



# Quality of Life Profile in Volunteer Fire Fighters from Joinville-SC

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## Abstract

The quality of life of a volunteer firefighter is necessary, as their daily activities include a physical and emotional effort demanded during the occurrences, often putting their life at risk. The aim of this study was to evaluate the quality of life profile of volunteer firefighters in Joinville - SC. The instrument developed by Nahas MV, Barros MGV and Francalacci VL [1]. Was the well-being pentacle: conceptual basis for evaluating the lifestyle of individuals and groups. This test was performed electronically through the Google Forms platform. The sample of this study consisted of 34 volunteer firefighters from Joinville - SC, both genders, aged between 18 and 60 years. After this study, it can be concluded that the quality of life profile of volunteer firefighters from Joinville - SC is satisfactory, showing excellent results in the components "relationships" and "preventive behavior", also presenting intermediate results in the components "stress control" and "physical activity" and presenting negative results in the component "nutrition/food". With the results found, it is suggested that they have the incentive to practice a more balanced and healthy diet. It is also suggested that some physical training methods and techniques be adapted in order to develop the interest of these professionals, maintaining a minimum level of operational training.



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## Introduction

The definition of quality of life ends up being broad, as it results from several factors in the individual's life. According to Nahas [1], Quality of Life is the perception of well-being that reflects a set of individual, sociocultural and environmental parameters that characterize the conditions in which human beings live. For Silveira [2], quality of life and work performance are factors that should be sought in organizations and social relationships with workers, in order to seek satisfaction at work.

Teamwork is essential for the success of an occurrence, when the personal relationship within the barracks is calm, this reflects in moments of tension. In general, it can be said that firefighters have team spirit and work together, as Monteiro says [3].

Thinking about the work of firefighters, it is known that they work under pressure in practically every occurrence. Ferreira [4] says in his study that the main stress factors for firefighters are accidents with co-workers, dealing with death, and providing assistance to young people who are seriously injured, or also dealing with situations beyond their control.

A study by Lima [5] with 711 military firefighters in Belo Horizonte revealed a low rate of depression among respondents (5.5%), but the results indicated "significant associations between post-traumatic stress, alcohol use and the presence of depression". Thus, constant assessments of mental health, quality of life and burnout are essential (the burnout scale according to SCHAUFELI et al. [6] is defined as a response over time to various stressors composed of three factors: Depersonalization, reduction of personal fulfillment and emotional exhaustion) in workers from different sectors and activities, in order to improve the skills of coping with situations related to the work environment, as high levels of depression and organizational stress can develop.

The work activity of firefighters can be summarized in the rescue and defense of lives and property in emergency situations. In addition to the various forms of action, it is also worth mentioning the types of environmental exposure to what they encounter during the occurrences: such as chemical, radiological and biological contamination [7].

Baptista [8] cites the firefighter in his performance can be considered a public security professional in accordance with the Federative Constitution of Brazil, defined in article 144 [9]. Vidotti et al. [10] states that a fire department can be characterized as an agency that has several competencies, including: putting out fires, protecting and saving lives and material goods (such as homes and vehicles), in addition to all the work of planning, scheduling, organizing and controlling the execution of all the missions assigned to it. So corporations arise from the need to solve problems in society, when people cannot solve some situations on their own.

The search for a person's quality of life must be constant, as it is the set of several factors that influence life. Knowing this, it is possible to observe in which aspects there is more difficulty and work towards its improvement. The result of the search for this balance is the feeling of well-being and self-knowledge, being part of this person's lifestyle and consequently improving them in several aspects that were previously unnoticed. Padilha [11] explains in his study that the population's lifestyle can influence the development of various pathologies, for example, we have cardiovascular diseases, which are one of the main causes of death in Brazil.

Questioning about the quality of life of firefighters can generate several new questions, in Brazil currently there are no guidelines that speak directly about the quality of life of firefighters. Internationally, the existence of the National Fire Protection Association- NFPA [12] is known, which is an informational American norm regarding firefighters, ways of acting in occurrences for their protection and even counting the major causes of death, whether in occurrences or chronic diseases.

The well-being pentacle: conceptual basis for assessing the lifestyle of individuals and groups [1] was created in order to assess the style and quality of life of groups and people, it assesses 5 important components: nutrition, stress, relationships, preventive behavior and physical activity.

