

# Differences in the Level of Burnout between Recreational Boxers and Non-athletes

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**Abstract** Nowadays, stressful situations are occurring more and more frequently, even on a daily basis. The ongoing pandemic, the tense geopolitical situation, the economic crisis or the inflation are causing burnout syndrome in increasingly younger people. People are exposed to excessive work stress, scheduled tasks, financial insecurity and constant one-sided or psychological overload. The aim of the research is to find out and compare the level of three dimensions of burnout between recreational boxing employees and nonathletic employees using the Maslach Burnout Inventory. 266 different employees were included in the research group, who were divided into recreational boxers (n= 106) and nonathletes (n= 160). All participants were males. The research set of boxers consisted of employees of average age ( $26.9 \pm 7.7$  years) and average length of experience in the current job ( $4.1 \pm 4.5$  years), nonathletes consisted of employees of average age ( $25.3 \pm 5.1$  years) and the average length of experience in the current job ( $3.4 \pm 2.5$  years). In all three subscales, nonathletes showed statistically significant burnout compared to recreational boxers in the dimension emotional exhaustion ( $p \leq .01$ ;  $r = 0.66$ ), depersonalization ( $p \leq .01$ ;  $r = 0.3$ ), and personal accomplishment assessment ( $p \leq .01$ ;  $r = 0.22$ ). The emotional exhaustion subscale points to alarming differences in the manifestations of burnout between physically active and passively active lifestyles of employees. As regards recreational boxers, newcomers can better adapt to new stress stimuli, which in turn affects their mental well-being, psychological state and work productivity. Our data indicate that practicing recreational boxing preempts development of burnout, reduces the

negative impact of everyday emotional stress, emotional exhaustion, and depersonalization.

**Keywords** Combat Sports, Recreational Physical Activity, Stress, Occupational and Organizational Psychology

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## 1. Introduction

Burnout syndrome is considered a negative affective state resulting from intractable work stress [1-2], which is characterized by a state of physical, cognitive and emotional exhaustion, but also by a reduced ability to sense perception [3]. The last stage of burnout is a serious condition. Interest in work decreases or disappears, a person's efficiency and emotional well-being gradually decrease, feelings of inferiority arise, a person is often tired, suffers from headaches, insomnia, anxiety, aggression, and depression [4], which may indicate a higher suicide rate [5]. Burnout is a term that is currently catching considerable concern [6].

Nowadays psychological overload occurs at increasingly frequent, even daily intervals. The ongoing pandemic related to Covid-19, the current geopolitical situation, the economic and energy crisis or inflation cause hopelessness and uncertainty in people [7].

People are exposed to excessive stress from work, deadlines, and financial uncertainty [8]. According to Maslach [9], stress occurs when a person perceives an

external demand exceeding its capability to deal with such pressure. Operationally, stress is usually defined as a complex of behavioural and physiological reactions to external or internal threats and the result is a strong cadre of adaptational components [10]. We consider that the presented stressors can have a negative impact on mental and physical health, and it initiates burnout [11]. Various studies have reported that the protective effects of social participation on the health of the general population stimulate the increasing of the level of physical activity, cognitive functions, or emotional support [12].

Other actual studies indicated that the occurrence of burnout is positively correlated with level of physical fitness [13-14]. Mack [15] found that mental toughness was significantly higher in athletes compared to nonathletes ( $p \leq .01$ ). Recreational athletes showed higher levels of nervous activity and lower levels of neuroticism and anxiety, stress, mental tension and depression [16-17].

However, in these days, majority of the population do not pay enough attention to a reliable elimination factor of stress – physical activity, which promises a lot of positive health effects but especially well-being [18]. Luckily the physical activity can take many forms, from simpler as walking to harder as combat sports. In fact, combat sports are very popular nowadays. At the Olympic Games in Tokyo in 2021, they accounted for approximately 22% of all competition medals [19], while boxing has the most significant representation [20].

