EÖTVÖS LORÁND UNIVERSITY OF SCIENCES FACULTY OF EDUCATION AND PSYCHOLOGY

DOCTORAL SCHOOL OF EDUCATION

Head of the Doctoral School: Prof. Dr. Anikó Zsolnai Professor
Programme leader: professor Prof. Dr. Attila Szabó
Supervisors: Dr. habil. Zsuzsanna Gősi, Dr. Márton Magyar

Changes in workplace health promotion and health behaviour in response to the pandemic in a large company

Thesis booklet

Zoltán Tánczos

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CONTENT

INTRODUCTION

Where we work, how we get to work, and the amount and quality of time we actually spend at work are crucial for all of us. The workplace has an impact on our personal health, fitness, living conditions and quality of life. It is therefore particularly important that employers also pay attention to health promotion at work. We prepare for work at school when we are young, and then retire from a job at the end of our active careers, looking forward to a long and healthy life. In Hungary, the average number of years spent at work is 37 years (Eurostat, 2024), a span that is likely to be extended in the coming decades (KSH, 2024a). This will be adversely affected by the effects of an ageing society due to a declining birth rate, the strain on the health care system, the general shortage of labour due to economic emigration, including the shortage of doctors, and the long-term sustainability parameters of the pension system, and could therefore increase further.

In 2011, the National Assembly included strategic measures in the National Public Education Act to promote the health of the school-age population. This measure is the introduction of daily physical education (Act CXC of 2011 on National Public Education) in public education. It is no coincidence that it aims to achieve a favourable fitness and health status that will have an impact on the current and future long-term health of young people. Under the provisions of the Act, daily physical education was to be introduced in all public education establishments from 1 September 2012 onwards, on a progressive basis.

Indeed, health education needs to be established from an early age. It is often observed, and confirmed by Eurobarometer 2017 data, that only 33% of the Hungarian adult population takes part in sport on a daily or even regular basis (European Commission, 2017). This is supported by the data published by the KSH on the sporting habits of the adult population (KSH, 2017), which fall far short of the potential of daily physical education for children. This is due to the lack of organised and guided frameworks in the world of work after leaving school, which means that citizens do not engage in the good practices that are essential to maintain their health and fitness. Some notable exceptions are employers who see their employees as assets, who consider it important to maintain their health, and who are individually committed to healthy lifestyles (Interviewee H.E., 2022).

However, the commitment of Hungarian society to recreational sports has not always been so low. In the 1950s, the number of members of sports clubs exceeded half a million, representing 5% of the country's population. However, from the 1970s, with the advent of television, the population's willingness to participate in sport began to decline. The previously popular militaristic mass sporting events were replaced by individual sports. This process received a further negative impetus in the 1990s with the advent of computers and the Internet. By the turn of the millennium, Hungarian TV viewing habits were outstanding compared to those of other European Union countries, with the average Hungarian spending around two and a half hours a day in front of the television. In contrast, Hungary was one of the last countries to do well in sport (Romsics, 2010).

In the 2000s, multinational companies from Western countries, as a result of the Euro-Atlantic[1] integration, brought with them an organisational culture that also paid attention to health promotion in the workplace. As a result of this, the first fitness centres and wellness centres appeared in Hungary, and slowly, gradually, health promotion in the workplace began to take shape. However, during this period, the deteriorating trend in sporting habits of previous decades was still in full swing. Values were also changing, with inactive lifestyles and a lack of health awareness becoming the norm. This trend has had a number of negative consequences for a large part of society (Bognár and Huszár, 2009; Horváth and Bognár, 2019; C.M. interviewee, 2022; Szabó and Kajos, 2023).

Health promotion can take place primarily in the family, then at the institutional level in public education (nursery, primary and secondary school) and finally in the workplace. Education and prevention programmes (such as information on the dangers of smoking, healthy eating, drinking in a healthy way, drug prevention, stress management and relaxation), as well as physical education and recreational sports, should be made available not only in schools but also for company employees, adapted to adults and the workplace. This is justified because schools are the *"second home" for* children and the workplace *is the "second home"* for adults. Health is one of the most important values at any age: its preservation and development is crucial for an individual's quality of life, standard of living, career and social status (Bognár et al., 2010).

Based on the findings of the literature reviewed earlier, it can be said that a relatively narrow cross-section of Hungarian society is made up of people who engage in physical activity on their own, by their own choice and decision, and on a regular basis. A supportive environment is therefore needed to make the tools for a healthy lifestyle widely available to all. The workplace can be such an environment if it is open to taking measures to promote the health of its employees and can thus take over this role from the school. -The complex health promotion and -development role of regular physical activity -is significant at all ages (Salvara, Bognár and Huszár, 2007; Földesiné, Gál and Dóczi, 2008; KSH, 2017).

