

Is physical inactivity still poisonous to the health of Bukavu city workers suffering from burnout?

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Abstract

The influence of the level of physical activity on burnout syndrome among Higher Education and University staff remains very little documented among students living in Sud kivu South Kivu in general and particularly in Bukavu. In an analytical study of 131 workers of the Higher Institute of Medical Technology of Bukavu aged 25 and over of both sexes, carried out during the period from April 15 to September 15, 2024. The validated IPAQ Questionnaire was used to measure the low, moderate and high level of physical activities. The Maslach burnout Inventory (MBI) self-assessment scale allowed us to assess the three aspects of burnout: Emotional Exhaustion, Dehumanization and Lack of Personal Accomplishment. The chi-square test allowed us to show the influence between the variables studied. The managers and agents of ISTM-Bukavu are affected by moderate Burnout syndrome, with an average score of 21.3, of which dehumanization was higher, with 16 and moderate Emotional Exhaustion, with 22. Thus, 63.4% of these workers do not engage in light physical activity, 67.7% do not engage in moderate physical activity, 58% do not engage in vigorous physical activity and 55.7% of them do not engage in muscle strengthening physical activities. Feeling emotionally drained by their work influences 72.5%, $p = 0.001$ managers and agents to become inactive and sedentary. Becoming more insensitive to people since acquiring this job influences him at 67.8%, $p = 0.001$ and the fear that this job will harden emotionally influences at 68.8%, $p = 0.005$ workers to become inactive and sedentary. The health of workers is a very important issue to improve the quality of services provided to the population; burnout turns out to be a major obstacle, because it results in emotional exhaustion, dehumanization and lack of personal accomplishment. Sedentary lifestyle and physical inactivity have proven to be amplifiers and catalysts of these, at values exceeding the average, with a higher rate of dehumanization and emotional exhaustion. An adapted physical activity program for ISTM-Bukavu staff and managers turns out to be a solution and a remedy, which can prevent and reduce the consequences and impact of burnout.

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Introduction

In recent years, work has changed profoundly, as have its effects on workers' health (Bonnetterre et al., 2010). Among the new risks identified, some may affect workers' physical and/or mental health, their performance at work and the satisfaction that can be experienced there.

Burnout is defined by a state of psychological exhaustion felt when faced with demanding professional situations (Dreher et al., 2020).

However, burnout is not recognized as a defined and isolated psychiatric pathology because there are no diagnostic criteria for this syndrome. The World Health

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Organization (WHO) in the 11th revision of the International Classification of Diseases recognizes that the synonym of burnout is a major public health problem (Bonnetterre et al., 2010). Although burnout is not recognized as a disease, it affects the health of the individual with both physical and psychiatric symptoms such as depression, anxiety, sleep disorders, and addictive behaviors, well studied among doctors in the developing country and poorly documented in other health professions, particularly the paramedical sector. Burnout is one of the leading preventable causes of staff absenteeism and can have repercussions on work continuity, work organization, and thus reduce productivity gains and lead to a decline in performance and an increase in professional misconduct (Mabele et al., 2024).

A meta-analysis, recently published in the journal "International Journal of Nursing Studies" revealed that the dimensions of Burnout are negatively associated with the quality and safety of care, as well as productivity (Owona et al., 2020). It affects the cognitive functions of staff and generates concentration problems, with an increase in professional misconduct that can be detrimental to students (Maslach et al., 1986). The scientific literature qualifies the work environment as the main factor of burnout (Le Tourneur & Komly, 2011). A stressful and inadequate work environment is associated with an increased rate of Burnout among staff, whether novice or experienced (Delvaux et al., 2002).

