Did Physical Activity Prevent Burnout Among Family Physicians in Slovenia During the COVID-19 Pandemic?

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Research Article

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Abstract

Background The COVID-19 pandemic amplified the existing problem of burnout among healthcare workers. Physical activity has positive effects on the entire body and mental health, and may prevent burnout.

Objectives: Determine the relationship between physical activity and prevalence of burnout among Slovenian family physicians (FPs) and family medicine trainees (FMTs) during the COVID-19 pandemic.

Methods: Cross-sectional observational study of Slovenian FPs and FMTs addressing sociodemographic variables, type and duration of physical activity and assessing burnout using the Maslach Burnout Inventory. Data was analysed using various bivariate statistical tests.

Results: 1230 FPs and FMTs were invited to participate in the study, 282 completed the survey (22.9% response rate), 243 (86.2%) FPs and 39 (13.8%) FMTs. Total burnout score (MBI TOT) during the COVID-19 pandemic was high in 48.6% of the FPs and FMTs; 62.8% scored high for emotional exhaustion (EE), 40.1% high for depersonalization (DP) and 53.5% low for personal accomplishment (PA). Compared to FMTs, EE and MBI TOT was higher in FPs (p < 0.001 and p = 0.010, respectively). There was no difference when comparing physical activity and burnout during the COVID-19 pandemic.

Conclusions: No relationship was found between physical activity and burnout. FPs experienced significantly more burnout than FMTs.

1. Background

Physical activity is any movement of the body that involves skeletal muscles and results in energy expenditure and is performed in leisure time, at work and during transport [1]. Regular physical activity is an important protective factor against chronic non-communicable diseases, which represent a major financial burden in the developed and developing world and are responsible for the loss of active years of life [2].

Globally, the proportion of people who are regularly physically active is relatively low, in developing countries this proportion is twice as low as in the developed world (where it is around 63%); one in three women and one in four men do not reach the recommended level of physical activity [1].

On the other hand, worldwide research shows that physicians are likely to be more physically active than the general population. During residency, the physical activity of trainees decreases when compared to their study in medical faculty, but increases again later [3, 4].

Physical activity plays an important role, not only in protecting against chronic noncommunicable diseases, but also in protecting mental and cognitive health, and increases feelings of general satisfaction [5]. It has been suggested that regular physical activity may be beneficial, particularly in preventing burnout, but global studies are not unanimous on this point [3]. Some studies have observed
less EE in the physically active, whereas no significant changes were observed in DP and PA [6, 7]. Physical activity alone does not have a statistically significant effect on reducing burnout symptoms once they have occurred, but cognitive-behavioural interventions and mindfulness exercises may increase effectiveness [8]. There is a lack of quality intervention studies in this area that further define the importance of regular physical activity in preventing burnout among physicians [6].

Burnout is a work-related psychological syndrome and is often a response to prolonged exposure to emotional and interpersonal stressors in the workplace. It consists of the development of negative self-esteem and a negative attitude towards work [9, 10]. The definition of burnout has been established in the light of a multidimensional theory of burnout, according to which burnout is a combination of high scores for EE and DP, and low scores for PA [11]. Occupations most at risk of developing burnout are those that are involved in helping people, such as: health professionals, psychotherapists, teachers, police officers, etc. In these occupations, chronic and excessive demands can lead to EE or DP, which gradually affect a person's sense of self-efficacy. Burnout among health professionals has been linked to mood disorders, substance and alcohol use disorders, suicidal thoughts and accidents [12–15]. Occupational burnout is also associated with reduced quality of patient care and lower patient satisfaction scores [16, 17].