Amateur boxing (also known as AIBA boxing or Olympic boxing) applies to the type of boxing competitions that are included in the Olympic Games [21]. From a psychological point of view, boxing is an individual, combative, contact, and anticipatory-heuristic sport. Due to its dynamic properties of muscle contraction, its physiological requirements are at a high level. It is an aerobic interval activity, which is characterized by the alternation of a short-term high-intensity phase with elements of explosive strength and anaerobic intermediate phases. It is a complex structure of a multifactorial condition and coordination abilities as a comprehensive means for improving general physical fitness [20], [22]. Boxing is often associated with high aggression, strong stress stimuli (which are related to burnout) or other problems with multiple origins that can destabilize psychological balance [23] additionally. Szabo and Parkin [24] and Rahimizadeh et al. [25] found lower levels of aggression in combat athletes when compared to nonathletes. The burnout also depends on the motivational component, such activity brings a number of favourable adaptive effects on the organism [26]. Actions at the extreme level of mental and physical stress require the most complete, concentrated, and organized mobilization of all possibilities including hidden ones from an individual in

the shortest possible time [27]. The strength of nervous system determines the ability to achieve success in activities of daily living [16], which also has a positive impact on logical thinking [28].

A secondary objective of this study is to expand theoretical knowledge related to the mechanisms of stress adaptation with a more adequate response in terms of some practical situations, such as concerning the impact of recreational physical activity on mental toughness or reducing emotional exhaustion of employees in order to engage them in combat sports.

## 2. Material and Methods

### 2.1. Participants

A total of 266 males participated in the research, 106 (39.8%) were recreational boxers and 160 (60.2%) were nonathletes. All the participants during the study were employed in different occupations (Table 1 and 2):

- Security services (police officers, soldiers and firefighters).
- Sedentary (IT workers, office workers, home workers, drivers etc.).
- Social and care (physicians, healthcare workers etc.).
- Others (teachers, freelancers etc.).

The research group of recreational boxers consisted of employees of average age  $26.9 \pm 7.7$  years and average length of being employed in the current job  $4.1 \pm 4.5$  years. The respondents in this group declared that they have been recreationally practicing Olympic boxing on a regular basis ( $3.1 \pm 1$  times per week) over a period of  $3.7 \pm 5.6$  years. Employees who engaged in boxing once a week were not included in the research, as positive results are shown by physical activities starting at least 6 weeks with a frequency of 2-3 times per week [29]. All socio-demographic profiles of recreational boxers are shown in Table 1.

The research group of nonathletes consisted of employees of average age  $25.3 \pm 5.1$  years and average length of being employed in the current job  $3.4 \pm 2.5$  years. The respondents in this set declared that during this study they did not participate in any regular and systematic physical activity/exercise or in any sports discipline. All socio-demographic profiles of nonathletes are shown in Table 2.

The respondents' participation in the study was voluntary, anonymous, and the data were treated confidentially. After explaining the aim of this study, the participants were asked to sign an informed consent form if they agreed to participate.

**Table 1.** Socio-demographic profiles of recreational boxers

<b>Recreational boxers</b> <b>n = 106</b>				
Age (year)	18 – 24 n = 50 (47.2%)	25 – 34 n = 44 (41.4%)	35 – 44 n = 6 (5.7%)	More than 45 n = 6 (5.7%)
Educational level	Secondary school n = 5 (4.7%)	High school n = 71 (67%)	University degree n = 30 (28.3%)	
Employment in the current job (year)	1 – 5 n = 85 (80.2%)	6 – 10 n = 14 (13.2%)	11 – 15 n = 3 (2.8%)	16 and more n = 4 (3.8%)
Type of employment	Security services n = 16 (15.1%)	Sedentary n = 43 (40.6%)	Social and care n = 12 (11.3%)	Others n = 35 (33%)

