

Quality of life among female runners in Slovakia: The role of running experience, purpose, age and weekly running habits

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Abstract:

Introduction: Regular physical activity, such as running positively influences several aspects of quality of life. This study investigated differences in various quality of life domains among healthy adult amateur female runners based on their length of running experience and running purpose, distinguishing between recreational and performance-oriented runners. Additionally, the study aimed to identify potential relationships between quality of life levels and variables including chronological age, running experience duration, and weekly running volume. **Methods:** A total of 37 female runners from Slovakia participated in the study. Participants were grouped according to running experience (novice versus experienced) and running purpose (recreational versus performance-oriented). Correlation analyzes were performed on the combined sample of the 37 runners. The WHOQOL-BREF questionnaire was used to assess quality of life in multiple domains. **Results:** Experienced runners reported significantly higher satisfaction with overall quality of life ($p < .01$) and overall health satisfaction ($p = .05$), as well as score in satisfaction with social relationships domain ($p = .05$) compared to novice runners. Positive correlations were found between running experience and several quality of life domains. While no significant differences were observed based on running purpose, exploratory analyses revealed trends indicating potential benefits of sustained running engagement on quality of life. **Conclusion:** The findings highlight the importance of long-term participation in improving quality of life, particularly in terms of overall satisfaction with quality of life. These results can inform strategies to promote sustained physical activity and improve quality of life among female runners. Longitudinal studies are warranted to further elucidate the causal relationships between length of running experience and the diverse domains of quality of life.

Key Words: quality of life; physical activity; female runners; running experience; public health

Introduction

The increasingly pronounced absence of physical activity in people's lives today is undoubtedly one of the very serious problems of society at large. In fact, worldwide, up to 7.2% of all-cause deaths and 7.6% of deaths from cardiovascular disease are caused by physical inactivity (Katzmarzyk et al., 2022). Kerr and Booth (2022) report that those classified as physically inactive are up to 1.75 times more likely to develop cardiovascular disease and 1.4 times more likely to develop dementia. The authors also point out that physical inactivity and sedentarism are the main contributors to the development of various endocrine or metabolic diseases (Kerr & Booth, 2022).

According to the World Health Organization (WHO), physical inactivity is a major risk factor for non-communicable diseases and mortality worldwide. On the contrary, regular physical activity significantly mitigates the risk of various health conditions, including reducing the incidence of certain cancers by 8–28%, heart disease and stroke by 19%, diabetes by 17%, and depression and dementia by 28–32%. In particular, it is estimated that approximately 4 to 5 million deaths per year could be prevented if the global population adopted more active lifestyles. The WHO also projects that if physical inactivity levels remain unchanged, nearly 500 million new cases of preventable major noncommunicable diseases will occur globally between 2020 and 2030. This is expected to result in direct healthcare costs of approximately US \$300 billion over the period, or about US \$27 billion annually, excluding significant indirect costs such as productivity losses (WHO, n.d.).

Although the role of physical activity in a person's life and health is well known, there are still many people who do not pay enough attention to regular physical activity. The phenomenon of physical inactivity can be observed around the world for both sexes and, unfortunately, at all ages. This underscores the critical importance of addressing physical inactivity to improve public health outcomes. Physical exercise is associated with numerous benefits, including improved subjective well-being, reduced stress and negative emotions, and improved cognitive function. Furthermore, participation in sports and physical activities is associated with significant psychological, social, and physiological advantages, with early initiation and sustained participation leading to long-term benefits for both physical and mental health (Sang et al., 2021; Wei & Liu, 2023; Myśliwiec et al., 2025). Running as a leisure activity, even for as little as 5 to 10 minutes a day at slow speeds below 9.66 kilometers a hour, is associated with a significant reduction in the risk of mortality from all causes and

cardiovascular disease (Lee et al., 2014). Schnohr et al. (2015) found that light and moderate joggers have lower mortality rates compared to sedentary non-joggers, while strenuous joggers do not exhibit a statistically significant difference in mortality rates compared to sedentary individuals.