Christine Maslach's definition of burnout is widely used in family medicine, which defines burnout as a psychological syndrome expressed by EE, DP, cynicism (towards people, towards work) and decreased PA [18]. Among other professions involved in helping people, physicians, as the most devoted servants to humanity, are more prone to burnout due to the nature of their work. There are many studies about burnout among physicians of different specialities [19–22] and also among FPs [23–27]. In January 2020, 42% physicians worldwide reported symptoms of burnout, with the highest incidence among intensive care medicine, emergency medicine, and family medicine [28]. A 2008 European study examining the prevalence of burnout among FPs found that only one-third had no burnout in any dimension, 43% had high EE, 35% had high DP, 32% had low PA, and 12% had high burnout in all three dimensions [23]. In 2009, the prevalence of burnout among Slovenian FPs was comparable to the European average [29]. Similar results were observed for the EE category in Slovenia, while values were higher in other categories. Overall, 18.3% of FPs had high burnout in all three dimensions, while 29.4% of FPs did not have burnout in any of the three dimensions [29]. A 2017 survey of FPs showed that burnout in at least one dimension was present in 48%, with high EE in 25.2%, high DP in 25.8% and low PA in 26.2% [30].

In March 2020, the World Health Organization and Government of Slovenia declared the global outbreak of the COVID-19 pandemic [31]. Even before this outbreak, burnout had been identified as a public health crisis and an alarmingly high rate of occupational burnout existed among trainees and physicians [32–36]. The COVID-19 pandemic dramatically increased the stress on health professionals due to increased personal risk of disease, increased poor patient outcomes with few proven treatment options to prevent morbidity and mortality, and huge demand on health resources [37, 38]. For example, in Italy, one of the European countries most affected by the COVID-19 pandemic, burnout has increased among Italian physicians, especially those working directly with COVID-19 patients. In particular, there has been an
increase in the EE dimension [39, 40]. Trainees experienced the same stressful situations associated with the pandemic, but with the added concern of interruptions and limitations to their training.

The aim of the present study was to determine the association between physical activity during the COVID-19 pandemic and its impact on the incidence of burnout in FPs and FMTs in Slovenia. To the best of our knowledge, no data on the frequency of physical activity of FPs could be found, nor could any study be found investigating the relationship between physical activity and burnout in Slovenia, especially among FPs during the COVID-19 pandemic. Thus, this study represents the initial investigation in this topic of interest.

2. Materials and Methods

2.1. Sampling

The cross-sectional study was conducted between May and June 2021. The population consisted of FPs and FMTs in Slovenia, who were invited to participate through email. The invitations were sent twice at two-week intervals by the Medical Chamber of Slovenia and the Association of Family Physicians of Slovenia. All physicians who had signed the General Data Protection Regulation (GDPR) consent were invited. In total, 1230 FPs and FMTs were invited. Specialty and GDPR consents were included in the inclusion criteria. The exclusion criterion was disagreement with participation in the study within the family medicine specialty.

2.2. Sociodemographic and Professional Characteristics

The first part of the questionnaire addressed the following sociodemographic data of participants: gender, age, region of residence, job (physician/trainee), experience in family medicine, marital status, parenthood, and the presence of chronic diseases.

2.3. Evaluating Physical Activity

The second part addressed physical activity by inquiring about the number of minutes per week spent moderately and intensely exercising according to the WHO 1 definition [12]. The questionnaire also assessed the amount of time spent moderately and intensely exercising before and during the COVID-19 pandemic (after March 2020) and the amount of strengthening exercises performed in a week.

2.4. Maslach Burnout Inventory to Evaluate Burnout

The third part of the survey consisted of the Maslach Burnout Inventory (MBI) which subdivides burnout into three subcategories: EE, DP and PA [11]. The MBI standardized questionnaire covers 22 statements describing feelings and attitudes related to work. The results are measured on a seven-point numerical scale, from 0 (never) to 6 (every day). A higher sum for EE (9 claims) and DP (5 claims) represents a higher burnout rate in each dimension. As for PA (8 claims), a lower sum represents a higher burnout. The sum of all points represented total burnout ($MBI_{TOT}$).
2.5. Statistical Methods and Data Analysis

The results of categorical variables were presented in the form of frequencies with corresponding percentages, while continuous variables were presented by means and standard deviations.