**Table 2.** Socio-demographic profiles of nonathletes

<b>Nonathletes</b> <b>n = 160</b>				
Age (year)	18 – 24 n = 87 (54.4%)	25 – 34 n = 64 (40%)	35 – 44 n = 6 (3.7%)	More than 45 n = 3 (1.9%)
Educational level	Secondary school n = 3 (1.9%)	High school n = 95 (59.4%)	University degree n = 62 (38.7%)	
Employment in the current job (year)	1 – 5 n = 141 (88.1%)	6 – 10 n = 14 (8.8%)	11 – 15 n = 4 (2.5%)	16 and more n = 1 (0.6%)
Type of employment	Security services n = 0 (0%)	Sedentary n = 94 (58.7%)	Social and care n = 27 (16.9%)	Others n = 39 (24.4%)

## 2.2. Instruments

As part of the determination of basic demographic data, we used a short anamnestic questionnaire that ascertains age, gender, educational level, social status, type of employment, number of years in the current job and participation in regular and systematic physical activity in free time. Data collection took place online. The questionnaire was distributed via email addresses to all boxing clubs and private companies in Slovakia.

## 2.3. Materials and Methods

The degree of employee burnout was measured using the Maslach Burnout Inventory (MBI), which consisted of 22 items and assessed the frequency of relative emotions on a 7-point Likert-type scale ranging from never (0) to every day (6) [30]. The MBI questionnaire raises information about 3 subscales:

- 1 Emotional exhaustion (EE) (scores range from 0-54) is usually associated with a relationship to work that is perceived as difficult, tiresome, and stressful (negative subscale). Maslach and Jackson [30] see this as different from depression, as it is likely that the symptoms of burnout would be reduced during holidays. This subscale consisting of 9 items provided information about the respondents' feelings of being emotionally overwhelmed, exhausted and drained by work (e.g., "I feel frustrated by my work").
- 2 Depersonalization (DP) or cynicism (scores range

from 0-30) or reduced capacity for empathy is characterised by a loss of respect for others (clients, colleagues) and keeping a greater emotional distance, which manifests itself in cynical, insulting remarks or even callousness (negative subscale). This subscale consists of 5 items and is characterized by unfeeling and impersonal responses toward athletes. (e.g., "I have become more callous to people since I have started doing this job").

- 3 The personal accomplishment (PA) (scores range from 0-48) is a feeling that acts as a "safety valve" and helps to restore balance when occupational exhaustion and depersonalisation occur. It provides fulfilment in the workplace and a positive outlook on professional accomplishments (positive subscale). This subscale containing 8 items assessed the achievement of a specific job (e.g., "I feel stimulated when I am working closely with my colleagues"). Maslach and Jackson [34] reported that the manifestation of the burnout will even just be shown with the expression of one dimension in individuals. High emotional exhaustion and depersonalization reflected increased burnout levels, while high personal accomplishment corresponded to low burnout levels.

For each dimension, the following norms are established in the study by Morovicsov á and Kostovičová [31] and EE 0-16 points represent low degree, 17-26 points represent medium degree, 27 or more points represent high of

burnout. DP 0-6 points represent low degree, 7-12 points represent medium degree, 13 or more points represent high degree of burnout. PA 0-31 points represent low degree, 32-38 points represent medium degree, 39 or more points represent high degree of burnout. This subscale represents the reverse score, and thus a low average score corresponds to a high degree.

## 2.4. Statistical Analysis

The resulting data from the MBI and its individual dimensions were evaluated in the IBMS SPSS 23 statistical program. The Kolmogorov-Smirnov Test was used to determine the normality of the data, where data normality was not found.

The non-parametric Mann-Whitney U-test was used to determine the differences between recreational boxers and nonathletes. To assess the effect size, we used Cohen's  $r$  according to the scheme of authors Gignac and Szodorai [32] in which the absolute values of the correlation coefficient are: < (0.1-0.3) small effect, < (0.3-0.5) medium effect, (0.5 or more) large effect of substantial significance.