The prevalence of burnout is associated with demanding professional situations and individual factors. Several studies have been initiated worldwide on this topic and have reported a burnout rate of 46.5% and 30% among intensive care staff in France in 2007, 65% of American caregivers in 2012. In Australia, a burnout rate of 60% was found among caregivers in emergency sectors in 2013. In Africa, a study conducted in Tunisia in 2012 reported that 54% of caregivers in emergency units had burnout syndrome. In Cameroon, a study found a prevalence of burnout of 42.4% among general practitioners in the city of Douala with no notion of a protective effect of physical and sporting activities on the prevention of this syndrome (Owona et al., 2020).

Regular physical activity is an effective approach to reduce burnout seems to be gradually becoming established in people's minds. Indeed, many studies have looked at it, such as two systematic literature reviews

carried out in 2020 which found a positive, although weak, effect of physical activity on burnout symptoms, and mainly on emotional exhaustion. The authors of the article explain these results by the absence of studies that can define the intensity, frequency and duration of physical activity required to reduce the risks of stress and burnout in the professional environment in general and among staff in particular.

In the Democratic Republic of Congo in general, a study on the level of physical activity of students carried out in the city province of Kinshasa showed that students of the Faculty of Medicine were inactive and had a level of emotional exhaustion, dehumanization, and moderate professional accomplishment. In South Kivu in general and particularly in Bukavu, no study has been carried out on this subject and has sought the influence of the level of physical activity on burnout syndrome among Higher Education and University staff. It is for this reason that we chose to carry out this study in order to provide new knowledge on burnout syndrome among IST Bukavu staff.

Methods

Type and Period of Study

This is a cross-sectional analytical study carried out during the period from April 15 to September 15, 2024, i.e.

Setting and Participants

The higher institute of medical technique of Bukavu served as the setting for this study. Included in this study were all baccalaureate students one, two, three and trainee doctors from the biomedical and physical medicine and rehabilitation sector of the said faculty in apparent good health, aged 18 to 40 years who answered all the questions of the research. A convenience sample consisted of 200 participants including 100 (50%) students from the department of physical medicine and rehabilitation and 100 (50%) from medical biology.

Data Collection Procedure

International Physical Activity Questionnaire (IPAQ) allowed us to assess the Level of Physical Activities high, moderate, low or physical inactivity and sedentary behavior (Lee et al., 2011). The Maslach burnout Inventory (MBI) scale was used to measure Emotional Exhaustion, Depersonalization, Lack of Professional

Accomplishment and Burnout (Maslach et al., 1986; Le Tourneur & Komly, 2011).

Parameters and Measurement Scales

Physical activity level

The IPAQ assesses three levels of physical activity and sedentary behavior. The Moderate and High Level of Physical Activity are defined by practicing moderate and intense physical activity of 30 to 45 minutes or more per day three times or more per week. Physical inactivity or low level of physical activity was defined by 20 minutes of moderate physical activity once or twice a week. Sedentary behavior is determined by the absence of light physical activity for 10 minutes per week (Mabele et al., 2019; Lee et al., 2011).

Burnout and its dimensions

The three fundamental dimensions of the syndrome are: Emotional exhaustion (EE), depersonalization (D) and lack of personal accomplishment (PA). Emotional exhaustion (EE) manifests internally as a feeling of emptiness, unusual, emotional fatigue at work and difficulty being in contact with the emotions of others. Depersonalization is marked by detachment, a relational impoverishment akin to cynicism. The student is considered more as an object than as a person (Maslach et al., 1986; Le Tourneur & Komly, 2011). Lack of personal accomplishment is the consequence of the other dimensions. It is expressed by a feeling of inefficiency, of inability to help others, of frustration in one's work. In other words, it is the feeling of no longer doing a good job. The relationship with others is/ or was the foundation of the caregiver's work, and the main motivation for their professional and personal choice (Maslach et al., 1986; Le Tourneur & Komly, 2011). The MBI scale is a protocol comprising 22 items grouped into three subscales including 9 items for the EE score (1+2+3+6+13+14+16+20), 5 items for the depersonalization score (5+10+11+15+22) and 8 items for the Lack of PA score (4+7+9+12+17+18+19+21). A rating protocol accompanies the MBI which has the principle of calculating the scores which are obtained by adding the circled figures which represent the respondent's responses to the items making up the MBI. This operation results in 3 scores which reflect the three degrees of the burnout dimensions as follows, low Emotional Exhaustion determined by a score of items of the dimension equal to 17, moderated by a score of items of the dimension of 18