Comparisons between groups were made by the t-test for independent samples, the Fisher’s exact test and the Wilcoxon sign rank test. As an effect size, Cohen’s d was used to represent the magnitude of differences between the two groups on a given variable [41]. The Pearson’s correlation coefficient was used to calculate correlations between MBI subcategories. A value of p < 0.05 determined the limit of the statistical significance.

2.6. Statistical Power Analysis

The lowest sample size included in a bivariate comparison was presented by 39 FMTs. Using the t-test for independent samples (given two-tailed alpha of 0.05, medium effect size of 0.5, sample of 243 FPs and 39 FMTs), we were able to achieve more than 80% statistical power [42].

3. Results

Of 1230 invited FPs and FMTs, 323 participated in the survey, 41 (12.7%) questionnaires were incomplete and excluded from the analysis. Finally, the 282 fully completed questionnaires were included in further analysis, making the response rate 22.9%. 221 (78.4%) women and 61 (21.6%) men with a mean age of 44.8 ± 11.1 years (ranging from 26 to 72) participated. 39 (13.8%) participants were FMTs and 243 (86.2%) were FPs.

Regular (recommended) physical activity during COVID-19, according to the WHO definition, was reported by 127 (45.0%) participants. Participants were also asked to recall their physical activity before the COVID-19 pandemic; they reported regular physical activity in 177 (62.8%) cases. Before and during COVID-19, comparison showed that 62 (22.0%) participants gave up their regular physical activity and only 12 (4.3%) became regularly physically active (p < 0.001). Regarding the extent of physical activity before and during COVID-19, participants reported as follows: a) moderate physical activity was reduced in 124 (44.0%) and increased in 46 (16.3%) cases (p < 0.001), b) intensive physical activity was reduced in 110 (39.0%) cases and increased in 27 (9.6%) cases (p < 0.001).

Regular physical activity during COVID-19 was reported by 112 (46.1%) FPs and 15 (38.5%) FMTs (p = 0.392). According to gender 105 (47.5%) females and 22 (36.1%) males were regularly physically active (p = 0.146).

The EE scale ranged from 0 to 54 points (0 best, 54 worst), the DP scale from 0 to 30 (0 best, 30 worst), and the PA scale from 0 to 48 (0 worst, 48 best). For the MBI$_{TOT}$ score, PA was inverted, which resulted in a scale range from 0 to 132 points (0 best, 132 worst). Internal consistency of all MBI subcategories, measured by Cronbach's alpha, was above 0.7 (alpha of 0.956 for EE, alpha of 0.801 for DP and alpha of
0.838 for PA). The Pearson's correlation coefficient showed positive correlation of medium strength between EE and DP \((r = 0.693, p < 0.001)\). Correlations between EE and PA, and between DP and PA, were both negative of medium strength \((r=-0.598, p < 0.001\) and \(r=-0.658, p < 0.001\), respectively).

The incidence of burnout among FPs and FMTs was determined by calculating the average of EE 30.4 ± 12.7, DP 11.1 ± 5.6 and PA 31.0 ± 6.0. The accumulated score for MBI\textsubscript{TOT} resulted in 58.5 ± 21.5. Overall, high burnout expressed by MBI\textsubscript{TOT} was 48.6%. (Table 1).

FPs reported higher EE and MBI\textsubscript{TOT} scores in comparison to FMTs \((p < 0.001\) and \(p = 0.010\), respectively). Cohen's d resulted in a large effect size for EE and a medium effect size for MBI\textsubscript{TOT} (Table 2). FPs and FMTs who participated in regular physical activity did not report lower EE \((p = 0.105)\), lower DP \((p = 0.190)\), higher PA \((p = 0.067)\) or lower MBI\textsubscript{TOT} \((p = 0.058)\) scores. All Cohen's d coefficients resulted in small effect sizes (Table 3). There were also no statistically significant differences in reported burnout by gender, region of residence, marital status, parenthood, and the presence of chronic diseases.