Thus, the quality of life is influenced by people's own lifestyle. With this, Both [13] says that lifestyle, health and quality of life become factors directly proportional to well-being. As mentioned by Confortin [14] in all professions, the guarantee of a good income is related to the physical and nutritional status of the employee and the fuel for them to function productivity.

This study sought to assess the quality of life profile of volunteer firefighters, both genders between 18 and 60 years old in the city of Joinville - SC, thus, with the results found, they may help in the knowledge about the quality of life parameters of these workers. With this, it is intended to encourage the discussion about the quality of life within the corporation, considering that it is a subject still little studied and to discuss forms of intervention according to the results obtained.

## Methodology

The methodological procedures for conducting this research were quantitative, cross-sectional and supported by a literature review. The researched group was 34 members of the Corps of Firemen Volunteers in the city of Joinville, over 18 years old, both genders. The inclusion criteria were being part of the Joinville Volunteer Fire Department, being between 18 and 60 years old, male or female, and the work that the firefighter currently performs should have a direct connection with the occurrences. Firefighters who did not show the inclusion characteristics were excluded. The sample consisted of 53% males and 47% females, with ages between 21 and 30 years old. According to the research methodology, we chose the instrument developed by Nahas MV, Barros MGV and Francalacci VL [1] The well-being pentacle: conceptual basis for assessing the lifestyle of individuals and groups. This study received a favorable opinion from the Ethics Committee for Research with Human Beings at UNIVILLE under nº 4.183.528 in accordance with Res. CNS 466/12. The data and information were analyzed and interpreted according to the conceptual principles of the quantitative method, which is a method of social research that uses statistical techniques, as with the application of quantitative methods researchers can establish probable causes to which the objects of study, as well as describing the patterns of occurrence of the observed events.

The survey was carried out between August and September/2020. The procedures for performing the test were forwarded: A Google Forms form via email, first with the first screen presenting the Informed Consent Form - TCLE, after the user reads and affirms that he is aware of and agrees with the terms of the research, the questionnaire was made available for data collection.

To carry out this study, volunteers from different units were invited to participate in this research; they were instructed be-

fore starting the questionnaire. Volunteers answered the questionnaire the well-being pentacle: conceptual basis for evaluating the lifestyle of individuals and groups, which is composed of 15 multiple-choice questions in which they could choose the answers that most identify themselves in each component, in order to determine the test result. In addition to the questionnaire, there were 5 more questions in order to identify sectors, time of experience, gender, age and frequency of operational activities.

## Results

The present study had the participation of 34 samples. Table 1 shows the variation in age between individuals, where the age between 21 and 30 years was predominant. A study by Tomaz and Lira [15] with military firefighters ( $n = 41$ ) had a similar age group, with 73% of the sample aged between 21 and 30 years.

The sample genders had a very similar number of participants, totaling 53% of the responses from the male audience and 47% from the female audience, as shown in Table 1. The values obtained were similar, however, in corporations; the male gender prevails over the female gender. According to Chadud [16], the idealization of women's work in firefighters ends up losing an advantage in society, as the way in which the operational is seen takes into account manual work, normally associated with the male gender.

**Table 1:** Characterization of the researched sample.

Sample Characterization		
<b>Age group (n=34)</b>		
up to 20 years	1	3%
between 21 and 30 years old	19	56%
between 31 and 40 years old	11	32%
between 41 and 50 years old	2	6%
over 50 years old	1	3%
<b>Genre</b>		
Masculine	18	53%
Feminine	16	47%

In the "food" component, 29% of respondents claimed not to include 5 servings of fruits and vegetables in daily meals, 35% of volunteers mentioned that they sometimes include portions in meals, 24% said they almost always include fruits and vegetables in meals and 12% mentioned that this practice is always part of their daily lives. When questioning whether they avoid fatty meats, fried foods and sweets, 9% said they do not avoid this type of ingestion, 65% said they sometimes avoid fatty meats, fried foods and sweets in their diet, 21% said they almost always avoid eating these foods and 6% indicated that they always avoid these foods in their daily meals. In the question about the number of daily meals, 32% of respondents said that they do not eat 4 to 5 varied meals during the day, including a good breakfast.

When summing up the questions, the component "food" was rated with only 2 points, thus generating a negative profile as can be seen in Table 2. A study by Padilha [11] with master's students also presented a low index in the food component, which demonstrates that there is a need to encourage healthy

eating habits in different groups of individuals.

The habit of good nutrition is essential to maintain a healthy lifestyle. The consumption of inappropriate foods, together with the low practice of physical activities, are related to an increase in non-communicable chronic diseases. [17].