## 3. Results

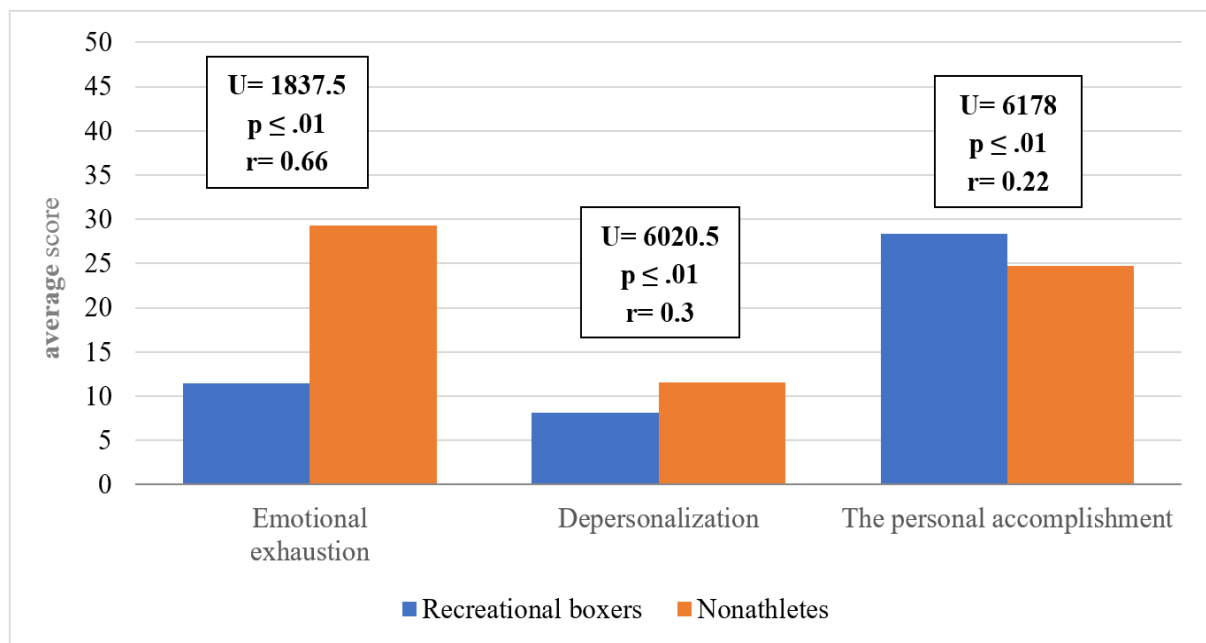
The scores of the MBI questionnaire among the

recreational boxers and nonathletes are presented in Table 3. Recreational boxers experienced a low level of emotional exhaustion, a moderate degree of depersonalization and a low degree of personal accomplishment. Nonathletes experienced a high degree of emotional exhaustion, a moderate degree of depersonalization and a low degree of personal accomplishment.

**Table 3.** Means and standard deviations of scores across MBI dimensions in terms of employees' physical activity

Employees n = 266	Mean (M) Standard Deviation (SD)	MBI		
		EE	DP	PA
Recreational boxers (n = 106)	Mean	11.4	8.1	28.4
	Standard Deviation	7.3	4.7	8.2
Nonathletes (n = 160)	Mean	29.3	11.5	24.7
	Standard Deviation	12.2	7	8.1

Even though recreational boxers spent 0.7 years longer in their current job compared to nonathletes, in all three subscales they demonstrated significantly higher differences in average burnout values in favour of nonathletes (as shown in Figure 1).



U – Mann Whitney U test,  $r$  – correlation coefficient

**Figure 1.** Comparison of burnout in recreational boxers and nonathletes

We record the most significant differences in the monitored files in the emotional exhaustion subscale. Nonathletes have almost three times higher scores than recreational boxers. The lowest score ( $M= 2.9$ ) of nonathletes appears in the item "Working with people the whole day is stressful for me". On the contrary, the item "I feel burned out because of my work" contained the highest score ( $M= 3.9$ ). Recreational boxers scored the lowest ( $M= 0.7$ ) on the item "I feel frustrated by my work" and the highest scored ( $M= 2.2$ ) on the item "I feel worn out at the end of a working day".