Based on the literature reviewed so far, it can be concluded that although workplace health promotion should be a very important element of health promotion in Hungarian society, it is still localised or selective. Therefore, it is of utmost importance to measure the usefulness of existing programmes so that their effectiveness motivates more and more companies to participate in large-scale workplace health promotion programmes. The paper therefore builds on this need to explore existing opportunities through the example of a selected company.

[1] The process of joining the European Union and the North Atlantic Treaty Organisation (NATO).

OBJECTIVES

The aim of the research is to present the perceptions and experiences of employees of a large multinational telecommunications company on health behaviour and health promotion at work in the context of the need to work from home due to the COVID-19 epidemic. The research covers the period of the pandemic up to February 2022, comparing the pre-pandemic home office period with the post-pandemic period. The methods used were based on a sports science background of preventive fitness personal training and fitness programmes. The research focused on the period before, during and after the pandemic in the telecommunications sector of the company under study. The research focused on assessing employee attitudes towards health, fitness (particularly body composition) and mental health as a result of the transition to working from home on a long-term basis; and on possible differences by gender, age and job title.

Research questions

- Q1: What do office workers think about their experience with specific components of healthy lifestyles and workplace health promotion before the pandemic?
- Q2: What changes in health behaviour, fitness, nutrition and rest habits of workers are observed as a result of workplace intervention programmes?
- Q3: What are the effects of the pandemic period on workers of different ages, genders and job titles in the company?

Hypotheses

- H1: I assume that, even before the pandemic, it will be the healthy lifestyle workers who will continue to demand and be open to the company's support for health promotion in the workplace.
- H2: I assume that the group most negatively affected by the health, fitness and mental well-being of workers at the individual level (by gender, age and job distribution) will be men in lower positions, due to the impact of long-term work from home and despite workplace intervention programmes.
- H3: I hypothesise that intervention programmes implemented before and during the pandemic will have an impact on the characteristics of working from home, and that working from home will lead to better well-being and more efficient work performance for all, regardless of gender, age and job.
- H4: I hypothesise that, depending on gender, age and job, a further significantly distinct group may emerge, women in employment whose health, fitness and mental health were positively affected by long-term work at home and workplace intervention programmes.

METHODS

Sample selection

The sample was provided by the international wholesale support unit of one of Europe's largest telecommunications companies. The company's employees are characterised by the high performance and professionalism typical of large multinationals and the competitive sector. They are highly skilled, highly educated, health-conscious workers with higher incomes than the national average gross salary, which may also mean a higher quality of life.

In the case of the multinational company under study, there are a number of good practices in the telecommunications sector that are well-established and emerging, taking into account the needs of employees, which we have detailed later in this dissertation and in our international article on this subject (Tánczos et al., 2022).

The total number of employees at the time of the surveys, from 2019 to 2022, was 100, of whom 50 answered all questions and participated in each survey at the first questionnaire and measurement. In terms of age, the oldest was 57 years old and the youngest was 20 years old at the time of the first survey ($M = 40.26 \pm 10.52$). The number of participating employees gradually decreased over the next two sampling periods, while the number of middle and senior managers remained unchanged throughout. During the second questionnaire and measurement, 46 employees answered all questions and participated in a body composition measurement. On the third occasion, 37 people answered all the questions in the questionnaire and took part in all the tests. Thus, the homogeneity of the sample was partially altered during the measurement series. This is due to the fact that the same people from the total on-site population did not always participate in the voluntary surveys and online questionnaires, despite the fact that all staff were informed by e-mail of the time and place of these surveys. Despite the constantly changing population, data from the same individuals were always used for comparisons of body fat and skeletal muscle values. This was achieved by identifying the subjects by their date of birth.

The company's employees work specifically in a sedentary office environment in a multi-storey, large, naturally lit office building in Budapest with large glass windows. Employees have been able to work a more flexible schedule even before the epidemic season and have been given the option of a home office one day a week, which can be used at any time. However, only 20% of workers used the latter option regularly and 40% only occasionally. During the pandemic, all workers (100%) worked from home all the time.

Before 2019, when this research started, there were no workplace health promotion and recreation programmes at all in the company surveyed. Accordingly, the interventions started on site at the same time as my research. This included interventions such as a series of coordinated health screenings, fitness tests, measurements, questionnaires, interviews and physical activity programmes, which continued throughout the pandemic.

The number of participants varied from programme to programme during the interventions. From a minimum of 10 to a maximum of 50 participants per 100 participants, the average participation rate varied between 10 and 50%. However, it can be said that the overall average participation rate for the intervention programmes was around 30%, which is also an outstanding figure by international standards. For example, in a study on the impact of workplace health promotion, employees showed a willingness to participate of 11.2% (Rongen et al., 2013), which compares with an outstanding level of interest among employees in the company studied. However, the definition of the number of items in a survey is widely debated, with results from a sample of up to 8-12 items being inferred by some researchers (Négyesi, 2023). For the present research, a priori statistical power calculation performed on G*Power statistical software, with a significance level of 0.05, an effect size value of 0.5 (large) and a statistical test power setting of 80%, indicated an optimal number of 21 items.