**Table 2:** Food Component - Score by Component.

Power Component						
	Question 1		Question 2		Question 3	Total of points
No (0)	10	29%	3	9%	11	32%
Sometimes (1)	12	35%	22	65%	6	18%
Almost always (2)	8	24%	7	21%	10	29%
Always (3)	4	12%	2	6%	7	21%
sum of points per component		1		1	0	2

In the "physical activity" component, 18% said they do not include physical activity in their leisure time, 32% said they sometimes include physical activity in their leisure time, 15% mentioned that they almost always have leisure and physical activities included in their daily lives and 35% answered that they always include physical activities to the leisure time. When asked about the practice of activities at least twice a week that involve strength and muscle stretching, 18% responded that they do not perform this type of activity, 35% claimed sometimes this is part of their daily lives, 12% mentioned that they almost always perform the activities at least twice a week and 35% answered that they always perform this type of activity at least twice a week. Regarding the use of a bicycle or walking as a means of transportation.

In the sum of points per component as described in Table 3, there was a tie in one of the questions, however, whatever the result obtained, with both 7 points and 9 points, the physical activity profile would remain with an "intermediate" result .

Bertuol, [18] highlights in his article that the chance of individuals opting for physical activity for leisure is greater when they are already engaged in activities that include some active behavior. In the case of firefighters, physical training is essential, combining posture and physical resistance techniques for performance.

As shown in Table 3, the results found were "intermediate", this demonstrates that the sample is interested in physical activities, however the expected result was an even higher rate, as it is a sample that works exclusively with the operational.

**Table 3:** Physical Activity Component - Score by Component.

Physical Activity Component						
	Question 4		Question 5		Question 6	Total of Points
No (0)	6	18%	6	18%	9	26%
Sometimes (1)	11	32%	12	35%	7	21%
Almost always (2)	5	15%	4	12%	7	21%
Always (3)	12	35%	12	35%	11	32%
Sum of points per component	3		1 or 3		3	9 or 7

In the "preventive behavior" component, when asked about their knowledge of their blood pressure and cholesterol levels, and if they try to keep these levels under control, 9% responded that they do not care about these factors, 12% claimed that sometimes they try to keep the controlled levels, 29% answered that they almost always try to keep these levels under control and 50% of the interviewees answered that they always try to keep their cholesterol levels under control and be aware of blood pressure in their daily lives. In the question about cigarettes and alcohol, 15% of respondents said they do not avoid drinking, 21% said they sometimes avoid alcohol and cigarettes, 6% of respondents said they almost always avoid the use of alcohol and cigarettes and 59% answered that they always avoid the use of alcohol and cigarettes on a daily basis.

The total points per component indicated a positive percentage in relation to the preventive behavior of firefighters, reaching 9 points. A study by Moura [19] about the lifestyle of nurses (n=260) showed that of all the factors that influence the lifestyle according to the Pentacle of well-being, preventive behavior was the one that resulted in the highest positive index. By acting directly in the assistance and having contact with traffic accidents and their causes, they end up being more cautious and these results in some preventive behavior.

Preventive behavior is linked to a concern with quality of life. Over time, this behavior becomes a habit and can be considered one of the crucial factors in maintaining the individual's well-being. Some preventive behaviors according to Nahas [1] are: Use of seat belts, use of safety equipment at work and sunscreen.

**Table 4:** Preventive Behavior Component - Score by Component.

Preventive Behavior Component							
	Question 7		Question 8		Question 9		Total of points
No (0)	3	9%	5	15%	0	0%	
Sometimes (1)	4	12%	7	21%	0	0%	
Almost always (2)	10	29%	2	6%	5	15%	
Always (3)	17	50%	20	59%	29	85%	
sum of points per component	3		3		3		9

Regarding the "relationships" component, when asked about cultivating friends and being satisfied with their relationships, none of the respondents said that it is not part of their daily lives, 3% said that sometimes they try to cultivate friends and feel satisfied with them. Relationships 53% of respondents said they almost always seek to cultivate friends and feel satisfied with relationships and 15% said they always seek to cultivate friends and remain satisfied with the relationships around them. In the question where they ponder whether the leisure activities of firefighters include activities with friends, no one said that they do not go out with friends during leisure hours, 24% said that sometimes these hours of leisure and meeting friends are part of their daily lives, 35% answered that these leisure activities almost always correspond to their reality and 41% stated that leisure hours always include meetings with friends and activities in associations or social entities. In the question about the volunteer being active in the community and feeling useful in the social environment, no respondent replied that this is not part of their daily lives, 18% said that sometimes they remain active in the community and feel useful, 24% claimed

that this statement is almost always correct in their daily lives and 56% of respondents answered that they always feel useful in society and active in the community.

