ability such as the degree of satisfaction with the service and the coexistence are determinant for the professionals to perform their function satisfactorily⁽²⁷⁾. However, despite the good ability, it cannot be overlooked that the working conditions associated with physical and ergonomic risks can compromise the physical condition, with work factors, such as work overload and shift alternation, impacting on the quality of sleep and altering the daily habits of the professional, which compromises health and QoL⁽²¹⁻²²⁾.

It was evidenced that the firefighters with very good work ability presented a better perception regarding the QoL psychological domain, while those with a bad ability presented impairment in this QoL domain. It should be highlighted, because it is a profession that deals directly with emergency situations, with the experience of traumatic moments, this type of work can trigger psychological reactions and changes in behavior, as well as diminish the work ability^(22,28).

Considering the social relationships domain with the work ability aspects, there was a statistical difference, suggesting that as the ability improves, the relationships domain of the QoL improves. Other studies reveal that, although work groups may present harmonic relationships, emotional and psychological problems may arise throughout the profession and negatively affect good coexistence, as well as interfere with the individual's work and QoL^(7,29).

Regarding the environment domain⁽⁶⁾, there was a tendency for higher scores in relation to the good and very good work abilities. Individuals with a bad work ability presented less favorable conditions in this QoL dimension. Some authors have highlighted that the lack of leisure associated with a lack of health care, in addition to work environment problems and the performance of other work activities, can compromise the work income and health of the firefighter^(24,26).

It should be highlighted that the type of epidemiological design adopted allowed a specific moment of the individual's health to be evaluated, not allowing any conclusion of causality between the associations, which prevents the analysis of temporality, constituting a limitation of the study.

● CONCLUSION

The study showed that the MFs with good work ability had a better perception of the QoL physical domain. Individuals with a very good work ability presented better perception of the psychological, social relationships and environment QoL domains (Table 3). The results reinforce the fact that the MFs current work ability must be preserved. The findings may also serve as a parameter for interventions and improvements in the work of rescue workers such as firefighters, nurses and physicians.

Although the professionals had good and very good work abilities, it is important to note that the ability to perform the work undergoes changes over time and problems can arise in the work environment, such as the appearance of occupational risks, problems in the interpersonal relationships with colleagues and stress. All these factors influence the individuals' QoL and their work ability. Therefore, it is recommended that further studies are carried out with firefighter populations in order to highlight the factors that affect the work ability and QoL.

● REFERENCES

1. Lima EP, Assunção AA, Barreto SM. Transtorno de Estresse Pós-Traumático (TEPT) em Bombeiros de Belo Horizonte, Brasil: Prevalência e Fatores Ocupacionais Associados. *Psic.: Teor. e Pesq.* [Internet]. 2015 [accessed on 24 Feb 2018]; 31(2). Available at: <http://dx.doi.org/10.1590/0102-37722015022234279288>.
2. Melo LP, Carlotto MS. Prevalência e Preditores de Burnout em Bombeiros. *Psicol: cienc. prof.* [Internet]. 2016 [accessed on 25 Feb 2018]; 36(3). Available at: <http://dx.doi.org/10.1590/1982-3703001572014>.
3. Vidotti HGM, Coelho VHM, Bertoncello D, de Walsh IAP. Qualidade de vida e capacidade para o trabalho de bombeiros. *Fisioter. Pesqui.* [Internet]. 2015 [accessed on 18 Feb 2018]; 22(3). Disponível: http://www.scielo.br/scielo.php?pid=S1809-29502015000300231&script=sci_abstract&tlng=pt.
4. Lima C, Maia A, Ferreira R, Magalhães A, Nunes H, Pinheira S, et al. PTSD and quality of life among firefighters and municipal police forces. *European Psychiatry.* [Internet]. 2016 (Suppl 1) [accessed on 18 Feb 2018]; 33. Available at: <https://doi.org/10.1016/j.eurpsy.2016.01.1895>.