Data retrieval

The data collection was based on a mixed method, with a combination of online questionnaires, fitness and health measurements and semi-structured interviews. An additional part of the data collection was the surveyed company's own basic health promotion programme (occupational health medical, legal obligation) and the intervention programme we had compiled.

The longitudinal research started with a complex health and fitness survey before the pandemic period in October 2019. The measurement took place in a large company meeting room, where the tests were carried out sitting on chairs (one and a half metres apart) and standing for the fitness test. After the measurement, employees also completed an online questionnaire using a laptop at the measuring station, together with a manual recording of the results. At the measurement stations, they went through a special measurement sheet created for this purpose. The data were given to the employees at the end of the test. The measurement sheet was compiled on the basis of the parameters that could be measured by the available instruments. The instruments used for the measurement were a Polar M430 heart rate monitor, an OMRON BF511 body composition monitor, a tape measure and a stool. In this way, it was possible to clearly link the results of the fitness and health assessment to the person who completed the questionnaire, while maintaining complete anonymity.

Tools and methods

Three questionnaires were completed with staff during the research. The data was collected with the permission of the works council of the company under study, and information and consent forms were filled out with the study subjects.

Procedures

The measurements were notified weeks in advance by the company's Director of Finance and Human Resources via the internal electronic mail system. It was possible to register in advance for the measurement days, and participants were offered small gifts and a prize draw to motivate them to

participate in as large a proportion as possible. In all cases, registration for the interventions, i.e. the programmes, was entirely voluntary. Each employee was always kept informed of current events. This meant that they all knew what health promotion and recreation programmes were taking place in the company. However, there was no pressure to participate in any of the programmes on a compulsory basis. Employees were notified of the programmes by e-mail, which included precise answers to the what-where-when questions in a way that was designed to stimulate interest. Therefore, employees were free to decide which programmes they wanted to attend, depending on their time, their current mood or their individual motivation.

On the day of the measurements, the measurement assistants went around the office building and personally encouraged the employees to participate in the measurements in order to maximise the sample size.

An anonymous interview was conducted with 6 staff members, using structured, open-ended questions at three levels of detail, with 2-2 people randomly selected from trainees, middle and senior managers. The interviews were face-to-face and recorded using a tape recorder. The interview questions were designed to confirm and complement the questions of the online questionnaire.

Following a descriptive statistical analysis of the responses to the attitude questions in the questionnaires, the results were also compared by gender, age and job. After completing the online questionnaire at home, it was possible to register for a compulsory internal occupational health check-up, where, in full compliance with the epidemiological provisions (mouth mask, disinfectant, ventilation, distance control, etc.), the most important measurements for us were repeated, namely body fat percentage and skeletal muscle measurements, this time in a pandemic situation. The study was concluded in November 2021 with a repeat of the first measurements, questionnaires and interviews. All parameters studied were identical to those recorded in October 2019, so the conditions were the same. There were, however, some changes in the interviews, as two employees had left the company in the meantime and could not be contacted again.

An anonymous, structured interview with open-ended questions was also conducted with 3 key practitioners in the field of workplace health promotion, independent of the company under study. The interviews were conducted by telephone and recorded using a tape recorder.

Volunteer-based, random, anonymous surveys were conducted before the pandemic (at the same time as the first questionnaire), during the pandemic and finally during the last period of return from the home office (at the same time as the third questionnaire).

During the two surveys, the following health and fitness tests were carried out with the employees, which were recorded in the research questionnaire when the questionnaires were filled in. (The data recording option was placed at the end of the questionnaires.)

RESULTS

Analysis of questionnaires completed before and after the pandemic

In the hypotheses tested, we monitored the evolution of three factors. The distribution by gender, age and job was the basis for the hypotheses. It was therefore important to establish data on the employees of the company under study with regard to these three parameters. Based on the questionnaires and measurements of the three study periods, the age distribution of the company showed the following picture. For the total sample, the lowest age was 22 years and the highest age was 65 years. In the first and third surveys, the average age was 44 years and over, while in the second survey it was 43 years and over. In the first survey, half of the 50 employees surveyed, i.e. 25, were men and the same number were women. During the second study, 27 of the 46 subjects were male and 19 female. In the post-pandemic survey of 37 subjects, 19 were male and 18 were female. This shows that while the gender distribution was equal or close to equal in the present surveys, the questionnaire sent out during the pandemic was completed by a much higher proportion of men.