The sum of the results in the "relationships" component reached 8, as shown in Table 5, this means that the relationship in relationships, friendships and how the interviewees feel towards the community is seen in a very positive way. A study by Pinto [20] pointed out that affinity, autonomy and physical working conditions are directly linked to the professional satisfaction of firefighters.

**Table 5:** Relationships Component - Score by Component.

Relationships Component							
	Question 10		Question 11		Question 12		Total of points
No (0)	0	0%	0	0%	0	0%	
Sometimes (1)	1	3%	8	24%	6	18%	
Almost always (2)	18	53%	12	35%	8	24%	
Always (3)	15	44%	14	41%	19	56%	
Sum of points per component	2		3		3		8

In the "stress control" component, when asked if at least 5 minutes a day, they set aside to relax, 9% said that this habit is not part of their daily lives, 21% answered that sometimes they take 5 minutes a day to relax, 24% said they almost always set aside at least 5 minutes a day to relax and 47% responded that they always reserve 5 minutes a day to relax. When the question was asked, if the person can maintain a discussion without changing, even when contradicted, 12% said no, 21% of respondents answered that sometimes this is part of their daily lives, 35% said it almost always manages to maintain a discussion without changing and 32% claimed that they can always maintain a discussion without changing, even when thwarted. When asked if they can balance the time dedicated to work.

The sum of points of the "stress control" component totaled 6 points, showing itself as an intermediate result. Stress is an inclusion of social factors where it is present or perceived as a threat to individual integrity. It can be said that it is an important factor to be commented on in relation to quality of life, as often, the individual who finds himself with a high stress load may not carry out his work as competently as possible.

**Table 6:** Stress Control Component - Score by component.

Stress Control Component							
	Question 13		Question 14		Question 15		Total of points
No (0)	3	9%	4	12%	two	6%	
Sometimes (1)	7	21%	7	21%	16	47%	
Often (2)	8	24%	12	35%	6	18%	
Always (3)	16	47%	11	32%	10	29%	
Sum of points per component	3		2		1		6

When analyzing the training carried out during the week, it can be seen that in table 7 firefighters perform few training sessions per week. 65% of the sample trains once a week, 23% of the sample only twice, 9% three times a week and 3% trains six times during a weekly period.

As can be seen, most volunteer firefighters perform 1 weekly operational training, this is because the training offered is only

performed once a week and generally the other training is their own responsibility, and with this there is no mandatory need, ends up not being performed.

With the low number of more trainings than normal, it shows that the need for more training for firefighters is necessary, as the training makes them more capable of being able to work.

**Table 7:** Frequency of training carried out during the week by the samples.

Training held per week	
1 time	22
2 times	8
3 times	3
4 times	0
5 times	0
6 times	1
7 times	0

## Discussion

After analyzing all the results, this study sought to compare with existing studies, according to Frutoso et al (2019) [21] who evaluated the lifestyle of employees of a Military Police college in Ariquemes-RO, with a population of 42 employees of both sexes. The instrument used in data collection to identify lifestyle was the Individual Lifestyle Profile (PEVI) questionnaire, created by Nahas [1], which assesses five factors: diet, physical activity, preventive behavior, relationship and stress. The study by FRUTOSO et al. [21] concluded that the employees of the Military Police College do not have good eating habits and are sedentary. Comparing with the present study, it is known that firefighters had a negative eating habit, showing the need to encourage healthy habits daily in both cases. In the study with employees, they showed sedentary behavior, but according to this study, it was observed that firefighters have a more active lifestyle because they perform physical activities in their leisure time and keep active means of transportation such as going to places by bicycle or on foot.

Employees also exhibit adequate preventive behavior, consume little alcohol, respect traffic regulations, in addition to taking care of blood pressure and cholesterol. These results were similar in the study on firefighters, and this care in preventive behavior happens because they have a greater notion due to the fact that they already obtain knowledge about preventive behaviors and the consequences of non-compliance with them. Regarding relationships, they have a tendency to vertical relationships, needing to improve in horizontal relationships, the present study kept sufficient answers for relationships, according to the results obtained; it is observed that firefighters in general feel good about their relationships.

