

Social and Occupational Aspects of Fatigue: A Narrative Literature Review

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Abstract

Introduction: Fatigue, a prevalent phenomenon worldwide, poses significant health challenges. **Objective:** To describe the social and occupational aspects of fatigue. **Method:** Narrative review spanning 2019-2022 utilized PubMed. Traditional and supplementary articles were included, identifying expertise-based authors and specialized groups. Various "Fatigue" MeSH-associated search terms were used. Regardless of publication date, studies were screened by title and abstract relevance. Selected articles were appraised for alignment with the topic. **Results:** High-risk groups for chronic fatigue include healthcare workers, aviation professionals, war veterans, lower-income individuals, and those with extended work hours. Effective health strategies, even subjective ones, need to address their long-term well-being. Unfavorable work environments, toxic exposures, inadequate equipment, and strenuous conditions contribute to fatigue. Manifesting in diverse occupations, from factories to healthcare, fatigue underscores the need for comprehensive intervention. **Final considerations:** The susceptibility of high-risk groups to fatigue is linked to work structure and conditions, impacting individuals, employers, and the economy. Chronic fatigue syndrome burdens public health. Prospective studies with rapid tools are advised for understanding prevention. Investment in identification strategies, like short screening, is vital. Fatigue's relevance to high-risk workers underlines early detection and adapted tools. Promoting screening and education, and advanced research are key for worker well-being.

Keywords: fatigue; health promotion; quality of life; worker's health; workplace.

Introduction

Working is an essential condition for the individual as a social being, not only for financial maintenance but also to dignify human life. Because it is a crucial act, currently the individuals spend a considerable time in the work environment. Therefore, they are subjected to several types of complications that can have negative or positive impacts on their physical and mental health. Thus, despite being considered a factor of balance, satisfaction and personal development, work can also represent a factor of unhappiness, ageing and disease-causing (Dejours, Dessors, & Desriaux, 1993).

Chronic Fatigue Syndrome (CFS) is among the possible diseases that can emerge due to work-related activity and it is defined by Fukuda *et al.* (1995) as a condition characterized by extreme fatigue, with defined start-time, that persists for at least six months. Furthermore, CFS causes a substantial disorder in the individual since it affects his daily functionality. Regarding the diagnosis, it is based on at least four symptoms that are mandatory criteria: muscle and joint pain, headaches, cognitive dysfunction and nonrestorative sleep (Carruthers *et al.*, 2011).

It is possible to affirm that CFS is a burden to public health because workers diagnosed with the disease can consider it difficult to perform their work obligations according to their usual standard. In more severe cases, they may not be able to continue working, which results in loss of livelihood.

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In this context, fatigue brings several implications for the worker, for the employee, for the economy, besides characterizing CFS as a considerable burden to public health (Van Amelsvoort *et al.*, 2002; Janssen *et al.*, 2003; Swaen *et al.*, 2003; McCrone *et al.*, 2003).

Moreover, it is known that fatigue is one of the most frequent phenomena experienced by large part of the global population (Chaudhuri & Behan, 2004). It is a serious and distressing disease for the individual, with important consequences such as interfering in quality of life, which includes social withdrawal, family conflicts and work incapacity (Krupp *et al.*, 1989). Therefore, more research is necessary in this field, as well as actions from companies and public health systems aimed at ensuring proper assistance to individuals diagnosed with CFS and minimizing damages directly or indirectly related to this pathology (Van Amelsvoort *et al.*, 2002; Janssen *et al.*, 2003; Swaen *et al.*, 2003; McCrone *et al.*, 2003).

Studies show that these rates are possibly related to the current working structure - long hours, pressure for production, lack of autonomy, short period for rest and holidays - and conditions such as switching shifts, physical risks, complexity of the activity, posture during its performance, among others, which enhance the emergence of fatigue in a more prevailing way in this specific population (Oliniski, Rothbarth, Ulbrich, & Felisbino, 2005; Oliveira *et al.*, 2010). Considering this context, this study aims at conducting a narrative literature review to describe the social and occupational aspects of fatigue, the relevance of health promotion and quality of life when dealing with it, the work environment factors that can affect the emergence of fatigue and its impact on the worker's health.