The personal accomplishment assessment subscale represents a reverse score, and therefore nonathletes are more burned out in this dimension as well. Although, on the other hand, we must point out that in the presented dimension both groups show considerable burnout, even if to a statistically significantly different degree ( $p \leq 0.01$ ;  $r= 0.22$ ). In the personal accomplishment assessment dimension, we register the lowest score ( $M= 2.3$ ) and thus the highest degree of burnout among nonathletes in the item "I feel full of energy". Recreational boxers showed the lowest score ( $M= 2.7$ ) in the item "I deal with other people's problems successfully".

#### 4. Discussion

When exploring the three interrelated components of burnout, the most of the articles used Maslach's Burnout Inventory [33]. Our results are consistent with the studies that have examined burnout in a variety of employees – teachers [34-35], physicians and healthcare workers [36], sedentary workers, especially officers [37] or professional drivers [38]. Xiao et al. [39] and Pereira [40] claim that the recent social isolation had a drastic impact on the physical activity level of the population, an increase in the number of sedentary jobs in the form of home offices, which persist to the present day (40.6% recreational boxers and 58.7% nonathletes). Garbe et al. [41] claim that most employees working from home are in a large number of cases, parents, which leads to burnout and lack of physical activity due to the high demand of responsibilities [42-43]. And that was reflected in a decrease in the number of steps of population taken per day between 7 and 38% [44] which leads to emotional distancing from people, and this is one of the manifestations of burnout syndrome [45].

Some studies have examined the effects of physical exercise on burnout syndrome. Shah et al. [46] examined 678 probands during the pandemic. As many as 57.4% showed signs of stress and 58.6% burnout. The most positive correlation with quality of life was physical activity in the household [47], which had positive effects in the prevention or mitigation of mental illnesses, including work burnout and depressive symptoms [48].

Rosales-Ricardo and Ferreira [49] found that aerobic exercises reduced emotional exhaustion by 31.0% ( $d = 0.532$ ) and strength exercises reduced emotional

exhaustion by 19.6% ( $d = 0.299$ ). WHO [50] recommends at least 150-300 minutes of medium-intensity aerobic physical activity per week or at least 75-150 minutes of high-intensity of the same activity, or strength training of medium or higher intensity that engage all major muscle groups, on a frequency of 2 or more days in week. The most important thing is the regularity and sustainability of properly chosen activities [51]. The athletes [52], but also teachers [34] who have been involved in training programmes for a long time have a greater potential to cope with stress. Nonathletes are affected by severe manifestations of burnout syndrome only after  $3.4 \pm 2.5$  years of work experience, compared to recreational boxers who have been engaged in their current occupation for  $4.1 \pm 4.5$  years. We can observe a marked difference between work experience and burnout. Only  $n= 23$  (14.4%) of nonathletes showed a low degree of EE. The most of them  $n= 98$  (61.25%) on the contrary, showed a high degree. In this dimension, as many as  $n= 10$  (6.3%) nonathletes scored higher than 50 points, reflecting very severe, even pathological, manifestations of burnout. Conversely, up to  $n=75$  (73.6%) boxers showed low levels of EE and only  $n=3$  (2.4%) showed high levels, with the remainder showing normative values. Compared to a study [37] conducted on 487 office workers aged  $37.4 \pm 10.6$  years, the frequency of burnout syndrome concerned only 2.97% males, while in a study [35] dealing with 303 teachers aged  $43 \pm 7$  years, the prevalence of burnout syndrome was considerably higher (68%), including emotional exhaustion (15.2%), depersonalization (32.1%), and loss of personal accomplishment (22.1%), with 57% of teachers having a low degree, 38% a moderate level, and 6% a high degree of burnout. Sport and physical activities also had a significant protective impact against teachers' burnout ( $p \leq .04$ ) [35]. Thus, the results of our research suggest that recreational boxers are significantly less likely to be in the clinical borderline group compared to nonathletes.