For the total sample surveyed, 8 senior and 8 middle managers completed the questionnaire in all three surveys. The willingness of employees and trainees to fill in the questionnaire decreased steadily over time, with 42 completing the questionnaire in the first survey, 38 in the second survey and only 29 in the third survey. The willingness to complete the questionnaire of employees in lower jobs therefore showed a downward trend.

After examining the three external factors above, I present the evolution of the responses to the questionnaires. I will first present the aggregate results (male and female respondents) of the responses to the questionnaires used in the first and third surveys, which contained identical questions, and their relationship to each other.

The aggregated responses to the two questionnaires lead to the following conclusions. There was a worsening trend in the motivation to take part in sport, in relation to health awareness, in the financial aspect of choosing a sport, in relation to a physically active lifestyle, in participation in health screenings, in relation to occupational health prevention, unsurprisingly in relation to the duration of holidays abroad, in relation to taking leave, in relation to the establishment of an internal health promotion group at work, and with minimal negative variation in relation to turnover at work. Positive differences were observed in the answers to the following questions. In relation to leisure time, the frequency of occupational health check-ups, spine protection and harmful addictions were also more avoided by respondents, according to the findings of the third survey. In addition, there was a positive difference in terms of sport opportunities at work and workload. In addition, respondents were more likely to agree with the statements in the third questionnaire that they enjoy their work and feel well at work. In addition to the above, it is worth highlighting a further pair of correlations, namely changes in

the choice of food. While before the pandemic more people chose what they ate based on composition, after the pandemic the proportion of people choosing based on price increased.

When analysing the responses to the questionnaires by gender, it can be stated that, apart from two major differences, there was a smaller variation in the opinions of female respondents between the different surveys. It is noteworthy that there was an increase in the proportion of respondents who think that sport facilities provided by their employer are available to employees and a decrease in the number of respondents who have spent at least one week abroad on holiday.

For men's responses, between the first and third measurement, the largest decreases in agreement were for the statements that they can take time off and that management is open to setting up an internal health promotion team. Agreement increased most for the statement that workload measures help to ensure that workers have an optimal workload.

Based on the answers to the first and third questionnaires, the following statements were different for men and women. Women showed a greater decrease in motivation to do sport, which was also reflected in the response to the statement about being physically active, where women also agreed to a lesser extent. In contrast, for men, there was no significant reduction in either statement for the pre- and post-pandemic state. Although the two sexes showed the same level of agreement on the third questionnaire, the availability of sport provided by the workplace could be explained by a significant increase in women's responses after the first survey, while a minimal decrease was observed for men. Perceptions of the establishment of an internal workplace health promotion team started from the same level, but men's perceptions decreased after the pandemic. The last major difference relates to the leave of absence, since while the value for women remained unchanged, men's perceptions of the statement were more negative than women's in the third survey, following a basically more positive perception.

Analysis of the questionnaire completed during the pandemic

The second questionnaire was completed with employees during the pandemic, from 30 April to 25 May 2020. The questions focused on the characteristics experienced during the quarantine, nutrition and use of stimulants, the relationship between quarantine and work, its emotional and mental impact, fitness and health. The analysis of the responses to the questionnaires was based on the same survey factors (gender, age, job) as for the first and third questionnaires. This allowed the results of the second questionnaire to be used to prove or reject the second, third and fourth hypotheses.

Among the 42 questions on nutrition and stimulants in the questionnaire, the highest proportion of respondents indicated that "I eat healthier in the home office than before" ($M = 2.80 \pm 0.91$). In addition, the frequency of coffee and alcohol consumption and smoking did not increase significantly during the quarantine. For all questions, the standard deviations were significant.

Responses during the karate work period show high scores for "Home office type of work is suitable for me" ($M = 3.13 \pm 0.65$) and "Quarantine is easy for me, it is not a major problem for me" (M

= 3.04 ± 0.76). Workers were less likely to think that they were more efficient at work than in the home office (M = 2.00 ± 0.87), and similarly did not think that they were more expected to work than before (M = 1.98 ± 0.80). These responses reflected the finding that 'old teleworkers' were less affected by having to work from home during quarantine (Juhász and Szabó, 2021).

Among the emotional effects, we highlighted that workers missed their old life (M = 2.41 ± 0.91). In addition, they were not bored, did not have a worsening mental state, did not argue or fight more with their partner, and were not more depressed or irritable than before.

Responses related to fitness and health were characterised by positive responses to the question "I can keep a regular routine in my life even in quarantine" (M = 3.07 ± 0.74). It can be said that respondents did not suffer from joint pain, did not think they would gain weight, did not do less sport than before and did not have a deterioration in their fitness status.