<table>
<thead>
<tr>
<th>Rate</th>
<th>EE</th>
<th>DP</th>
<th>PA</th>
<th>MBI\textsubscript{TOT}</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>177 (62.8)</td>
<td>113 (40.1)</td>
<td>30 (10.6)</td>
<td>137 (48.6)</td>
</tr>
<tr>
<td>Medium</td>
<td>59 (20.9)</td>
<td>108 (38.3)</td>
<td>101 (35.8)</td>
<td>90 (31.9)</td>
</tr>
<tr>
<td>Low</td>
<td>46 (16.3)</td>
<td>61 (21.6)</td>
<td>151 (53.5)</td>
<td>55 (19.5)</td>
</tr>
</tbody>
</table>

EE: emotional exhaustion, DP: depersonalisation, PA: personal accomplishment, MBI\textsubscript{TOT}: total burnout score
Table 2
Indication of emotional exhaustion, depersonalisation, personal accomplishment and total burnout according to job status

<table>
<thead>
<tr>
<th>MBI dimension</th>
<th>Job status</th>
<th>Cohen’s d</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FMTs n = 39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>22.6 ± 10.2</td>
<td>0.79</td>
<td>4.263</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>DP</td>
<td>10.2 ± 5.5</td>
<td>0.18</td>
<td>1.095</td>
<td>0.275</td>
</tr>
<tr>
<td>PA</td>
<td>30.5 ± 5.9</td>
<td>0.08</td>
<td>0.538</td>
<td>0.591</td>
</tr>
<tr>
<td>MBI_TOT</td>
<td>50.3 ± 19.5</td>
<td>0.47</td>
<td>2.599</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>FPs n = 243</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>31.7 ± 12.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td>11.2 ± 5.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>31.0 ± 6.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBI_TOT</td>
<td>59.9 ± 21.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* t-test for independent samples, Maslach Burnout Inventory, EE: emotional exhaustion, DP: depersonalisation, PA: personal accomplishment, MBI_TOT: total burnout score, FMTs: family medicine trainees, FPs: family physicians

Table 3
Indication of emotional exhaustion, depersonalisation, personal accomplishment and total burnout according to regular physical activity during the COVID-19 pandemic

<table>
<thead>
<tr>
<th>MBI dimension</th>
<th>Regular physical activity</th>
<th>Cohen’s d</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes n = 127</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>29.1 ± 11.9</td>
<td>0.19</td>
<td>1.627</td>
<td>0.105</td>
</tr>
<tr>
<td>DP</td>
<td>10.6 ± 5.2</td>
<td>0.16</td>
<td>1.314</td>
<td>0.190</td>
</tr>
<tr>
<td>PA</td>
<td>31.7 ± 6.0</td>
<td>0.25</td>
<td>1.841</td>
<td>0.067</td>
</tr>
<tr>
<td>MBI_TOT</td>
<td>55.9 ± 20.9</td>
<td>0.22</td>
<td>1.903</td>
<td>0.058</td>
</tr>
<tr>
<td></td>
<td>No  n = 155</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>31.5 ± 13.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td>11.5 ± 5.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>30.3 ± 6.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBI_TOT</td>
<td>60.7 ± 21.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* t-test for independent samples, MBI: Maslach Burnout Inventory, EE: emotional exhaustion, DP: depersonalisation, PA: personal accomplishment, MBI_TOT: total burnout score

4. Discussion

The main objective of this study was to determine the prevalence of burnout among FPs and FMTs during the COVID-19 pandemic and its comparison with physical activity and some demographic characteristics.

The most recent data from 2014 for physical activity in Slovenia showed that 32.2% of the adult population are insufficiently physically active. This means that, at that time, nearly 70% of the Slovenian adult population was regularly physically active [43]. Studies have shown that physicians are physically
more active than the general population, which was also assumed for this study [3]. We found that the majority (62.8%) of physicians were regularly physically active before the pandemic, which was below the adult population data in 2014 [43]. Participants may have difficulty recalling physical activity over a year ago and may have omitted or underreported some leisure activities and household chores (e.g., walking their dog, mowing the lawn, working in the garden).