As reported in the most recent Special Eurobarometer 525 survey (from 2022), only 38% of Europeans exercise or play sports regularly or at least once a week (a slight decline from 40% in 2017), while 45% never exercise or play sports, a figure that has been largely unchanged since 2017 (46%). In the country where our research was conducted - Slovakia, the situation is similar to the European average, but there have been positive changes compared to 2017. Specifically, in 2022 35% of Slovaks exercised or played sports regularly or at least once a week, marking an increase from 28% in 2017. Furthermore, the proportion of Slovaks who never exercise or play sports has decreased from 49% in 2017 to 43%. These findings still stand in sharp contrast to Nordic countries, where respondents never exercise or play sports 8% in Finland, 12% in Sweden, and 20% in Denmark. Additionally, gender disparities are evident, with 58% of Slovak men and 72% of Slovak women either never exercise or exercise three times a month or less (57% of men Europeans and 65% of women Europeans) (European Commission, 2018; 2022). These findings underscore the urgent need for targeted interventions and have significantly shaped the design of our research.

WHO emphasizes the need to develop policies and programs aimed at increasing physical activity participation among women and older adults. These initiatives are crucial for addressing disparities in physical activity levels within these populations and improving overall health outcomes (Bull et al. 2024). Taking into account the above, we focus our research on women and the period of adulthood. Since current research on the impact of physical activity on quality of life has predominately focused on youth, elite athletes, elderly people, or those with specific health conditions, neglecting middle-aged populations who face distinct barriers to physical activity, such as occupational and family demands, there is a notable lack of studies examining the specifics of physical activity in this demographic. Nagata et al. (2022), given the current trend of declining physical activity with age and the associated premature onset of cardiovascular disease, consider the transition from young adulthood to middle age to be an important period to promote physical activity.

As the primary barriers to regular physical activity include lack of free time, lack of interest, willingness or preference for passive leisure activities, age, medical condition and doctor's advice, fatigue, lack of activity provider or suitable facilities close to place of residence, financial reasons or lack of company (Piątkowska & Biernat, 2023), spatially and materially undemanding outdoor activities like running are particularly advantageous. Running can be performed at any time, in any location, either individually or in groups. Current research in practical settings indicates that running programs can engage and recruit low-active individuals into sports, which subsequently leads to improved levels of exercise and psychological outcomes (Plateau et al., 2024). New research suggests that the length of sport experience can positively influence some psychological areas, such as stress coping strategies (Trulíková & Gregor, 2024) or symptoms of anxiety and stress (Cantão et al., 2004), so it is necessary to involve people in sustainable sporting activity that they could perform over many years. However, the interplay between quality of life and running habits as e.g. weekly running frequency, weekly running distance, length of running experience, or running purpose remains unclear. This study addresses this gap by examining differences in quality of life between novice and experienced healthy adult amateur Slovak female runners (hereafter referred to as runners), as well as recreational and performance runners, while exploring correlations between quality of life domains and variables such as chronological age, length of running experience, weekly running frequency and weekly running distance.

Studies focusing on the quality of life or other psychological aspects of amateur runners are relatively rare. Although it is a specific group, we believe that more attention should be paid to these athletes, as running is a widely popular sport globally and also in Slovakia. Given the lack of physical activity, particularly among women, research focusing on this demographic is crucial. The growing popularity of running among Slovak women is evident in the increasing number of participants in the DM Women's Run event. The first edition in 2012 started with 620 runners, while in 2023, there were 3,742 participants (dm drogerie markt, 2023). Given that running is a natural activity that is not demanding in terms of time, both spatial and material conditions, or finances and does not require special prior experience, we consider it an ideal tool for increasing physical activity among the critical demographic group of adult women. We believe that by appropriately interpreting the benefits of this activity, we can attract even more individuals to running. By analyzing a sample of runners, our research aims to provide specific recommendations on physical activity performance and its benefits for this age group.

The aim of this is to investigate differences in various quality of life domains among healthy adult amateur female runners based on their length of running experience and running purpose distinguishing between recreational and performance-oriented runners. Additionally, the study aimed to identify potential relationships between quality of life levels and variables including chronological age, running experience duration, and weekly running volume. The WHO Quality of Life Questionnaire (WHOQOL-BREF), a validated multidimensional quality of life assessment tool, was used (WHO, 1998). Due to the reliable psychometric properties of this instrument (WHO, 1998) when combined with additional questions regarding demographics or details about the running activity performed, it can serve as a suitable tool to assess the interaction of running habits with quality of life. By improving public awareness of the multifaceted benefits of running, our aim is to

encourage greater participation in this accessible form of exercise, which may yield numerous benefits for individuals and society at large.