Workers' daily health behaviours were characterised by avoidance of harmful addictions (M = 3.35 ± 0.95), generally feeling well (M = 3.30 ± 0.70), taking care of their health (M = 3.15 ± 0.67) and being motivated to exercise (M = 3.11 ± 0.88). These results reflect the fact that workers who were generally more sporty and health-conscious did not change their habits during the pandemic (Tánczos and Bognár, 2020). Also worth highlighting is that they generally enjoyed their work (M = 3.02 ± 0.58) and did not buy food based on price.

Regarding the statement on workplace attitudes, respondents thought that their workplace was open to workplace health promotion (M = 3.26 ± 0.61).This is very important because the literature suggests that a prerequisite for successful workplace health promotion programmes is to convince management of the importance of such programmes, both in Hungary and internationally (Bognár and Huszár, 2009, Horváth and Bognár, 2019).

Differences due to background factors:

Results showed that women tended to select food based on ingredients (t= -1.88; p = 0.01). In contrast, men in quarantine smoked more (t= 2.56; p < 0.00), were more irritable and stressed (t= 1.37; p = 0.01), and were more bored (t= 2.44; p = 0.01) than women. This finding is in line with other national and international research showing that women are better able to adapt to working conditions at home (Pieh, Budimir and Probst, 2020; Raišienė et al., 2020; Alshaabani et al., 2021; Grozdics, 2022).

The results showed that young people in quarantine ate healthier (t= 0.72; p = 0.03), smoked more (t= 1.05; p = 0.04), were more depressed (t= 2.43; p = 0.03) and felt lazier than middle-aged people (t= 3.02; p = 0.02). This result supports the observation that younger generations have a harder time working from home (Radák, 2020; Juhász and Szabó, 2021; Pataki-Bittó and Kun; 2021; Rezsőfi et al., 2022).

Employees were more likely to perceive themselves as more irritable and stressed during quarantine than before, compared to their middle manager colleagues ($t=-4.43$; $p < 0.00$). In addition, middle managers perceived quarantine as more tolerable in the longer term ($t= 2.87$; $p = 0.01$) than employees. This result also reflects the phenomenon described in the international literature that employees with higher positions and more secure continuous employment are more tolerant of working from home (Pieh, Budimir and Probst, 2020).

Comparative analysis of measurements

Analysis of changes in anthropometric indicators

ANOVA analyses are performed on the recorded data on body fat percentage and skeletal muscle mass values collected from subjects attending all three measurements to see if there is a statistically significant difference between these values and the health promotion programmes. To do this, we first used a Levene test to see if the variances were equal at each measurement. The significance of the test was above 0.05 in all cases, indicating that the equality of variances is true. We then use an F-test to examine the difference between group means. The F-test can be used to identify significant differences between the results of the groups, in this case the three measurements. Based on the results of the Levene's test, the ANOVA analysis could be performed as the equality of variance was true. Accordingly, ANOVA was found to be the most appropriate statistical method for comparing the measurement results.

DISCUSSION

A questionnaire survey carried out at the start of the research in 2019 showed that the employees of the company surveyed generally led a sporty, physically active lifestyle. The overall average (male, female) responses on the 4-point Likert scale were 2.84. In addition, for the statement about taking care of one's health, employees also gave an outstandingly positive response with a mean score of 3.22. In the same questionnaire, respondents' feedback on the establishment of a health promotion group at the workplace was even more positive, with an overall mean response of 3.44. This indicates that at the beginning of the research period, the employees of the company under study were leading a healthy lifestyle. During the research, employees actively participated in intervention programmes both before and during the pandemic, with an average participation rate of 30%. The questionnaire, repeated in 2021, showed only a minimal decrease in the three statements already mentioned. There was a decrease to an average of 2.7 for a sporty, physically active lifestyle, 2.95 for taking care of health and 3.19 for setting up a health promotion group at the workplace. During the pandemic, the results of the questionnaire showed that employees continued to be more attentive to their health (3.15) and motivated to exercise (3.11). The feedback from the semi-structured interviews showed that the intervention programmes introduced were positively evaluated by employees and that they wanted them to continue.

Based on these results, I confirm my hypothesis 1. This supports the finding in the literature that family values are the most important factor in the education of individuals to lead a healthy lifestyle and physical activity (Tánczos and Bognár, 2020).

After evaluating the responses to the questionnaires, it can be concluded that middle and senior managers took the pandemic more easily than their lower-ranking counterparts. An analysis of the results of the study revealed that higher ranked employees were less irritable and more stressed during quarantine than before ($t = -4.43$; $p < 0.00$) and found working from home office more tolerable in the

longer term than their lower ranked counterparts ($t = 2.87$; $p = 0.01$). Complementing these findings with the results of male and female employees' responses to the questionnaires on smoking, irritability, stress and boredom, it can be shown that during the pandemic, men smoked more, were more irritable and stressed, and were often bored and had more difficulty in staying connected than their female counterparts.