to 29 and high by a dimension item score greater than or equal to 30. Low depersonalization is determined by a dimension item score equal to 5, moderated by a dimension item score of 6 to 11 and high by a dimension item score greater than or equal to 12. Low PA is determined by a dimension item score equal to 33, moderated by a dimension item score of 34 to 39 and elevated by a dimension item score greater than or equal to 40 (Maslach et al., 1986; Le Tourneur & Komly, 2011). The evaluation of the presence of burnout syndrome is revealed by the score of its three components. Burnout is high if the subject obtains a pathological level for three scores on the MBI scale, moderate if the subject obtains a pathological level for two scores on the MBI scale and low if the subject obtains no pathological level for only one of the three scores on the MBI scale and burnout is zero if the subject does not obtain any pathological level for the three scores on the MBI scale (Maslach et al., 1986; Le Tourneur & Komly, 2011).

Data Collection and Analysis

After validation, the data were analyzed by SPSS version 21.0 for Windows. Quantitative data were presented as means \pm standard deviation (SD) and qualitative data as percentage proportion. We use parametric tests to test the influence of these variables on the different.

Results

It emerges from this table that the managers and agents of ISTM-Bukavu are affected by moderate Burnout syndrome, i.e. an average score of 21.3, of which dehumanization was higher, i.e. 16, and moderate Emotional Exhaustion, i.e. 22. Of all the agents and managers of ISTM Bukavu affected by Burnout, 61% have a low level of Physical Activities and are sedentary. Depending on the types of physical activities, 63.4% are inactive at work, 67.7% at leisure, 58% during vigorous Physical Activities and 55.7% were inactive during Muscle Strengthening Physical Activities.

In light of this table, it is observed that among all the variables studied, feeling emotionally drained by their work influences 72.5%, $p=0.001$, managers and agents affected by Burnout to become Inactive and sedentary. Becoming more insensitive to people since having obtained this job influences 67.8%, $p=0.001$ and the fear that this job will harden them emotionally influences 68.8, $p=0.005$, workers to become Inactive and sedentary.

Table 1
Distribution of respondents according to the level of physical activity.

Variables	Frequency (n=131)	%
(Mean age: 47 ±12 years)		
<i>Sex</i>		
Female	41	31.3
Male	90	68.7
<i>Dimensions Burnout</i>		
	Scores (averages)	Interpretation
Emotional Exhaustion (EE)	26 ± 24.48	Moderate
Dehumanization (D)	16 ± 18.36	Pupil
Lack of Personal Accomplishment (LPA)	22 ± 20.12	Down
Burnout	21.3 ± 19.00	Moderate
<i>Levels and Types of Physical Activities</i>		
<i>Low level of physical activity</i>		
Physical activity at work	88	67.7
Leisure physical activity	76	58
Vigorous physical activity	73	55.7
Strengthening physical activity	80	61
<i>Moderate Physical Activity Level</i>		
Physical activity at work	31	23.6
Leisure physical activity	30	22.9
Vigorous physical activity	29	22.1
Strengthening physical activity	33	25.2
<i>High level of physical activity</i>		
Physical activity at work	31	23.7
Leisure physical activity	17	13
Vigorous physical activity	13	9.4
Strengthening physical activity	26	19.9
Physical activity at work	25	19.1
Leisure physical activity	20	15.3

Discussion

The predominance of male gender (63.7%) among ISTM/Bukavu staff is consistent with trends observed in higher education in sub-Saharan Africa. This male predominance is consistent with trends observed in higher education, where women remain underrepresented, particularly at senior levels. A study by Mabokela et al. on gender inequalities in South African universities reported a male representation varying between 60% and 70% (Mabokela et al., 2004). Similarly, Morley highlighted the persistence of gender gaps in African higher education institutions (Morley, 2013). The age distribution, with a majority of staff between 45 and

