Changes in running habits during the COVID-19 confinement in amateur distance runners

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A – the preparation of the research project
B – the assembly of data for the research undertaken
C – the conducting of statistical analysis
D – interpretation of results
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Abstract

Introduction: In this study, we examined the impact of government measures being imposed to slow down the spread of COVID-19 pandemic on long-distance runners' sports habits and well-being.

Material and methods: Data from a total of 323 runners (mean age 41.72 (8.78), 41.8% male) were analysed using quantitative and qualitative methods.

Results: 46.9% of runners changed their running habits during the pandemic, 20.4% partly changed it. The poorest psychological well-being was found in a group that changed previous habits. Only 9 individuals reported no running activity at all, and 10 trained on a treadmill instead of a field. Overall, our respondents ran significantly more during the quarantine than before, which is partly explained by changed working conditions, reduced working hours, or lost jobs. The explanatory variables of excess running were previous mileage and distress.

Conclusions: Running is suitable for relieving distress and restoring the feeling of freedom. All of these were confirmed by our subjects in the survey interview.

Keywords: amateur, COVID-19, distance runners, distress, running habit

Introduction

Running is the most popular leisure-time physical activity worldwide, Hungary is no exception. It is widely acknowledged and accepted that running in a healthy manner has been associated with numerous beneficial effects on quality of life, physical and mental health. It improves the cardiorespiratory system and endurance, increases bone density and thus, it can reduce the risk of developing osteoporosis [1]. Leisure-time running reduces the risk of incident type 2 diabetes [2]. Even running 5-10 minutes a day at low speed can reduce the risk of death from cardiovascular diseases [3,4]. Running on a regular basis can improve psychological well-being [5] and help coping with addiction. It is an efficient way to reduce depression, anxiety and stress [6]. Running also enhances immune activity and life expectancy [1,4], and it has improved psychological [7] and social impact on participants [8]. Numerous running events are organized nationwide with a vast number of participants. Taking part in these events is a motivating factor for maintaining the habit of running, and building up social interactions. Runners can integrate into a special society, where they feel content and that they find fulfillment [9]. For older, lonely people, the running community may even be the only place where they feel good and can create a sense of belonging. In the case of running, the environment, the beauty of nature, also contribute greatly to the experience.

The presence of the coronavirus and the measures taken to slow it down have almost completely upset the way we used to live. On March 11, 2020, a state of emergency was declared in Hungary, together with special government decrees coming into effect. Educational institutions were closed, border controls were reinstated, an entry ban was imposed, shopping time was restricted, and the elderly were urged to stay at home. Various epidemiological measures have been put in place and curfew restrictions have been introduced. Indoor events and then outdoor ones were

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banned. According to a governmental decree, one can only leave their home for compelling reasons (to work, to buy food and medicine, to provide health services, to maintain one's physical and mental health). Fitness clubs were closed and all sports events were cancelled. Everyone has to keep social contact to a minimum [10]. The question arose as to how the runners experience this change and to what extent it modifies their previous sporting habits.

The study aimed to investigate how much the sport (running) habits of amateur distance runners changed during the measures taken due to the coronavirus and how this affects their sense of psychological well-being.

Material and methods

Participants, data collection and ethics

Runners were recruited via community websites for runners, ("Cross-county race", "Running mates" and "Running society") within a one-week interval in May 2020, after one and half months of the declaration of the state of emergency due to the COVID-19 pandemic. Amateur runners were invited to complete an online questionnaire about their running habits before and after one and a half month of confinement due to the outbreak of COVID-19, and about their psychological well-being. The inclusion criteria were to be at least 18 years old, physically active for at least 12 months prior to the research, and run at least 20 km in the previous month before the quarantine. Amateur runners were considered those who were not active athletes of the Hungarian National Athletics Association. Completion of questionnaire took approximately 15-20 minutes.

Participants were informed about the purpose of the study, its anonymity and the voluntary nature of the participation at the beginning of the questionnaire. By clicking the consent button, respondents agreed to take part in the survey.

The Regional Ethic Committee and the Institutional Review Board approved the study.

Study design

Cross-sectional mixed-methods study design was applied. Because of the COVID-19 quarantine in Hungary, an interview survey was applied to ask the runners about their changes in running habits. Semi-structured, open-ended questions on questionnaire were used for collecting qualitative data [11]. This form of interview allows freedom to offer any answer the runners wish to give to the question, and there is no need to check the correctness and accuracy by the interviewees. Quantitative data were also collected for statistical analyses.

Measures

Demographics. Runners provided information about their age, sex, socioeconomic background, residence (living in a city or in a countryside and the name of the county),and educational attainment.

Physical activity. Participants reported how long they have been running and how many km were performed a month before and during the quarantine of COVID-19,as well as about the change in running habits. They also gave information about their place of running before the pandemic and during the quarantine, and what they missed the most regarding running because of the situation. Open-ended and semi-structured questions were formed to ascertain the reason of increasing or decreasing the amount of running mileage and the importance of running in the runners' lives before and now. There was an extra question to express additional opinion regarding the physical activity during the pandemic.