Material & methods

Participants

A group of 37 healthy adult amateur Slovak female runners (hereafter referred to as runners) ($N = 37$) participated in this study; men were not included. Respondents ranged in chronological age (hereafter referred to as only age) from 24 to 56 years, encompassing young, middle-aged, and older adults. The main inclusion criterion was regular running activity of at least 20 minutes per training session, at a frequency of at least three times per week, for a minimum of 365 days prior to completing the questionnaire. Only participants who reported no current injuries or health complications were included in the study. All participants were citizens of the Slovak Republic and native speakers of Slovak, which was the language used to conduct the research.

For the purposes of the comparative part of the research, participants were divided into sub-sets based on two criteria. First, they were categorized according to the length of their running experience into novice runners ($N = 18$, mean age 42.39 years) and experience runners ($N = 19$, mean age 42.11 years), where novice runners had been engaged in running activities for less than 5 years, and experience runners for 5 years or more. The second categorization was based on the purpose of their running activity. recreational runners ($N = 23$, mean age 42.74 years) primarily ran for recreation, health improvement, active relaxation, or maintaining or enhancing physical fitness. Their running activity could be performed individually and was not necessarily tied to organized events, although occasional participation in running competitions was not excluded. In contrast, performance runners ($N = 14$, mean age 41.43 years) followed a systematic training regimen, actively participated in competitions, were typically members of running/athletic organizations, and often collaborated with coaches.

The Table 1 shows the size, chronological age, length of running experience, weekly running frequency and weekly running distance of all participants as well as the sub-sets divided according to each of the criteria. Due to the relatively strict inclusion criteria, each sub-set was represented by only a modest number of respondents after the division. This limitation necessitated cautious interpretation of the results in the subsequent research.

Table 1. Overview of age and details about running activity of specific sub-sets

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min-Max</i>
Age [years]					
All	37	42.24	8.53	42.00	24-56
Novice	18	42.39	7.64	42.50	24-56
Experienced	19	42.11	9.51	42.00	25-56
Recreational	23	42.74	8.00	44.00	24-54
Performance	14	41.43	9.61	41.50	25-56
LRE [years]					
All	37	5.97	4.95	5.00	1-18
Novice	18	1.94	0.92	2.00	1-4
Experienced	19	9.79	4.08	8.00	5-18
Recreational	23	6.33	5.21	5.00	1-18
Performance	14	5.39	4.62	4.50	1-17
WRF [times/week]					
All	37	4.08	0.95	4.00	3-6
Novice	18	4.06	1.06	4.00	3-6
Experienced	19	4.11	0.88	4.00	3-6
Recreational	23	3.87	0.87	4.00	3-6
Performance	14	4.43	1.02	4.00	3-6
WRD [km/week]					
All	37	37.70	16.64	35.00	15-100
Novice	18	38.25	20.36	35.00	15-100
Experienced	19	37.18	12.71	35.00	20-70
Recreational	23	30.48	9.71	30.00	15-50
Performance	14	49.57	19.05	43.50	30-100

Note. *N* = quantity, *M* = mean, *SD* = standard deviation, *Mdn* = median, *Min-Max* = minimum-maximum, *Age* = chronological age, *LRE* = length of running experience, *WRF* = weekly running frequency, *WRD* = weekly running distance

Procedure

The abbreviated version of the WHOQOL-100 questionnaire (WHOQOL-BREF), a validated tool for assessing multidimensional quality of life, was selected as the research instrument. The questionnaire consists of two initial questions determining overall quality and overall health, followed by items divided into four domains: physical health, psychological, social relationships, and environmental. Responses are recorded on a scale of 1-5. As per the WHO scoring manual, raw scores were transformed into net scores to ensure direct comparability with the WHOQOL-100 scores (Dragomirecká & Bartoňová, 2006). The robust psychometric properties of this instrument, combined with additional items on demographics and running activity, make it suitable for capturing nuanced lifestyle impacts.

Data collection and statistical analysis

Recruitment was conducted through interest-based running groups on social media, with participation on a voluntary basis. Informed consent was obtained from all subjects in accordance with the Declaration of Helsinki. Participants were assured of anonymity and were informed of their right to withdraw from the study at any time without consequence. The research protocol was pre-approved by the Ethics Committee of the Faculty of Physical Education and Sports (ID: 22/2024), Comenius University in Bratislava, Slovakia. All data were collected during February and March 2025.