Based on these results, I partially confirm my hypothesis 2. This result also reflects the patterns found in previous research that younger generations with lower occupations are more affected by stress and deteriorating mental health during a pandemic (Radák, 2020; Pieh, Budimir and Probst, 2020; Juhász and Szabó, 2021; Pataki-Bittó and Kun, 2021; Rezsőfi et al., 2022). The further subgroup, the unfavourable adaptability of men, has been a more divisive issue in the literature, as some studies have found this group to be more adaptable to the pandemic situation (Pirohov-Tóth and Kiss, 2020). However, the cited research did not take into account the differences in coping between "old and new teleworkers" (Juhász and Szabó, 2021) and did not specifically focus on workers in the IT and telecommunications sector. Sector-sensitive research has tipped the scales towards women (Raišienė et al., 2020; Alshaabani et al., 2021; Grozdics, 2022), so the results of the present research reflect those found in the literature.

The regular intervention programmes significantly reduced the body fat percentage of workers. The lowest body fat percentage of workers was found during the period of home-based measurements. However, despite the interventions during the quarantine period, their body fat percentage was significantly higher at the time of remeasurement (25.5%) than during the pandemic (16.6%). The remeasured body fat percentage was the same as before the pandemic. In addition, their skeletal muscle value decreased significantly from 33.55% before and during the pandemic to 25.64% after the pandemic. For visceral fat, a minimal increase was observed in the post-pandemic remeasurement period (from 7.00 to 7.64), an increase within the reference range (normal from 1 to 9). The aerobic fitness test performed, the Ruffier stair climbing test, showed a significant decrease from 2.36 before the pandemic to 3.55 after the pandemic (range 1-4). These results are supported by the evaluation of the responses to the questionnaire survey during the pandemic. It shows that, although workers reported to have exercised more than before the pandemic, they mainly did low-intensity aerobic cyclical activities such as walking, hiking, jogging and cycling. These forms of exercise are not associated with muscle mass gain. The workers' responses showed a steady downward trend in their health awareness, with a mean of 3.22 before the pandemic, 3.15 during the pandemic and 2.95 at the time of the remeasurement. Conversely, employees were more likely to enjoy their jobs during the pandemic (mean 3.02) than before (mean 2.9) and after (mean 2.97).

Based on these results, I partially confirm my hypothesis 3. Thus, it can be argued that the finding in the literature that working from quarantine for more than 2.5 days a week from home has a negative effect on workers (Pataki-Bittó and Kun, 2021) is not valid for the firm under study. This can

be attributed to the positive effects of the intervention programmes and the fact that working from home was not new for the employees of the company under study, so that as "old teleworkers" they were better able to adapt to the situation (Juhász and Szabó, 2021).

No significant differences were found among the employees of the companies surveyed, based on the measurements and questionnaires carried out during the research. However, minor differences were observed between genders. According to the questionnaire responses, women were more likely to enjoy their work during the period of the survey (mean 2.9 before the pandemic, mean 3.0 after the pandemic) than men (mean 2.8 before the pandemic, mean 2.95 after the pandemic). However, this was most striking in the questionnaire survey during the pandemic (mean 3.2 for women, mean 2.8 for men). In addition, during the pandemic, women smoked less (women mean 1.0, men mean 1.28), were less irritable and stressed (women mean 1.47, men mean 1.97), and were more tied up and less bored (women mean 1.21, men mean 1.67) than men. In addition, women paid more attention to sorting foods by ingredients (women mean 3.16, men mean 2.7).

Based on these results, I partially confirm my hypothesis 4. This result mirrors the finding in the literature on sector-sensitive research, which was also used to formulate the hypothesis, that women are better able to bear the period of working from home in the IT and telecommunications sector (Raišienė et al., 2020). This result may have been supported by the earlier finding that "old teleworkers" were basically better able to adapt to the new situation of forced long-term work from home (Juhász and Szabó, 2021). While another negative factor for men was the weak coping mechanism of younger generations, which is also supported by the literature (Radák, 2020; Pieh, Budimir and Probst, 2020; Juhász and Szabó, 2021; Pataki-Bittó and Kun, 2021; R ezsőfi et al., 2022), this difference did not emerge for women in the present study.

So of the four hypotheses, I have confirmed one and partially confirmed three.

CONCLUSIONS

This thesis investigated the knowledge of one of the largest Hungarian multinational telecommunication companies' 100-strong international wholesale sales support unit on workplace health promotion and health behaviour, the current fitness and health status of employees before, during and after the pandemic period.