Well-being. WHO-5 Well-Being Index was used to measure the participants' subjective psychological well-being. Each of the 5 items is scored from 5 (all of the time) to 0 (none of the time). The raw score is multiplied by 4 so the higher scores represent better well-being [12,13].

Emotional profile. DASS-21 measured distress along with the dimensions of depression, anxiety and stress [14]. A respondent indicated on a 4-point scale the extent to which each of 21 statements applied over the previous week with 0 (did not apply at all) to 3 (applied very much, or most of the time). Higher scores indicate increasing distress. The questionnaire has shown good internal reliability in the running sample (α= 0.852).

Data analysis

For data analyses, Statistical Package was used for the Social Sciences (SPSS, Version 26, IBM Corporation, Armonk, NY). Descriptive statistics (percentages, means and standard deviations) were calculated for all variables. Significance level was set up at $p \leq 0.05$. For the differences between males' and females' responses a Chi-square test of independence was used. Paired sample t-test was used to find differences between the amount of running before and during the quarantine, whereas independent t-test was applied to find differences between male and female runners. Multiple linear regression with stepwise method was used to predict the running distance performed in the quarantine. In the model, independent variables were age, gender, educational attainment, SES, residence, the duration of running activity, distance performed before the outbreak of COVID-19, the change of the habit of physical activity, well-being and distress.

Results

Participants

A total of 361 questionnaires were returned, however, 38 were deleted because of incomplete answers. Respondents were below 18 years old or ran less than 20 km a month. In the end, 323 respondents were analysed. Participants represented all the geographical parts of Hungary (19 counties out of 19). The characteristics of runners are displayed in Table 1.

Table 1. Demographic and physical activity characteristics of runners

Mean (SD) and frequency	Participants
Sample size	323
Age (years)	41.72 (8.78)
Sex ratio (%) Male : Female	41.8 : 58.2
Socioeconomic background (%)	
Below average : average : above average : MD	6.9 : 73.2 : 17.3 : 2.6
Educational attainment (%)	
Below high school : high school : higher education : MD	0 : 41.6 : 56.0 : 1.8
Residence (%) living in a town : living in a countryside	62.3 : 38.7
Running experience (years)	10.17 (9.60)

Note. SD: standard deviation, MD: missing data

Changes in running habits

46.9% of runners reported a change in their running habits during the pandemic, 20.4% partly changed their running habits, and32.7% didn't change them. Gender difference was observed, more female runners changed their running habits than males ($\chi^2_{(2)}$ = 6.549, p = 0.038).9 persons (2.8%) reported no running at all during the quarantine, and 10 persons (3.1%) trained on a treadmill instead of a field.

Based on the whole sample, a paired-samples t-test indicated that participants ran significantly more km during the quarantine (M = 108.04, SD = 6.00) than before that (M = 96.89, SD = 5.38; $t_{(324)}$ = -2.42, p = 0.016). The highest increase was observed in participants who have changed and have not changed their habits (Figure 1).

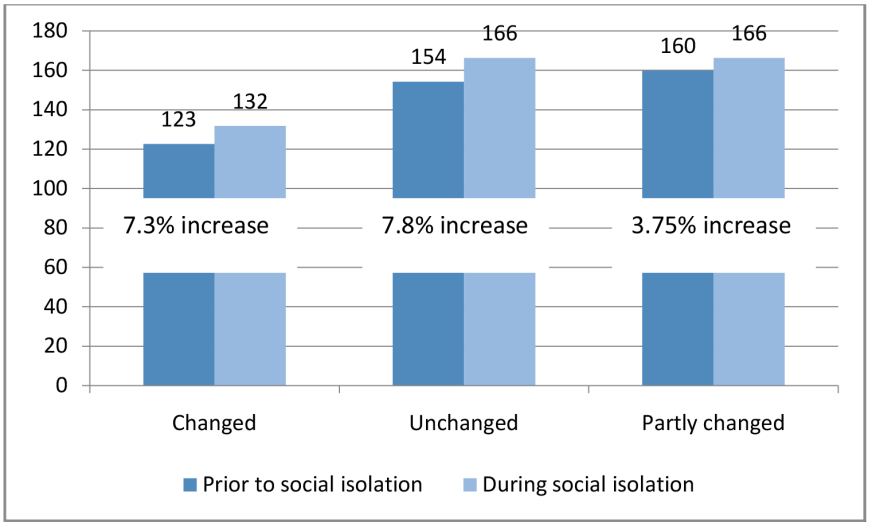

Figure 1. Distance performed a month (km) prior to and during the social restriction due to COVID-19 among groups that changed, unchanged and partly changed their earlier running habits

The majority of runners missed the organised running races (48.5%), the tracks on which they ran earlier (21.3%) and the company of friends and running mates (20.7%).

Participants reported that they have more free time due to new working conditions, time which previously was lost by commuting has been freed up, and they work at a home office, work part-time, or have lost their jobs.