As for employee stress, although it is in acceptable zones, it is necessary to be alert not to cause other diseases, as in the current study, the answers were also kept in acceptable zones, but as several studies mentioned in these articles, it is necessary to be careful with the stress of these workers, as they deal daily with delicate situations and stressful situations, they end up having more psychological confrontations and therefore need greater care with their mental health. It was then concluded that the studies obtained similar responses, stressing the importance of encouraging the practice of physical activities for military police officers and encouraging healthier eating

in both cases. It is necessary to take care of the stress of these workers, as they deal daily with delicate situations and stressful situations, they end up having more psychological confrontations and, therefore, they need greater care with their mental health. It was then concluded that the studies obtained similar responses, stressing the importance of encouraging the practice of physical activities for military police officers and encouraging healthier eating in both cases.

According to Sá et al. [22] which aimed to analyze the lifestyle of workers in an Emergency Care Unit (UPA) in southern Brazil. It was an epidemiological, exploratory and descriptive study carried out with 70 UPA workers. The results showed physical inactivity as the main item to be improved, indicating that incentive programs are needed to carry out work activities associated with dietary re-education strategies, which, in addition to promoting health and well-being, stimulate interpersonal relationships between workers. It was observed that in the study with UPA workers that they need encouragement to practice physical activities, which does not happen with firefighters. On the other hand, preventive behavior proved to be excellent, due to the fact that it works directly with situations in which care for the lives of others is very unstable, they end up taking greater care in relation to this component.

Mendonça and Levansoki [23] in their study, aimed to assess the lifestyle profile of workers in an industry in the city of Grande Dourados-MS. The study was carried out with 50 employees, 32 from the general services area, 13 from the administrative area and 5 sector leaders, comprising an age group (18 to 62 years old) and of both genders (32 men and 18 women). It sought to measure the lifestyle profile, using the instrument called "Pentacle of Well-Being" which allows a broad graphic demonstration of the results obtained in relation to nutrition, physical activity, preventive behavior, social relationships and stress control. The results showed that 70% of workers have a sedentary life profile, where this result is even more alarming in employees who were older than 30 years. Comparing with the results obtained in the study with firefighters, it is understood that firefighters active in operational activities maintain an active lifestyle, performing physical activities beyond those required at work and using active means of commuting, such as cycling and walking. The administrative area showed an active lifestyle after the working day, with inactivity only during working hours and during free time. The results found here were the most similar to those of firefighters, demonstrating a concern with staying active beyond work. Employees in the general services area need more care in the components: nutrition and physical activity. In the nutrition component, it is known that firefighters also had negative results, thus highlighting the need to encourage the practice of good eating habits. Leaders were the ones who showed the most negative results, as the majority were active only during the working day, thus requiring greater care in the components: nutrition, preventive behavior, and physical activity. Positions that require greater activity during working hours demonstrate that workers probably leave already tired and with no expectation of regular activities, the results obtained in this study are not similar to those

of firefighters, who also demand the physical during work., but include physical activities in leisure for example. The answers were also similar in the food component, showing negative results, which shows the need for intervention, such as encouraging a healthier diet in both cases. Also in the preventive behavior component, the results were divergent, where the leaders showed a lack of this behavior, which we can evidence, these employees end up having a greater carelessness compared to firefighters, who end up needing this preventive area.

### Final considerations

After this study, it can be concluded that the quality of life profile of volunteer firefighters from Joinville - SC is satisfactory, with excellent results in the "relationships" and "preventive behavior" components, also presenting intermediate results in the "stress control" components" and "physical activity" and showing negative results in the "food" component.

From the results obtained, other similar studies were searched in the literature in order to compare the results to analyze the possible similarities and divergences between the different existing profiles, the studies were similar in the component "food" and in the component " preventive behavior", when the profiles were of people working in public safety or in the health area.

Because the study was carried out during a pandemic and because of the low number of samples, the results may have been negatively affected in the components and in the obtained sample. The author suggests that with a more detailed study, more accurate results can be found, which can help in future research.

The main hypothesis regarding the study was confirmed, which confirmed that the quality of life of firefighters was satisfactory. With the results of this study, it is suggested that some methods of physical training and techniques be adapted in order to develop the interest of these professionals, because at the beginning of their work, everyone undergoes an adaptation, tests and physical training, however over the years , this physical training becomes less regular. Courses related to updating techniques usually do not involve physical activity, so it is suggested that some resistance exercises be rescued in order to maintain a minimum level of physical resistance for these professionals.

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