Method

The narrative literature review was conducted from 2019 to 2022, using mainly the PubMed/MEDLINE database. Different search terms were associated to the descriptor *Fatigue* and *Fatigue Syndrome, Chronic*, selected in the *Medical Subject Headings* (MeSH) through Boolean operators AND, OR and NOT. Traditional articles correlated to the topic that did not appear in the search strategy were included based on direct search for authors with notorious knowledge and specialized groups in this field. Scientific articles that involved studies in humans were included in the research. The articles were available in full version for free, in Portuguese, English and Spanish, with no restriction related to the period of publication. Studies not related to the topic of this review were selected by reading the titles. After reading the abstracts, studies that did not include the topic were excluded. The remaining articles were read in full and selected according to their relevance to the topic.

Results And Discussion

The knowledge regarding a connection between work and illness throughout time were and still are a part of life and humanity (Araújo, 1995). In the last years, it was noticed that some occupational groups presented increased rates of chronic fatigue when compared to control groups. Studies showed that risk groups include health-care workers, aviation, war veterans, lower-class people and the ones who face long working hours (Ranjith, 2005; Cox *et al.*, 1987; Fuhrer, 1995). Regarding war veterans, there is a syndrome known as *Gulf War Illness* (GWI) which is estimated to affect up to 32% of the population involved in a war. Besides chronic fatigue, it includes chronic pain, muscle weakness, headache, cognitive deficit and mood changes (Mawson, 2019).

Health promotion and quality of life

Living and health conditions have been continuously improving in a sustained way in most countries. This can be related to political, economic, social and environmental developments, as well as advances in public health and medicine that occurred in the last century. In Latin America, for example, life expectancy increased from 50 years old, after World War II, to 67 years old in 1990 and 69 years old in 1995. However, the same organizations are categorical when informing that this improvement is unquestionable but deep inequalities persist in life and health conditions among countries and, inside countries, among regions and social groups. Different published studies are conclusive on this topic, including different authors and reports on global health (World Health Organization [WHO], 1998) and the Americas region (Organização Pan-Americana de Saúde [OPAS], 1998).

The advent of the concept of Health Promotion was in the publication of a document named "*A New perspective on the Health of Canadians*" in 1974, also known as Lalonde Report. Four components for determining the population's health levels were highlighted in this document: organization of assistance, human biology, environment and lifestyle. It also suggested that the focus on assistance services was not the best way to invest public resources aiming at health promotion. According to Robertson (1998), the increasing technological investments in medical assistance have motivated a cost-benefit analysis of the health-care network, which was installed as part of the Canadian well-being public policy. The I International Conference on Health Promotion took place in the city of Ottawa, Canada, in November 1986.

This conference was a response to the increasing and imperative demand for a new concept of health that would be able to reach the emerging complexity of current health problems. The strictly preventive approach cannot offer an understanding to this complexity since it connects a certain disease to a certain agent or group of agents but relate them to issues such as conditions and ways of living (Buss, 2000).

Considering the challenges currently placed by ongoing processes related to health/disease, public health is rethinking its performance based on the discussion about health promotion, which made an important contribution to redirecting health practices. This new approach emerges from a broad concept of the health-disease process and it points out to multiple determinants of health and intersectoriality. Moreover, it affirms that the requirements for health are: peace, education, housing, nutrition, income, stable ecosystem, sustainable resources, social justice and equity (Rocha, 2001).

In Brazil, health promotion has been acquiring different meanings according to the concepts defended (Robertson, 1998). In the 1980s, social policies in Brazil were classified as residual because they did not include all the national community. The aim was social protection and corporate-meritocracy, since the definition of social rights was restricted to individuals who contributed to Social Security. On this occasion, society efforts culminated in the Federal Constitution of 1988 and the health policy in Brazil today has in its structure elements for the development of actions and strategies towards health promotion. The principles of universality, integrity and equity, as well as the guidelines for decentralized and hierarchical organization can be enhanced from the point of view and actions of health promotion. This contributes to the qualification of the Brazilian Unified National Health System (SUS), in which the focus is on quality of life (Draibe, 1993).

Regarding worker's health and health promotion, the Brazilian Health Organic Law (Federal Law No. 8080/90) establishes on Article 6, paragraph 3, the constitutional devices on worker's health as follows: It is understood as worker's health, for the purposes of this law, a set of activities aimed, through actions of epidemiological surveillance and health surveillance, at worker's health promotion and protection, as well as it aims at recovering and rehabilitating the workers' health when submitted to risks and harm originated from work conditions. The workplace is acknowledged as an important space for programs focused on health protection, health promotion and disease prevention. While employers have the responsibility of providing a safe and risk-free workplace, they also have great opportunities to promote individual health and a healthy work environment. Applying effective programs and policies in the workplace can reduce health risks and improve workers' quality of life (Ogata, 2018).