For the purposes of data analysis, we employed a combination of descriptive and inferential statistical methods. Statistical analysis was performed using IBM SPSS 23. The specific statistical procedures utilized in this study are as follows: Mann-Whitney U-test was used to determine differences between two groups (novice runners vs. experience runners and recreational runners vs. performance runners), statistical significance of relationships between variables was tested using Spearman's rho. The level of statistical significance was set at $p \leq .05$ and $p \leq .01$. To assess the practical significance of observed differences, Cohen's r was calculated as a measure of effect size.

Results

Descriptive statistics for individual questionnaire items are shown in Table 2, displaying mean scores both for the total sample and within sub-sets. Results for Q1 and Q2, single-item measures overall quality and overall health, are presented independently. The remaining items were subsequently combined into relevant domain scores based on the instrument's scoring guidelines. Analysis of individual questionnaire items highlighted a salient difference in Q21, assessing satisfaction with sexual life, across participant sub-sets. A statistically significant difference in satisfaction with sexual life was observed between novice runners and experience runners, with the latter group reporting higher levels of satisfaction (mean difference = 0.72 points, $p = 0.03$). A similar, albeit non-significant, trend was evident between recreational runners and performance runners (mean difference = 0.57 points, $p = 0.09$). In light of these findings, exploratory correlation analyses were conducted. These analyses revealed positive correlations between satisfaction with sexual life and both length of running experience ($r_s = 0.32$, $p = 0.05$) and weekly running distance ($r_s = 0.31$, $p = 0.04$), correlation with age and weekly running frequency was not statistically significant ($r_s = -0.10$, $p = .55$ for age; $r_s = 0.11$, $p = 0.50$ for weekly running frequency). Apart from the standalone items Q1 and Q2 discussed below in Table 4, and Q21 (satisfaction with sexual life), no other individual items differences demonstrated statistically significant between sub-sets.

Table 2. Average scores for individual WHOQOL-BREF items

	Item	All (N=37)	NovR (N=18)	ExpR (N=19)	RecR (N=23)	PerR (N=14)
Q1	Overall quality of life	4.32 (± 0.58)	4.00 (± 0.49)	4.63 (± 0.50)	4.30 (± 0.56)	4.36 (± 0.63)
Q2	Satisfaction with health	4.38 (± 0.55)	4.17 (± 0.51)	4.58 (± 0.51)	4.39 (± 0.50)	4.36 (± 0.63)
Q3	Pain and feelings of discomfort	4.68 (± 0.47)	4.56 (± 0.51)	4.79 (± 0.42)	4.65 (± 0.49)	4.71 (± 0.47)
Q4	Dependence on medical care	4.84 (± 0.44)	4.67 (± 0.59)	5.00 (± 0.00)	4.87 (± 0.34)	4.79 (± 0.58)
Q5	Joy of life	4.43 (± 0.73)	4.28 (± 0.89)	4.58 (± 0.51)	4.43 (± 0.66)	4.43 (± 0.76)
Q6	Meaning of life	4.43 (± 0.77)	4.22 (± 0.94)	4.63 (± 0.50)	4.43 (± 0.66)	4.43 (± 0.94)
Q7	Concentration	4.08 (± 0.68)	4.11 (± 0.47)	4.05 (± 0.85)	4.13 (± 0.81)	4.00 (± 0.39)
Q8	Personal safety	4.19 (± 0.78)	4.33 (± 0.84)	4.05 (± 0.71)	4.22 (± 0.80)	4.14 (± 0.77)
Q9	Environment	4.03 (± 0.80)	4.00 (± 0.69)	4.05 (± 0.71)	4.09 (± 0.85)	3.93 (± 0.73)
Q10	Vigour and fatigue	4.24 (± 0.49)	4.22 (± 0.55)	4.26 (± 0.45)	4.30 (± 0.56)	4.14 (± 0.36)
Q11	Acceptance of physical appearance	4.22 (± 0.67)	4.00 (± 0.77)	4.42 (± 0.51)	4.30 (± 0.70)	4.07 (± 0.62)
Q12	Financial situation	3.92 (± 0.98)	3.89 (± 0.83)	3.95 (± 1.13)	4.00 (± 0.85)	3.79 (± 1.19)
Q13	Access to information	4.59 (± 0.55)	4.39 (± 0.50)	4.79 (± 0.54)	4.70 (± 0.47)	4.43 (± 0.65)
Q14	Hobbies	4.22 (± 0.63)	4.28 (± 0.57)	4.16 (± 0.69)	4.09 (± 0.60)	4.43 (± 0.65)
Q15	Agility	4.84 (± 0.37)	4.78 (± 0.43)	4.89 (± 0.32)	4.74 (± 0.45)	5.00 (± 0.00)
Q16	Sleep	3.81 (± 1.00)	3.83 (± 0.92)	3.79 (± 1.08)	3.74 (± 0.96)	3.93 (± 1.07)
Q17	Everyday activities	4.35 (± 0.63)	4.28 (± 0.57)	4.42 (± 0.69)	4.39 (± 0.58)	4.29 (± 0.73)
Q18	Work performance	4.19 (± 0.57)	4.06 (± 0.42)	4.32 (± 0.67)	4.22 (± 0.60)	4.14 (± 0.53)
Q19	Self-satisfaction	4.22 (± 0.58)	4.11 (± 0.58)	4.32 (± 0.58)	4.30 (± 0.47)	4.07 (± 0.73)
Q20	Personal relationships	3.92 (± 0.72)	3.72 (± 0.83)	4.11 (± 0.57)	3.87 (± 0.69)	4.00 (± 0.78)
Q21	Sexual life	3.65 (± 0.98)	3.28 (± 0.96)	4.00 (± 0.88)	3.43 (± 0.99)	4.00 (± 0.88)
Q22	Support of friends	4.05 (± 0.88)	3.94 (± 1.00)	4.16 (± 0.76)	3.91 (± 0.90)	4.29 (± 0.83)
Q23	Environment at the place of residence	4.43 (± 0.83)	4.28 (± 0.96)	4.58 (± 0.69)	4.48 (± 0.85)	4.36 (± 0.84)
Q24	Availability of health care	3.73 (± 1.04)	3.83 (± 0.04)	3.63 (± 1.07)	3.78 (± 1.13)	3.64 (± 0.93)
Q25	Transport	4.43 (± 0.65)	4.44 (± 0.62)	4.42 (± 0.69)	4.39 (± 0.66)	4.50 (± 0.65)
Q26	Negative feelings	4.05 (± 0.57)	3.94 (± 0.64)	4.16 (± 0.50)	4.13 (± 0.63)	3.93 (± 0.47)