Slimani et al. [53] and Yasar and Turgut [54] claim that the regular physical activity of combat type contributes to the stabilization and thus also the variability of the mental toughness management, which are [55] described as the ability to react in an optimal way even under higher and unexpected psychological stress, which, according to [56] has a fundamental effect against burnout. Additionally, most combat athletes are exposed to excessive and frequent injuries, most often the head [21], [57], hands and wrists [58], experiencing a higher level of feeling of personal failures and perfectionism [59-60], which can explain the low score achieved in the personal accomplishment dimension. This dimension reflects a diminished sense of accomplishment, self-actualization, or feelings of personal efficacy and professionalism. The low scoring individual has a particularly negative and demeaning view of most of his accomplishments. A surprising finding was observed in the dimension of DP. A low degree is shown by  $n= 74$  (46.25%) of nonathletes and only  $n= 29$  (18.1%) nonathletes show a high degree of DP. Approximately a

same number of boxers  $n = 50$  (47.7%) show a low degree of DP but as many as  $n = 24$  (22.6%) boxers show a high degree. 15.1% recreational boxers worked in security services. This environment involves constantly critical, life-threatening and stressful situations, as evidenced by up to 23.36% of police officers exhibiting high levels of burnout, 44.16% of police were highly emotionally exhausted and 49.29% had lost empathy with people [61]. Higher burnout scores in athletes are also reported in a study by Madigan [62], in which they claim that 10% of athletes experience increased symptoms of burnout. The less well athletes understand their own emotions, the more negatively they perceive other people's feelings and the more likely they are to experience psychological burnout [63], as evidenced by elevated levels of DP and low levels of AP in recreational boxers.

Several limitations need to be taken into account when interpreting our findings. All respondents were male only, as Olympic boxing is still considered a predominantly male sport in Slovakia and when sorting the data, we were only able to obtain relevant data from 17 female recreational boxers and therefore did not include them in the research. Another limiting factor of the study is the absence of an analysis of employee burnout in terms of age, especially for respondents in the (Adulus) full adulthood and (Maturus I) maturity periods, who are the most numerous in terms of productivity. The above limitations should be addressed in future research.

## 5. Conclusions

The human body is evolutionarily adapted to constant movement. As current lifestyles are pulling us in the opposite direction, it is necessary to eliminate the detrimental health effects of high levels of physical inactivity. There is a significant relationship between nonathletes lifestyle and the level of all three subscales as a complex phenomenon of burnout ( $p \leq .01$ ).

The subscale of emotional exhaustion points to alarming differences in the manifestations of burnout syndrome between physically active and physically passive lifestyles of employees. For individuals, high burnout scores can be extremely problematic. Emotional exhaustion is usually related to a relationship with work that is perceived as demanding, tiring and stressful. Differences were also found in the other dimensions, but they were less pronounced.

## 6. Recommendations

In addition to the usual psychological interventions, employees should engage in the recommended amount of regular aerobic physical activities or muscle training involving all major muscle groups. An excellent choice among the above recommendations is combat sports, especially Olympic boxing. Practicing boxing on the

recreational level reduces a negative impact of everyday emotional stress, emotional exhaustion and depersonalization and allows a socially acceptable mode of expressing psychic tension, aggression, anger or fear. As an outcome of our study, we recommend employees especially those who experienced burnout involve in recreational boxing, regularly 2-3 times per week in their free time. Employees are also encouraged to use the employee benefits (e.g., multisport card) for recreational boxing or other combat sports such as jiu-jitsu, kickboxing, judo or mixed martial arts (MMA), which is currently a very popular sport with an ever increasing popularity. We advise employers to regularly organise free educational webinars and workshops for their employees on the importance of physical activity for mental health.

Despite the results of this study, further research is needed in other combat sports and also investigating differences in terms of gender and age in order to generalise these results. Future research should also investigate not only potential stressors, but also what positive aspects may be protective factors for their development.

## Disclosure Statement

No author has any financial interest or received any financial benefit from this research.

## Conflicts of Interest

The authors have no conflicts of interest to declare.

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