– "I work only till 3 o'clock p.m., I have much more time to run." (F, 22)
– "I am at the home office, no travel time to work. I go for longer runs." (M,33)
– "I don't work, I have more time and strength." (F, 49)
– "I lost my work, I run more frequently." (M, 29)
– "Because of the home office I don't need to travel 2 hours a day, I have more time for running." (F, 49)
– "I am at the home office, I have more time, so I could include one additional training a week." (F, 27)

Predictors of running activity during the quarantine

Multiple regression analysis revealed that two predictors explained 60.0% of the variance ($R = 0.78$; $R2 = 0.60$; $F_{(1.320)} = 241.680$; $p < 0.001$). It was found that previous running activity ($ß = 0.75$, $p < 0.001$), and distress ($ß = -0.128$, $p < 0.001$) significantly predicted running activity in the quarantine. Other variables had no effect.

Participants who changed their running habits had significantly unfavourable well-being ($M = 60.34$; $SD = 20.37$) to those who did not change them ($M = 66.42$;$SD = 17.89$; $p = 0.014$). The same applies to distress (changed: $M = 13.43$; $SD = 12.15$ vs. unchanged: $M = 7.10$; $SD = 7.29$; $p < 0.001$).

Interview survey about the quarantine running

Runners appreciate running in this situation even more and it became an important tool in coping with stress. Running in quarantine situation means freedom for them more than before, and it is a means of relaxation, recharging and maintaining mental health.

– "I'm among 4 walls all day, at the home office and with 2 kids. Everyday at 5 o'clock, I go outside into the nature for an hour or two to vent my head.. Without it, I would go crazy." (M, 39)
– "We don't go anywhere, at most we run in the woods or go on a trip with the family. Unfortunately, there is no other program now!" (F, 40)
– "Other recreational opportunities have narrowed." (M, 34)
– "Running is my only chance to relax now." (F, 34)
– "I run every day. I want to get rid of the tension with it. I need to move." (F 57)
– "I have to exercise on a daily basis to reduce stress." (F, 33)
– "There is now a greater accumulated stress to be relieved, which is not otherwise feasible." (F, 39)
– "In the past, running meant physical and mental recharge, now it is more so." (M, 36)
– "I have a sense of being locked up, I have to run." (M, 37)
– "Previously, running was a social event, a circle of people I could belong to, a goal that I can accomplish. Now, it is the key to my health and mental balance, the reason why I don't fall into depression and why my anxiety about the situation is reduced." (F, 33)
– "Ever since I have run, I feel like I'm alive. That is even truer now." (F, 51)
– "It used to be a means of maintaining stamina, now it means freedom." (F, 42)
– "It used to be more like training, now it is more of a feeling of relaxation and freedom." (M, 49)"Running for me always used to embody freedom, but now it is even more so. It gives me a safe grip on the insecure." (F, 29)
– "Running was a hobby and a passion for me. It means the same now, and also a feeling of freedom, because if I run, I can feel free, I am not limited." (M, 40)

Discussion

In our study, we analysed amateur runners, how they experienced the changing circumstances caused by the presence of coronavirus and how much they changed their previous usual running habits. In addition to a quantitative study, we also conducted a qualitative study, in the form of an open-ended questionnaire due to restrictions on outreach and social contact.

The emergence of the coronavirus and restrictive measures have changed the everyday live. Unpredictable life events that we have no influence on manifested themselves as significant stressors [15,16]. People can react to increased stress in several ways. The most common stress reaction is a physiological stress reaction (a fight or flight state) that, while making the body more resilient, can exhaust it if the state persists. Common reactions to stress include anxiety, fatigue, depression, as well as anger and aggression. Positive responses to stress include coping (emotional and problem-focused coping strategies). Running is an emotional-focused coping strategy that helps dealing with stress. Moreover, in the current circumstances it is not only a prominent means of diminishing stress, but it can also be a constant factor in our changed living conditions, a stable point in everyday life, thus providing a frame, a handrail that enhances the sense of security. In addition, running in this period, loaded with the coronavirus and corresponding restrictions, can also become important because it is almost the only option to leave home, thus to experience freedom. All of these were confirmed by our subjects. A significant proportion of respondents run more during this period. This is due, on the one hand, to the increased leisure time and, on the other hand, to the fact that running is now also used to relieve increased stress.

This study has limitations that should be noted. First, the type of sampling used does not allow the results to be generalized to the entire population of distance runners. We used online survey to obtain quantitative and qualitative data. However, recent studies found similar results in web-based surveys to those using traditional paper and pencil [17,18]. We did not ask if they used other stress-relieving techniques such as yoga, tai chi, meditation, or other relaxation exercises. There was no opportunity to conduct a face-to-face interview, however, it is not a new practice to use an interview survey with open-ended and semi-structured questions [11]. With this method, we were able to interview a large number of participants at once and there was no need to check the correctness and accuracy of the answers by the subjects.

Conclusions

The pandemic threatened our physical and mental well-being. This is called a stressful situation, to which a natural reaction in addition to the "fight or flight" state is the appearance of increased distress. Most of the runners devoted more time and energy to running in the month following the declaration of the coronavirus emergency. Running is an opportunity to cope with a life full of stress and anxiety. The runners confirmed, in their reports, that running during this period is much more than a simple hobby, it is rather an opportunity to experience freedom, relieve tension, and maintain physical and mental health.

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