When health is considered in a broader way instead of barely absence of disease, the strategies towards intervention move from a purely individual focus to actions on those different elements, which necessarily demands interdisciplinarity and intersectoriality. Therefore, the configuration of worker's health is directly on the scope of the right to health, established as a responsibility of SUS. Due to the reach of its field of action, it has an intra-sectoral character - involving all levels of attention and spheres of government of SUS - and inter-sectoral - involving social security, work, environment, justice, education, among other sectors related to policies for development - which demands an interdisciplinary approach with workers' participative management (Alves, 2003).

The terminology Quality of Life at Work (QLW) has been widely adopted in the last years. Its origin can be traced to the distant post-war period, as a consequence of implementing Marshall Plan for the rebuilding of Europe (Vieira, 1993). The main aspects emphasized are the worker's individual reaction to the work experiences in the 1960s and the improvement of work conditions and environments aiming at more satisfaction and productivity in the 1970s (Rodrigues, 1991). Thus, it can be observed that QLW is related to notions such as motivation, satisfaction, health and safety at work, including recent discussions on new ways of organization of work and new technologies (Lacaz, 2000).

In the long-term, CFS is related to important and unpredictable symptoms. Since there is no clear clinical-laboratorial marker due to its heterogeneity, this condition is often discredited even when it causes a dramatic change in the individual's functional capabilities and emotional aspects. In this context, it is essential to carefully apply clinical strategies for health promotion aiming at improving the long-term quality of life of these patients, even if in a subjective way (Roberts, 2018).

Labor factors that enhance the emergence of fatigue

With the development of Industrial Revolution in the beginning of the 18th century, the organization of work raised several complaints by workers. The complaints include unhealthy work environments, toxic products exposure, lack of safety equipment and improper working conditions - little light, noise, obsolete tools, etc. - as well as long working hours, low salaries, authoritarianism, threat of unemployment, pressure for production,

lack of autonomy, among others. All these factors have a direct consequence on workers' life regarding their physical and mental health (Oliveira *et al.*, 2010).

In 2001, Glina *et al.* discussed a case of a worker in the production line diagnosed with CFS in which the cause was confirmed as related to work conditions. Among the factors pointed out as responsible for the symptoms are overworking and pressure for production, "the existence of an intense work rhythm, lack of autonomy, lack of recognition regarding the performance, automation that generates unemployment and changes in the work process with no participation of workers".

Furthermore, it is known that the work environment in the health area is inherently responsible for the emergence of fatigue and for arising emotion in workers. The activities in alternating shifts, long working hours, chemical, biological and physical risk, need of constant attention, elevated level of complexity for the development of actions, the nature of the work itself, dealing with suffering, pain and death, are harmful factors for the health and well-being of professionals, which can make them more susceptible to fatigue due to work (Oliniski *et al.*, 2005).

Rocha and Debert-Ribeiro (2001) also show in their studies that work overload and short deadlines, the high level of responsibility, the mental demand of the work and complexity of the task are disturbing factors for workers in the field of systems analysis, with repercussions to their health. Moreover, fatigue is pointed out in a large percentage of women.

Based on some studies mentioned above, it can be observed that most of them point out that the current working structure - long working hours, pressure for production, lack of autonomy, little time for rest and holidays - and conditions such as switching shifts, physical risks, complexity of the task, posture during its performance, among others, enhance the emergence of fatigue, which can reach workers in different types of activities, since factory workers to health-care professionals. The way in which fatigue will manifest also happens in different levels depending on the relation of the individual with the harmful activity (Dejours, Dessours, & Desriaux, 1993).

Consequences of fatigue to the worker's health

Currently, individuals spend a considerable time of their lives in the work environment, therefore, they are subjected to several types of complications that can have negative or positive impacts on their physical and mental health. Working is an inherent activity of the individual as a social being. For Dejours, Dessours, & Desriaux (1993), the work-related activity is a factor related to balance, satisfaction and personal development, but it can also represent a factor of unhappiness, aging and responsible for causing diseases.