64 years old (53.4% cumulative) and an average age of 47 years, reflects an ageing of the workforce often observed in higher education in sub-Saharan Africa. A study by Teferra & Altbach on the challenges of African universities highlighted the problem of aging faculty and the difficulty of generational renewal (Teferra et al., 2004). The predominance of scientific staff (45%) and bachelor's level (39.7%) among the staff of ISTM/Bukavu is consistent with the qualification requirements in higher education institutions. However, the relatively low share of master's (10%) and doctoral (9.2%) holders may raise questions about the research and doctoral supervision capacities of this institution.

Table 2
Influence of burnout syndrome on level of physical activities.

Variables	Physical activity level				OR (95% CI)	p-value
	Good		Bad			
	n=131	%		%		
<i>Sex</i>						
Male	31	70.5	59	67.8	1.1(0.51-2.48)	0.75
Female	13	29.5	28	31.2		
<i>Level of study</i>						
With level	34	77.3	69	79.3	0.8(0.36-2.12)	0.78
Without level	10	22.7	18	20.7		
<i>Feeling emotionally drained from work</i>						
Never	14	63.4	8	36.4	0.2(0.08-0.56)	0.001*
Sometimes or always	30	27.5	79	72.5		
<i>Feeling exhausted at the end of the work day</i>						
Never	5	35.7	9	64.3	0.9(0.28-2.86)	0.85
Sometimes or always	39	33.3	78	66.6		
<i>Feeling tired when getting up in the morning to face another day of work</i>						
Never	4	36.4	7	63.6	0.87(0.24-3.16)	0.83
Sometimes or always	40	33.3	80	66.6		
<i>Easily understand how colleagues/supervisors feel</i>						
Never	8	50	8	50	0.45(0.15-1.31)	0.13
Sometimes or always	36	31.3	79	68.7		
<i>Becoming more insensitive to people since getting this job</i>						
Never	31	70.5	59	67.8	4.3(1.22-15.4)	0.001*
Sometimes or always	13	29.5	28	31.2		
<i>Fear that this work will harden you emotionally</i>						
Never	7	58.3	5	41.7	0.80.09-1.08)	0.005*
Sometimes or always	137	31.1	82	68.9		

* $p < 0.05$

A study by Bako on higher education in West Africa highlighted the lack of highly qualified personnel in many universities in the region (Bako, 2005). This table reveals that 61% of ISTM Bukavu executives and agents suffering from Burnout have a low level of physical activity and sedentary behavior, i.e. 63.4% are inactive at work, 67.7% at leisure, 58% during vigorous physical activities and 55.7% were inactive during muscle strengthening physical activities. On the other hand, 23.7% of the latter had a moderate level of physical activity and 15.3% of these staff had a high level. Our results appear high compared to trends observed in other African populations. A study conducted in South Africa by Mbalati et al. reported that

only 28.8% of adults did not perform light physical activity (Mbalati et al., 2017). Similarly, a national survey in Nigeria by Oyeyemi et al. (2013) showed that 40.2% of adults were physically inactive at the light level (Oyeyemi et al., 2013). These differences can be explained by socio-economic, environmental and cultural factors specific to the context of ISTM/Bukavu. A study conducted in Kenya by Muthuri et al. (2014) found that only 36.4% of adults were not engaged in moderate physical activity (Muthuri et al., 2014). Similar findings were reported in Cameroon by Assah et al. (2011), where 38.7% of adults were physically inactive at the moderate level (Assah et al., 2011). The lack of infrastructure, awareness programs and