In Chapter I of the thesis, the literature review found that workplace health promotion emerged in Hungary in the early 2000s (Bognár and Huszár, 2009; Horváth and Bognár, 2019; C.M. interviewee, 2022; Szabó and Kajos, 2023). The field also has an extensive legislative background (see III.3 Chapter III), but the results of the expert interviews confirmed that, despite the regulatory background, the main problem is still compliance with basic occupational health and safety standards (interviewee C.M., 2022). In addition, both the literature and the experts were in agreement that occupational health

promotion is most prevalent in multinational companies with an international background, which are essentially profitable and employ office workers and are based in Budapest. In contrast, the participation of rural, manual workers and small and medium-sized enterprises in such programmes is negligible (Kapás, 2006). This is confirmed by the series of international good practices also discussed in Chapter I, including a programme targeting small and medium-sized enterprises in the Australian state of New South Wales, which was run with moderate success (GHaW, 2022).

Chapter II discussed the research questions and hypotheses of the thesis. Chapter III presented the methods used for the research. To investigate the research questions and to prove the hypotheses, a questionnaire survey, a fitness assessment and semi-structured interviews were conducted and frequency statistics and thematic analysis were used for analysis.

Chapter IV presents the results of the questionnaire surveys, the measurements and the interviews conducted. In the case of the large telecommunications company under study, it can be highlighted that the rejection of harmful addictions persisted throughout the epidemic, which shows that there was no negative change in the emotional and mental state of the employees. In general, the company's employee base was a positive, motivated community free of harmful addictions. It can be concluded that employees are satisfied, motivated and attentive to maintaining a health-conscious habitual system. This was further reinforced by the fact that they considered themselves to be generally attentive to their health. The confidence that the workplace management had in the health promotion area certainly played a significant role in this. In addition, the results of the first interviews showed that the company's employees basically led a healthy and sporty lifestyle, which confirms the finding in the literature that individuals are more likely to continue their previously established lifestyle during a pandemic (Tánczos and Bognár, 2020). This finding may also be due to the fact that the employees of the company under study were better able to adapt to the situation as "old teleworkers" (Grozdics, 2022).

When assessing the results, it should not be overlooked that the standard deviations were typically high. This can be explained by the relatively small number of items (n=50) and the fact that in some cases there were significant differences in the responses of the respondents. What is clear is that workers' own perceptions of their health behaviour during the epidemic did not deteriorate as significantly as might have been expected, partly due to the intervention programmes.

Responses suggest that workers' experiences of quarantine were less negative than other research (Caligiuri, De Cieri and Minbaeva, 2020), although this is difficult to assess due to sometimes conflicting results in the literature (Pataki-Bittó and Kun, 2021; Juhász and Szabó, 2021), but it is consistent with research findings in the literature in sector-specific studies (Raišienė et al., 2020). Respondents typically considered themselves to have coped well with working during the quarantine, typically did not experience increased emotional and mental difficulties, and their fitness and health indicators did not deteriorate significantly during the pandemic. It can be said that the workers in the

sample were able to maintain a regular pattern in their lives during the pandemic and that the change in working conditions due to the pandemic did not cause them any major problems.

It is worth paying particular attention to the fact that, in general, the workers who took part in the research felt well, took care of their health and enjoyed their work. The results showed that the typically positive health behaviours did not deteriorate significantly during the epidemic. This demonstrates that working from home can be an appropriate alternative to traditional work at the workplace.

Men, young people and employees tended to have more negative experiences of the pandemic, which is in line with previous research (Ammar et al., 2020; Bartik et al., 2020). Interviews with employees revealed a high level of satisfaction and appreciation for management, who remained committed to continuing previous workplace health promotion programmes during the pandemic.

Interviews with professional managers of workplace health promotion revealed that for most micro, small and medium-sized enterprises, workplace health promotion is still an almost unknown concept; and large multinational companies (such as the company under study) tend to limit their focus on the health of their employees to Budapest or large cities, and thus to relatively few locations. This is particularly true in the period of the pandemic, when such programmes effectively ceased to exist (Kapás, 2006; C.M. interviewee, 2022; H.E. interviewee, 2022; K.J. interviewee, 2022).

A key finding of the research is that it is only through a combination of leadership will and a strong professional and technical background that effective and complex workplace health promotion can be developed before and through the pandemic, which is supported by the findings of the interviews with professional managers (Interviewee H.E, 2022).

The management of the company also had to learn how to deal with the extraordinary situation during the pandemic, as the company had never experienced such a complete organisational changeover in its history, with employees working exclusively from home, in a home office, for months on end. The general perception among employees is that digital work will play a more important role in the future as a source of secure income than traditional jobs (Nagel, 2020). Given the situation created by the pandemic, a new direction for future corporate employment patterns may emerge. In addition, companies should also look to make office working more homely and rethink it from a health and fitness perspective. When looking at gender, age and job functions, it can be seen that men, especially workers under 35, have reacted less favourably to drastic changes in the working environment. This supports the findings in the literature that younger generations find it more difficult to work from home (Radák, 2020; Juhász and Szabó, 2021; Pataki-Bittó and Kun, 2021; Rezsőfi et al., 2022)

The research has shown that office leasing could be a viable option in the future, with the need to reduce floor space, rethink office functions, transform personal presence at work, re-think office equipment and design in a user-friendly way, and optimise the workload of the employee. Flexible

working hours through home working, extended quality time with family, optimisation of work-life balance, the homeliness of the working environment, time and material gains from not having to travel daily, and the opportunities offered by digital technology are all redefining and reinterpreting the concept of work.