The level of regular physical activity among FPs and FMTs decreased during the COVID-19 pandemic from 62.8–45%. The decline in physical activity among physicians during the pandemic was expected. Work during this period brought new tasks, additional workloads and increased overtime work, which likely led to increased fatigue. During the COVID-19 pandemic, FPs and FMTs experienced high proportions of burnout in each dimension: high EE in 62.8%, high DP in 40.1%, low PA in 53.5%, high MBI_TOT in 48.6%, and low MBI_TOT in 19.5%. Compared with the 2009 survey of FPs (EE 50.6%, DP 24.1%, PA 22.8%), higher levels of burnout were present in all three dimensions during the pandemic [29]. The most recent study of burnout among FPs and FMTs in Slovenia from 2017, showed significantly lower burnout values in all dimensions (EE 25.2%, DP 25.8%, PA 26.2%) [30]. When compared with a 2008 study from 12 European countries (Slovenia was not included), which showed EE at 43%, DP at 35%, and PA at 32%, higher levels of burnout in all dimensions were detected in our study [23]. The COVID-19 pandemic period contributed to higher overall burnout and higher rates of burnout in all dimensions. This was especially observed with physicians working directly with COVID-19 patients [39, 40]. Current EU data shows there is a big shortage of physicians in Slovenia. The increased job demands during this global health crisis probably explain the decreased time exercising and the increase in burnout [44]. During the peak of the pandemic in Slovenia, the working style in family medicine clinics changed. Fewer patients were physically examined and many were treated remotely, either by telephone or by e-mail. This type of treatment was more demanding, lacking important information that might have been obtained through a clinical examination, and therefore potentially more dangerous and stressful. The Slovenian 2017 burnout survey showed an approximate 25% improvement in EE compared to the 2009 Slovenian survey, and also an approximate 20% improvement in EE compared to the 2008 EU survey [23, 29, 30]. Similarly, the Danish FPs expressed a high EE at 17.4%, which was an even greater improvement of approximately 30% compared to EU and Slovenian data collected before 2010 [45]. This may be because EU initiatives to educate more physicians resulted in a 13.2% increase in the number of physicians per 100,000 population in EU from 2004 to 2014. In the decade before (from 1994 to 2004), the increase was only 11.1% [46]. Higher employment to reduce burden is a major issue for health professionals; unfortunately the COVID-19 pandemic overturned these recent positive developments.

Our results showed no relationship between overall burnout and regular physical activity. EE, PA and DP were not associated with physical activity during the COVID-19 pandemic. Although regular physical activity did not reduce the levels of burnout in our investigation, an Australian study showed the main coping mechanism of their junior and senior physicians during the pandemic was to maintain physical activity [47]. Studies in the general population, and among physicians worldwide, have shown a lower prevalence of burnout in those who are physically active on a regular basis, particularly for EE; some
other studies have found no significant difference in individual or overall burnout [3–7]. According to our knowledge, there has been no study examining the relationship between physical activity and burnout in Slovenia, specifically among FPs and FMTs. Physical relaxation exercises such as yoga and massage therapy have also been shown to reduce stress levels for healthcare workers [47, 48]. Future studies might investigate the impact of relaxation exercises and mindfulness methods on individual and overall burnout levels of Slovenian physicians.

Our results found FPs were significantly more burned out than FMTs. Other studies have shown contrary patterns [49, 50]. Some studies among physicians in the USA and Canada found younger physicians are more susceptible to burnout, and some found a negative correlation between age and burnout [10, 23, 51]. Machlach hypothesised that the reason for higher burnout among younger people is due to their work inexperience, so the risk for burnout is greater at the beginning of a career. Younger age seems to be connected with professional and personal inexperience, excessive expectations, establishing a family and solving the housing problem [10]. Our results may be surprising because FMTs were distressed due to missed opportunities to gain clinical experience and the lack of a common history with the patients in telehealth consults [52, 53]. Age related issues, such as older FPs having problems using telehealth tools, were not reported as a comprehensive issue [54]. One explanation to support this opposite result might be that FMTs in Slovenia have fewer responsibilities than FPs. FPs were predisposed to burnout before COVID-19, which amplified already existing problems as the healthcare system was crippled in the pandemic. FPs are also accustomed to certain work routines, which were disrupted during the pandemic. New and additional healthcare responsibilities could have contributed to increasing stress, leading to feelings of burnout [55].