institutional support could explain these high levels of moderate inactivity at ISTM/Bukavu. In Ghana, Doku and Neupane (2015) reported that 66.6% of adults were not engaged in vigorous physical activity (Doku & Neupane, 2015). Similarly, a study conducted in South Africa by Guthold et al. (2008) found that 62.5% of adults were not physically active at the vigorous level (Guthold et al., 2008). These results highlight the need to further promote vigorous physical activity among ISTM/Bukavu staff. A study conducted in Ethiopia by Tesfaye et al. (2016) reported that only 31.4% of adults did not perform muscle strengthening activities (Teskave et al., 2016). Similar results were observed in Rwanda by Hategekimana et al. (2018), where 34.2% of adults did not perform this type of activity (Hategekimana et al., 2018). Lack of awareness, facilities and suitable programmes could explain these low levels of muscle strengthening at ISTM/Bukavu. The levels of physical inactivity observed in ISTM/Bukavu, particularly at light and moderate levels, appear higher than the averages reported in other African countries such as South Africa, Nigeria, Kenya, Cameroon, Ghana and Ethiopia (Muthuri et al., 2014). These gaps highlight the importance of understanding factors specific to the ISTM/Bukavu context that may influence staff physical activity behaviors. Low levels of physical activity, particularly moderate and vigorous activity and lack of muscle-strengthening activities are of concern because they are associated with an increased risk of health problems such as cardiovascular disease, diabetes and some types of cancer. This situation highlights the urgent need to put in place targeted interventions to promote more active lifestyles among ISTM/Bukavu staff. Initiatives aimed at raising awareness among staff of the benefits of physical activity, providing suitable facilities and programmes, and encouraging institutional support could help improve physical activity levels. The involvement of ISTM authorities, staff associations and public health experts would be crucial to design and implement effective strategies. Further research to better understand the barriers and facilitators to physical activity specific to this context would help guide these efforts. In summary, the results of this study highlight the urgent need to act to promote more active lifestyles among ISTM/Bukavu staff, in order to improve their long-term health and well-being. A comprehensive approach involving different stakeholders will be essential to address this challenge. These findings are consistent

with the literature on burnout in the healthcare sector, particularly in low- and middle-income countries (Maslach & Leiter, 2016). Previous studies (Koutsimani et al., 2019) have shown that organizational factors such as workload, lack of support, and strain in interpersonal relationships are key determinants of burnout (Maslach & Jackson, 1981). Similarly, Demerouti et al. (2001) identified factors such as lack of control, social support, and positive feedback as contributing to burnout (Demerouti et al., 2001). These elements could explain the results of the ISTM-BKV, where a significant proportion of the staff felt frustrated, numb and emotionally hardened by their work. Implement an emotional skills development program, offering training on stress management, emotional intelligence and burnout prevention. Promote better recognition of work accomplished, through reward systems, recognition of initiatives and positive feedback from managers. Rethinking the organization of work to better balance workloads and allow employees to develop a sense of autonomy and control over their activity. Strengthen managerial support and collaborative work, encouraging the sharing of experiences and solidarity between colleagues.

Conclusion

Workers' health is a very important issue to improve the quality of services provided to the population; burnout proves to be a major obstacle, as it results in emotional exhaustion, dehumanization and lack of personal accomplishment. Sedentary lifestyle and physical inactivity have proven to be amplifiers and catalysts of these, at values exceeding the average, with a higher rate of dehumanization and emotional exhaustion. An adapted physical activity program for ISTM-Bukavu staff and managers proves to be a solution and a remedy, which can prevent and reduce the consequences and impact of burnout.

Authors' Contribution

Study design: GKM; Data collection: SNT, CBN, RNK, IKN, DTK, JBN, SKM, SBB; Statical Analysis: GKM, CKE, TBL; Manuscript preparation: GKM, CKE, NKN, SNT; Fund collection: CBN, DKM, SNT.

Ethical Approval

The study protocol was approved by the Medical Ethics Committee of the Ministry of Public Health of the Democratic Republic of Congo and its approval number is

N°26/CNES/BN/PMMF/2023 of 20/O1/2023 association also known as the declaration of Helsinki.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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