Notes. N = quantity, NovR = novice runners, ExpR = experienced runners, RecR = recreational runners, PerR = performance runners, Q = questionnaire item. Values are means, values in parentheses represent standard deviation ($\pm SD$).

Basic descriptive statistics, including means and standard deviations, are presented in Table 3 for the standalone items Q1 (overall quality) and Q2 (overall health), and for each of the quality of life domains. These data are presented for the total sample and for each of the predefined subsets.

Table 3. Results per domains for the sub-sets

	All (N = 37)		NovR (N = 18)		ExpR (N = 19)		RecR (N = 23)		PerR (N = 14)	
	M	SD	M	SD	M	SD	M	SD	M	SD
OvQ	17.30	2.32	16.00	1.94	18.53	1.98	17.22	2.24	17.43	2.53
OvH	17.51	2.18	16.00	2.06	18.32	2.03	17.57	2.00	17.43	2.53
PhH	17.68	1.44	17.43	1.29	17.98	1.55	17.66	1.46	17.71	1.47
Psy	16.95	1.92	16.67	2.22	17.44	1.48	17.16	1.93	16.62	1.91
SoR	15.50	2.69	14.00	2.80	16.35	2.35	14.96	2.48	16.38	2.88
Env	16.77	1.85	17.00	1.81	16.82	1.94	16.87	2.07	16.61	1.47

Notes. N = quantity, M = mean, SD = standard deviation, NovR = novice runners, ExpR = experienced runners, RecR = recreational runners, PerR = performance runners, OvQ = overall quality of life, OvH = overall health, PhH = physical health, Psy = psychological, SoR = social relationships, Env = environment.

Table 4 presents a comparison of the standalone items overall quality and overall health, and the various quality of life domains, across the novice runners versus experienced runners and between recreational runners versus performance runners. The most pronounced difference was found for overall quality, with experienced runners demonstrating significantly greater overall quality compared to novice runners ($p < 0.01$, $r = 0.48$). Novice runners and experienced runners also differed significantly in overall health, with experienced runners reporting higher scores ($p = 0.05$, $r = 0.32$). As shown in Table 5, these results are corroborated by significant correlations between the length of running experience and both overall quality ($p < 0.01$, $r = 0.51$) and overall health ($p = 0.01$, $r = 0.38$). A significant difference was also evident in the social relationships domain, with experienced runners exhibiting more favorable scores ($p = 0.05$, $r = 0.32$). According to Cohen's criteria, all significant subset differences were characterized by a medium effect size.