Fatigue brings several implications both to the individual and to the employer, as well as the economy. Moreover, CFS is also a considerable burden to public health. For employees, it can be highlighted: individuals may find it difficult to perform their work obligations according to the usual standard, they can have periods of absence due to disease, and in severe cases they may not be able to continue working, which results in loss of livelihood. For the employer, on the other hand, there is an increase in the numbers of absence due to disease (Janssen *et al.*, 2003), compromised physical and cognitive performance (van Amelsvoort *et al.*, 2002) and possibly an increased risk of occupational injuries (Swaen *et al.*, 2003). Regarding the economy, it can be pointed out that chronic fatigue and CFS in primary health-care impose substantial economic costs to society, mainly in informal care and loss of employment (McCrone *et al.*, 2003).

According to an American study, it is estimated a decrease of 37% in domestic productivity and a reduction of 54% in workforce productivity among people with CFS. The estimated total annual value of productivity loss in the USA was US\$ 9.1 billion, which represents approximately US\$ 20,000 per person with CFS (Reynolds *et al.*, 2004).

The work of an employee suffering from chronic fatigue inevitably culminates in the involvement of occupational physicians. Although the occupational physician is usually not the main role in the coordinating therapy, he is possibly able to contribute in a decisive way to the therapeutic process, in order to advise these workers in issues such as recruitment, work ability, absence of disease, rehabilitation and, if necessary, retirement (Mountstephen & Sharpe, 1997). It is also important inside the organizations that different professionals create partnerships, in order to reflect together on the fatigue problem and define actions in the short, medium and long-term. Due to the level of impact that fatigue can cause, it is necessary for health-care professionals to be well-informed on CFS to provide accurate advice regarding workers' occupational health. Moreover, other structures focused on worker's health promotion already exist inside the organizations and health professionals can promote team work to deal with the problem in a multidisciplinary approach (Plus, 2006).

Considering the impacts of fatigue for the worker's health, it is suggested further prospective, longitudinal and randomized studies applying fast instruments. This can anticipate and it can be a tool with a proposal of preventive action, which can prevent people from developing fatigue using new methodologies that offer a history of reliable results.

Final Considerations

Regarding social aspects, it was verified the existence of risk groups which are more susceptible to chronic fatigue. The groups include workers in the health area, aviation, war veterans, lower-class people and the ones who face long working hours. When the aim is towards workers' quality of life and health promotion it is fundamental for clinical strategies to be carefully taken, even in a subjective way. This demands an interdisciplinary approach with workers' participative management resulting in a broader understanding of the process of illness and all factors inherent to well-being. It was also observed that, in their great majority, the factors that contribute to the emergence of fatigue indicate that the current working structure - long working hours, pressure for production, lack of autonomy, little time for rest and holidays - and conditions such as switching shifts, physical risks, complexity of the task, posture during its performance, among others, enhance the emergence of fatigue, which can reach workers in different types of activities, since factory workers to health-care professionals. It is important to highlight that fatigue also results in a collective illness which can happen to people even in highly productive years of age. Fatigue is often neglected by several sectors of society with no consideration for the impacts it can cause in different orders, from social security and economic spheres to health and organizational policies. Moreover, it can cause consequences to continued well-being and management of work-related accidents. Fatigue can emerge as a punctual or chronic disorder in individuals, mainly the workers who are exposed to critical risks. This reinforces the importance of screening and early identification using instruments or technological tools combined with science and adapted to the local culture, as well as strategies for qualification, continuing education, and advanced scientific research. Fatigue brings several implications both to the individual and to the employer, as well as the economy. Moreover, CFS is also a considerable burden to public health.

Throughout the time, it was observed that the topic of fatigue is strongly linked to discussions on occupational health and accident prevention in organizations around Brazil and in the world. This encourages further research to be conducted on this topic, in order to point out the possible ways of mitigating risks related to fatigue and promoting good practices. It is noticeable the association of fatigue and occupational accidents in several industry sectors. Therefore, the economic consequences reach not only organizations but also the society, with immeasurable losses in the human value. Thus, it is necessary to further increase the investment in strategies towards identification and management, such as methodologies of short and objective application that allow science to be closer to the industry and promote screening technologies with scientific basis. This way, it is possible to optimize early identification, collaborating to an effective therapeutic process and serving as basis to the development of preventive actions.

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