5. The World Health Organization quality of life assessment (WHOQOL): development and general psychometric properties. *Soc. Sci. Med.* [Internet]. 1998 [accessed on 18 Jul 2015]; 46(12). Available at: [https://doi.org/10.1016/S0277-9536\(98\)00009-4](https://doi.org/10.1016/S0277-9536(98)00009-4).
6. Fleck MPA, Louzada S, Xavier M, Chamovich E, Vieira G, Santos L, Pinzon V. Aplicação da versão em português do instrumento abreviado de avaliação da qualidade de vida "WHOQOL-Bref". *Rev. Saúde Pública* [Internet]. 2000 [accessed on 18 Jul 2015]; 34(2). Available at: <http://dx.doi.org/10.1590/S0034-8910200000200012>.
7. Hilleshein EF, Lautert L. Capacidade para o trabalho, características sociodemográficas e laborais de enfermeiros de um hospital universitário. *Rev. Latino-Am. Enfermagem* [Internet]. 2012 [accessed on 18 Jul 2015]; 20(3). Available at: <http://dx.doi.org/10.1590/S0104-11692012000300013>.
8. Smitha TD, Huhesa K, Dejoyb DM, Dyal MA. Assessment of relationships between work stress, work-family conflict, burnout and firefighter safety behavior outcomes. *Safety Science*. [Internet]. 2018 [accessed on 18 Feb 2018]; 103. Available at: <https://doi.org/10.1016/j.ssci.2017.12.005>.
9. Ferreira RC, da Silveira AP, de Sá MAB, Feres SBL, Souza JGS, Martis AMEBL. Transtorno mental e estressores no trabalho entre professores universitários da área da saúde. *Trab. educ saúde*. [Internet]. 2015 (Supl 1)[accessed on 10 Aug 2015];13. Available at: <http://dx.doi.org/10.1590/1981-7746-sip00042>.
10. Carpenter G, Carpenter T, Kimbrel N, Flynn E, Pennington M, Cammarata C, et al. Social support, stress and suicidal ideation in professional firefighters. *Am J Health Behav.* [Internet]. 2015 [accessed on 20 Feb 2018]; 39(2). Available at: <http://dx.doi.org/10.5993/AJHB.39.2.5>.
11. Araújo EM, Costa MC, Hogan VK, Mota ELA, Araújo TM, Oliveira NF. Race/skin color differentials in potential years of life lost due to external causes. *Rev. Saúde Pública*. [Internet]. 2009 [accessed on 13 Aug 2015]; 43(3). Available at: <http://dx.doi.org/10.1590/S0034-89102009005000021>.
12. Silva Junior SHA, Vasconcelos AGG, Griep RH, Rotenberg L. Validade e confiabilidade do índice de capacidade para o trabalho (ICT) em trabalhadores de enfermagem. *Cad. Saúde Pública*. [Internet]. 2011 [accessed on 20 Feb 2018]; 27(6). Available at: <http://dx.doi.org/10.1590/S0102-311X2011000600005>.
13. Brasil. Ministério da Saúde. Resolução n. 466, de 12 de dezembro de 2012. Dispõe as diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. *Diário Oficial da União, Brasília*, 13 jun. 2013. Seção 1, p. 59.
14. Oliveira AC, Machado BCA, Gama CS, Garbaccio JL, Damasceno QS. Biossegurança: conhecimento e adesão pelos profissionais do corpo de bombeiros militar de minas. *Esc Anna Nery*. [Internet]. 2013 [accessed on 14 Aug 2015];17(1). Available at: <http://dx.doi.org/10.1590/S1414-81452013000100020>.
15. Lima EP, Assunção AA, Barreto SM. Prevalência de depressão em bombeiros. *Cad. Saúde Pública*. [Internet]. 2015 [accessed on 17 Aug 2015]; 31(4). Available at: <http://dx.doi.org/10.1590/0102-311X00053414>.
16. Davis J, Gallagher S. Physiological demand on firefighters crawling during a search exercise. *International Journal of Industrial Ergonomics*. [Internet]. 2014 [accessed on 17 Aug 2015]; 44(6). Available at: <https://doi.org/10.1016/j.ergon.2014.10.001>.
17. Mehta JP, Laverder SA, Hedman GE, Reichelt PA, Park S, Conrad KM. Evaluating the physical demands on firefighters using track-type stair descent devices to evacuate mobility-limited occupants from high-rise buildings. *Applied. Ergonomics*. [Internet]. 2015 [accessed on 18 Aug 2015]; 45(3). Available at: <https://doi.org/10.1016/j.apergo.2013.05.005>.