Table 4. Differences between results in domains for the sub-sets

	NovR (N = 18) vs. ExpR (N = 19)		RecR (N = 23) vs. PerR (N = 14)	
	p (M-W)	r	p (M-W)	r
OvQ	<.01**	.48	.78	.05
OvH	.05*	.32	.98	<.01
PhH	.17	.23	.93	.02
Psy	.20	.21	.44	.13
SoR	.05*	.32	.12	.26
Env	.72	.06	.59	.10

Note. NovR = novice runners, ExpR = experienced runners, RecR = recreational runners, PerR = performance runners, p (M-W) = p value of Mann-Whitney U test; r = effect size, OvQ = overall quality of life, OvH = overall health, PhH = physical health, Psy = psychological, SoR = social relationships, Env = environment. p values smaller than or equal to .05 are marked with *, p values smaller than or equal to .01 are marked with **.

As previously mentioned, this study also explored the relationships between the quality of life domains and the participant's age, length of running experience, and weekly running habits (weekly running frequency and weekly running distance). These relationships are summarized in Table 5. The strongest positive correlation was found between overall quality and length of running experience ($p < 0.01$, $r = 0.51$), followed by a positive correlation between overall health and length of running experience ($p = 0.01$, $r = 0.38$). The length of the running experience also was positively correlated with the psychological domain ($p = 0.05$, $r = 0.30$). Although the relationships between the remaining domains of quality of life and the length of running experience were not statistically significant, trends were observed for social relationships ($p = 0.15$, $r = 0.24$) and physical health ($p = 0.16$, $r = 0.23$). To rule out the potential confounding effect of chronological age, correlations between the quality of life domains and age itself were also examined. A significant positive relationship was found between age and the environment domain ($p = 0.02$, $r = 0.38$), a nonsignificant trend was observed between age and the psychological domain ($p = 0.09$, $r = 0.28$). No other statistically significant or trending relationships were found between the quality of life domains and the parameters selected in this study.

Table 5. Testing correlations between quality of life and selected parameters of respondents for the full set (N = 37)

	OvQ	OvH	PhH	Psy	SoR	Env
Age	0.20 (.23)	0.16 (.35)	0.19 (.27)	0.28 (.09)	0.06 (.71)	0.38* (.02)
LRE	0.51** (.01)	0.38** (.01)	0.23 (.16)	0.30* (.05)	0.24 (.15)	0.16 (.35)
WRF	0.20 (.23)	0.05 (.75)	0.12 (.47)	0.14 (.41)	-0.08 (.65)	<0.01 (.99)
WRD	0.05 (.79)	-0.15 (.37)	0.09 (.61)	-0.02 (.93)	0.11 (.53)	-0.21 (.21)

Note. OvQ = overall quality of life, OvH = overall health, PhH = physical health, Psy = psychological, SoR = social relationships, Env = environment, Age = chronological age, LRE = length of running experience, WRF = weekly running frequency, WRD = weekly running distance. Values are R values of Spearman's Rho, values in

parentheses represent p values. p values smaller than or equal to .05 are marked with *, p values smaller than or equal to .01 are marked with **.

Intercorrelation analyzes were conducted to examine the relationships among the various quality of life domains, and these results are presented in Table 6. As can be seen in the table, most of the domains exhibited significant and positive correlations with one another. A notable exception was the social relationships domain, which did not correlate significantly with any of the other quality of life domains.

Table 6. Testing correlation between results in specific domains for the full set ($N = 37$)

	OvQ	OvH	PhH	Psy	SoR	Env
OvQ	1					
OvH	0.64** ($<.01$)	1				
PhH	0.52** ($<.01$)	0.34* (.04)	1			
Psy	0.45** ($<.01$)	0.37* (.02)	0.64** ($<.01$)	1		
SoR	0.29 (.09)	0.21 (.21)	0.23 (.18)	0.30 (.07)	1	
Env	0.44** (.01)	0.38* (.02)	0.57** ($<.01$)	0.63** ($<.01$)	0.07 (.68)	1

Note. OvQ = overall quality of life, OvH = overall health, PhH = physical health, Psy = psychological, SoR = social relationships, Env = environment. Values are R values of Spearman's Rho, values in parentheses represent p values. p values smaller than or equal to .05 are marked with *, p values smaller than or equal to .01 are marked with **.