Limitations

It is clear that workers' health attitudes were generally positive, did not change and did not deteriorate significantly during the epidemic. When assessing the results, it should be borne in mind that the study involved a single unit of a telecommunications company, the sample size was relatively small and the variance was typically high. Hence, our results cannot be generalised to different settings and larger populations; however, this research may open directions and perspectives for further empirical studies.

The research carried out is sector-sensitive, so even in the case of a similar longitudinal study of a larger sample, it is not possible to speak with certainty about the results that can be extrapolated to the entire labour market. A national, representative survey would therefore be needed to assess the situation of the labour market as a whole, not only because of the sector sensitivity but also because of the biased response to voluntary questionnaires.

A further limitation of the research is that it was conducted in a competitive company, which did not allow for the survey subjects to be interviewed at the same time, although we tried to have the survey conducted between 8:00 and 11:00 in the morning. For this reason, the intervention programmes were not carried out according to a fixed timetable, but at times when it was possible to involve the most employees. Furthermore, the turnover of the research subjects in the company was minimal.

Under the rules of the General Data Protection Regulation (GDPR) adopted by the European Parliament and the Council, it is no longer possible to process personal data such as the number of holidays granted. Furthermore, due to the social science nature of the research, non-invasive measurement procedures were preferred.

A major limitation of the research is the emergence of the COVID-19 pandemic, which has influenced and modified the conduct of the research. The initial response to the pandemic situation included measures that made research difficult. It had to be carried out under changed circumstances and under a strict set of rules, greatly limiting the data available and the number of workers available, thus limiting the number of research items.

The identified limitations of the research and the research results in fact identify areas where the present research can be continued or extended. The first of these areas is the extension of the research itself, which should be repeated in the future with a larger number of subjects, also mainly in the case of telecommunications companies. This would ensure that the results of the study could be extended to other sectors.

In addition, it is suggested to look at the trend that is likely to have emerged from the perspective of employers, which indicates that the greater the human capital, the more inclined a firm is to introduce workplace health promotion programmes. In this context, it is worth exploring the segmentation on the basis of which a firm decides who to spend more on, and whether such segmentation exists or who is 'expendable'.

As a counterpart to this, the type of worker who makes the place of employment dependent on the extent of fringe benefits and the extent and quality of work environment and health promotion programmes at the workplace should be examined. This may also be related to the job-seeking attitudes of the youngest, Generation Z, which may be worth investigating in either a related or two separate surveys.

LIST OF OWN PUBLICATIONS

Publications related to the topic of the thesis

Tánczos, Z.; Zala, B.B.; Szakály, Z.; Tóth, L.; Bognár, J. (2022): Home Office, Health Behavior and Workplace Health Promotion of Employees in the Telecommunications Sector during the Pandemic. Int. J. Environ. Res. Public Health 2022, 19, 11424. https://doi.org/10.3390/ijerph191811424

Tánczos Z, Sipos E, Szeles E, Witzing Z, Polácska E, Bognár J. (2021). Home Affairs Review, 69(3): 32-47. https://doi.org/10.38146/BSZ.SPEC.2021.3.2

Tánczos Z, Bognár J (2020): Health promotion and health-conscious behaviour in the workplace with a focus on parents of children attending church schools. Hungarian Sports Science Review 84 (21): 2 pp. 53-60., 8 p.

Tánczos Z, Bognár J. (2017) Personal Training and Health Promotion at Workplaces−Meeting of Theory and Practice, Physical Education, Sport, Science, 2 (1-2): 109 -113. ISSN 2498-7646.

Other publications

Szakály Z, Bognár J, Tánczos Z, Dézsi CA. (2021): The role of life goals in the nutritional, fitness and quality of life indicators of women working in the social sector, Medical Journal, 162(27): 1089-1098. (Retrieved 15 February 2022) https://akjournals.com/view/journals/650/162/27/article-p1089.xml

Tánczos Z, Bognár J. (2019): Scientific and professional aspects of the personal trainer as a profession. Health Promotion, 60(1): 45-50. http://dx.doi.org/10.24365/ef.v60i1.395

Tánczos Z. (2018): fitness and personal training. Budapest. Krea-Fitt. ISBN: 9789638810250.