18. Martin JIG, Duarte N, Gonçalves E, Cabral S, Silva C. Capacidade para o trabalho de bombeiros. *Universitas: Ciências da Saúde*. [Internet]. 2013 [accessed on 22 Feb 2018]; 11(2). Available at: <https://doi.org/10.5102/ucs.v11i2.2451>.
19. Moura AL, dos Reis LM, Vannuchi MTO, Haddad MCL, Domansky RC. Capacidade para o trabalho de funcionários da prefeitura de um campus universitário público. *Rev. Eletr. Enf.* [Internet]. 2013 [accessed on 25 Feb 2018]; 15(1). Available at: <https://doi.org/10.5216/ree.v15i1.13574>.
20. Martins FF, Lopes RMF, Farina M. Nível de estresse e principais estressores do motorista de transporte coletivo. *Bol. - Acad. Paul. Psicol.* [Internet]. 2014 [accessed on 26 Feb 2018]; 34(87). Available at: <http://pepsic.bvsalud.org/pdf/bapp/v34n87/a14.pdf>.
21. Montero-Marin J, Prado-Abril J, Demarzo MMP, Gascon S., García-Campayo J. Coping with stress and types of burnout: explanatory power of different coping strategies. *Plos. One.* [Internet]. 2014 [accessed on 26 Feb 2018]; 9(2) Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3923838/>.
22. Chen HC, Chou FH, Chen MC. A survey of quality of life and depression for Police officers in Kaohsiung, Taiwan. *Qual Life Res.* [Internet]. 2006 [accessed on 21 Aug 2015]; 15(5). Available at: <http://dx.doi.org/10.1007/s11136-005-4829-9>.
23. Salvador RSP, Silva BASA, Lisboa MTL. Estresse da equipe de enfermagem do corpo de bombeiros no atendimento pré-hospitalar móvel. *Esc Anna Nery.* [Internet]. 2013 [accessed on 23 Aug 2015]; 17(2). Available at: <http://dx.doi.org/10.1590/S1414-81452013000200022>.
24. Nunes DA, Fontana RT. Condições de trabalho e fatores de risco da atividade realizada pelo bombeiro. *Cienc. Cuid. Saude.* [Internet] 2012 [accessed on 25 Aug 2015]; 11(4). Available at: <http://dx.doi.org/10.4025/ciencucidsaude.v11i4.18083>.
25. Rueda FJM, Serenini ALP, Meireles E. Relação entre qualidade de vida no trabalho e confiança do empregado na organização. *Rev. Psicol. Organ. Trab.* [Internet]. 2014 [accessed on 25 Aug 2015]; 14(3). Available at: <http://pepsic.bvsalud.org/pdf/rpot/v14n3/v14n3a06.pdf>.
26. Milosevic M, Golubic R, Knezevic B, Golubic K, Bubas M, Mustajbegovic J. Work ability as a major determinant of clinical nurses' quality of life. *J ClinNurs.* [Internet]. 2011 [accessed on 25 Aug 2015]; 20(19-20). Available at: <http://dx.doi.org/10.1111/j.1365-2702.2011.03703.x>.
27. Leea JY, Kima SY, Baea KY, Kima JM, Shina S, Yoona JS, Kima SW. The association of gratitude with perceived stress and burnout among male firefighters in Korea. *Personality and Individual Differences.* [Internet]. 2018 [accessed on 28 Feb 2018]; 123. Available at: www.elsevier.com/locate/paid.
28. Shin H, Park YM, Ying JY, Kim B, Noh H, Lee SM. Relationships between coping strategies and burnout symptoms: a meta-analytic approach. *Professional Psychology. Research and Practice.* [Internet]. 2014 [accessed on 01 Mar 2018]; 45(1). Available at: <https://www.researchgate.net/publication/263936204>.
29. Santos M, Almeida A. Principais riscos e fatores de risco ocupacionais associados aos bombeiros, eventuais doenças profissionais e medidas de proteção recomendadas. *Rev. portuguesa de saúde ocupacional.* [Internet]. 2016 [accessed on 02 Mar 2018]; 1 Available at: <http://www.rpso.pt/principais-riscos-e-fatores-de-risco-ocupacionais-associados-aos-bombeiros-eventuais-doencas-profissionais-e-medidas-de-protecao-recomendadas/>.