Discussion

To our knowledge, this is the first study that investigates differences in quality of life among healthy adult amateur female runners in terms of the length of running experience and the purpose of regular running activity. We are also unaware of any previous research that has focused on correlations between quality of life and chronological age, length of running experience, or weekly running habits in healthy adult amateur female runners. Current research on quality of life has predominantly focused on differences between athletes and non-athletes (Synder et al. 2010; Pacífico et al., 2018; Nazari et al., 2023), on elite or professional athletes (Nowak et al., 2021; Lundqvist et al., 2022; Rojo-Ramos et al., 2023) or specific cohort (Krzepota et al., 2018; Vancini et al., 2019; del Mar Salinas-Asensio et al., 2022; Xu et al., 2023; Isanejad et al. 2023; Bella et al. 2023).

The aim of our study was to identify possible differences in individual quality of life domains and their correlations with age, length of running experience or weekly running habits among runners. This study also aimed to elucidate the differences in individual domains of quality of life based on the purpose of regular running activity – focus on recreation or performance.

When comparing quality of life and its individual domains, we found statistically significant differences between novice runners and experienced runners. Specifically, experienced runners exhibited significantly higher values in overall quality ($p < .01$), overall health ($p = .05$), and social relationships ($p = .05$). These findings are supported by recent research which suggests that the length of running experience may positively influence some psychological areas, such as stress coping strategies or symptoms of anxiety and stress. Research on recreational runners showed that runners with at least five years of running experience demonstrated a significantly lower use of negative stress coping strategies (leading to stress reinforcement) ($p = .04$) (Trulíková & Gregor, 2024). Similar results were reported by Cantão et al. (2024) in the context of jiu-jitsu athletes. Participants practicing jiu-jitsu from 6 months to 5 years had higher stress levels compared to those with more than 5 years of practice ($p < .05$). Similarly, anxiety levels were higher among participants with shorter training durations ($p < .001$) compared to those with more than five years of experience.

From the perspective of the focus of running activity, our study did not identify significant differences between recreational runners and performance runners. Among the current studies, we did not find any with which the results of our research could be directly compared. However, there are studies suggesting that significant differences exist between elite and recreational athletes in various other psychological domains. For example, a study of sambo athletes found that recreational athletes scored higher on depression, anxiety, stress, and general distress scales (Tubić et al., 2022). Differences between elite and recreational athletes have also been reported in terms of happiness, satisfaction, and risk tolerance, however, the authors acknowledge that due to the nature of their data, they cannot assert a causal effect leading from sports participation to happiness, satisfaction, and risk tolerance (Aguiar-Noury, Frick & Risch, 2024). Similarly, Nemček, Kraček, and Peráčeková (2017) found no significant differences in self-esteem between elite/competitive athletes and recreational athletes. Although our research did not reveal significant differences among runners according to the purpose of their activity, a nonsignificant trend was observed in the domain of social relationships favoring performance runners ($p = .12$). This could be related to the more frequent participation of performance runners in running or athletic competitions, or the need to communicate their training with coaches or other runners to improve performance, which might foster the development of communication skills, empathy, interpersonal relationships, etc.

In an effort to understand the differences in quality of life among runners, we examined correlations between quality of life and chronological age, length of running experience, and weekly running habits. As

previously indicated in the comparison between novice runners and experienced runners, the length of running experience appears to be crucial for the quality of life in running. Despite the homogeneity of age between novice runners and experienced runners (42.39 ± 7.64 versus 42.11 ± 9.51 years), we decided to investigate the relationship between age and quality of life to avoid confounding our results with age effects. A significant relationship with quality of life was found only in the environment domain ($p = .02$), which we attribute to the natural tendency for satisfaction with environmental quality of life to increase with age among women. Similar conclusions were drawn by Skevington et al. (2024), who found that after the age of 45, all domains except physical quality of life improved to very good levels around age 60, with high levels sustained beyond age 75, particularly in environmental quality of life. According to the results of a Japanese study on elderly joggers/runners, age is also positively associated with overall quality of life in this age group (Nakano, 2020). Based on the results of our study, we suggest that age may be positively associated with satisfaction in the psychological domain, considering the nonsignificant tendencies observed ($p = .09$). To confirm the key role of the length of running experience, we sought relationships between individual quality of life domains and the length of running experience. The strongest statistically significant positive relationship with the length of running experience was found in overall quality ($p < .01$), followed by overall health ($p = .01$), with a significant relationship also observed in the psychological domain ($p = .05$). Nonsignificant positive tendencies related to the length of running experience were observed in the social relationships ($p = .15$) and physical health ($p = .16$) domains. Nakano (2020) similarly found a significant positive association between experience and both social relationships and environmental domains in a study conducted on elderly Japanese joggers/runners. In our study, we did not observe any significant associations between the domains of quality of life and weekly running habits. However, Nakano (2020) found a positive association between overall quality of life and weekly running frequency among elderly joggers/runners. These results suggest that the length of running experience in healthy adult amateur female runners is positively correlated with multiple domains of quality of life, independent of age or weekly running habits.