Burnout was especially high in the EE dimension of FPs. EE refers to feelings of being emotionally drained, not having any motivation to work and being tired. During the pandemic, the responsibilities of FPs in Slovenia increased because, while they were available to their regular patients, they also had to take care of newly infected COVID-19 patients. FPs had to adapt to continually changing guidelines, lack of knowledge, high death rates, fear of being infected and infecting their family members, personal problems and, especially for older physicians, personal health problems. All this probably contributed to higher levels of EE.

Both FPs and FMTs did not experience high burnout in terms of reduced feelings of PA before the COVID-19 pandemic. Typically, low PA was reported least often compared to EE [23, 29, 30]. The work of a physician is, in its essential nature, altruistic and rewarding. Therefore, feelings of PA might not be impacted when working long hours, but PA in terms of personal life could be. During COVID-19, regular physical activity decreased nearly 20%, and the extent of weekly physical activity, both moderate and intensive, was reduced by nearly 30%. Although regular physical activity was not correlated with overall burnout, increased occupational burden, significant reduction of physical activity and, consequently, deteriorating physical condition may have dramatically contributed to a lack of general satisfaction. This may be the reason for the extraordinarily low PA.
Study limitations

The main limitation of the study was the low number of participating FMTs. Their involvement was below 20%, compared to approximately 25% of FPs listed in the Medical Chamber of Slovenia registry. The survey was based on voluntary participation. Why non-respondents declined to participate in this national survey can only be a matter of speculation. Additionally, we recorded a surprisingly high rate of low PA. In previous national and international studies, the PA was always below one-third. We assume that COVID-19 contributed to this very critical self-assessment of performance at work, as well as a general dissatisfaction of life and work circumstances at the time of the survey.

5. Conclusions

We determined the levels of burnout and physical activity among FPs and FMTs in Slovenia, before and during the COVID-19 pandemic. We found that the proportion of FPs and FMTs who were regularly physically active during the "calm" period, before the onset of the pandemic, was lower than expected, and during the pandemic this number decreased significantly further.

The results of our research have shown that burnout is a significant issue among FPs and FMTs. High proportions of overall burnout, and burnout in each dimension, were found during the COVID-19 pandemic. These values were higher than previously observed. Overall burnout and EE were significantly more frequent in FPs compared to FMTs.

In our research, physical activity did not appear to be a statistically significant factor in the occurrence of burnout, which may be attributed to the extreme circumstances during the COVID-19 pandemic. Physical activity may still have a role to play in stress and burnout management – not as a stand-alone activity, but as part of a more multidimensional approach to cope with this problem.

Declarations

Ethics approval and consent to participate

The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of Commission of the Republic of Slovenia for Medical Ethics (protocol code 0120-203/2021/4 and 21.5.2021). Informed consent was obtained from all subjects involved in the study.

Consent for publication

Not applicable.

Availability of data and materials
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

**Competing interests**

The authors declare that they have no competing interests.

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**Authors’ Contributions**

Conceptualization, J.U and P.S.-Z.; methodology, P.S.-Z. and J.U.; formal analysis, P.S.-Z. and J.U.; writing - original draft preparation, P.S.-Z. and J.U.; writing - review and editing, K.T.B.; visualization, K.T.B.; supervision, K.T.B. and P.S.-Z.; funding acquisition, P.S.-Z. All authors have read and agreed to the published version of the manuscript.

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**References**


5. Macilwraith P, Bennett D. Burnout and Physical Activity in Medical Students. *Irish Med J* 2018;111(3);707.