Regarding the mutual correlation of individual domains, our study revealed strong positive relationships among most quality of life domains. However, a notable exception was the social relationships domain, which did not correlate significantly with any of the other domains, although nonsignificant positive trends were observed between social relationships and both the psychological ($p = .07$) and overall quality ($p = .09$) domains. This finding may reflect the individualistic nature of running, especially in our sample – as evidenced by our descriptive data, 23 out of 37 participants indicated that they run primarily alone (or with a dog), 8 reported running mainly with a partner, and none reported participating in group running; the remaining participants reported a combination of these arrangements. Such solitary engagement in running activity may contrast with community-based running groups that foster social connections (e.g., Xie, Chen & Yin, 2019). Consequently, solitary engagement in regular running may not provide sufficient opportunities to enhance the social skills that contribute to improved social relationships, skills that are naturally cultivated within running communities through shared activities and mutual support (according to the findings of Xie, Chen & Yin, 2019). Solitary running may also lack the necessary conditions to positively influence perceived satisfaction within the social relationships domain, as it does not directly foster the fulfillment of needs such as social interaction, which may be an important element of higher quality of social relationships.

When additional analysis of the individual questionnaire items was performed, significant differences emerged regarding item Q21, which evaluates satisfaction with sexual life. Specifically, experienced runners reported significantly higher levels of satisfaction with sexual life compared to novice runners ($p = .03$). Following this observation, exploratory correlation analyses revealed a significant positive relationship between length of running experience and sexual life satisfaction ($p = .05$), as well as between distance and sexual life satisfaction ($p = .05$). We interpret this finding as potentially linking regular running activity with increased physical fitness and subsequent body satisfaction, which, in turn, may positively influence perceived satisfaction with sexual life (according to the findings of Snani et al. 2024).

The findings of this study are delimited by the focus on a sample of healthy adult amateur Slovak female runners, which restricts the generalizability of the results to other demographic and cultural contexts. The cross-sectional design inherently limits causal inferences between running-related variables and quality of life outcomes. Furthermore, reliance on self-report measures may introduce potential biases. The lack of correlation between the domain of social relationships and other domains of quality of life deserves attention, possibly due to solitary running habits among participants, contrasting community-based groups.

Future research should prioritize longitudinal studies and investigations in diverse demographic samples, which include different age groups, sex, and sport specializations. Expanding sample sizes in future studies may provide a more comprehensive understanding of the mechanisms that influence quality of life in various populations. Additionally, exploring the role of social dynamics in physical activity contexts, such as community-based running groups, can offer valuable insights into how social interaction influences domains of quality of life such as social relationships. Future studies should focus on identifying specific mechanisms, physiological, psychological, and social, through which running impacts quality of life. By addressing these gaps, researchers can develop targeted interventions to maximize the benefits of running for individuals and broader communities.

Conclusions

Our study revealed that experienced runners reported significantly higher overall quality of life and health satisfaction compared to novice runners. These findings were corroborated by positive correlations between the length of running experience and both overall quality of life and health satisfaction. Furthermore, experienced runners exhibited more favorable scores in the domain of social relationships. Exploratory analyzes indicated that also satisfaction with sexual life was significantly higher in experienced runners and was positively correlated with both the length of running experience and the weekly running distance. These results underscore the potential of sustained running engagement to improve various domains of quality of life, with a notable impact on physical, psychological and social well-being. Longitudinal studies are warranted to further elucidate the causal relationships between length of running experience, weekly running habits, and the diverse domains of quality of life.

Finally, it is important to emphasize that, regarding the level of subjectively perceived quality of life, the purpose of running activity, age, weekly running frequency, or weekly running distance are not such key factors as the mere persistence in this activity for as many years as possible, and thus, the development of long-term sustainable running habits.

Conflicts of interest

The authors declare no conflict of interest.

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