Quality of life and physical activity among younger working-age Wroclaw residents

DANIEL PUCIATO¹,₂,₃, Piotr OleśNiewicz⁴,⁵, MICHAŁ ROZPARA⁴,⁵

¹ Faculty of Physical Education and Physiotherapy, Opole University of Technology, Poland
² Faculty of Physical Education, University School of Physical Education in Wroclaw, Poland
³ Faculty of Physical Education, The Jerzy Kukuczka Academy of Physical Education in Katowice, Poland

Summary

Background. Literature concerning quality of life and physical activity relationships in younger working-age people is scarce but suggest that some quality of life factors depend on physical activity.

Objectives. The aim of the study was to identify these relationships.

Material and methods. The material included 2,691 participants (1,321 men and 1,370 women) aged 18–44 years living in Wroclaw. The International Physical Activity Questionnaire, Short Form (IPAQ-SF) served to assess habitual physical activity. Quality of life was determined with the World Health Organization Quality of Life (WHOQoL-BREF) questionnaire.

Results. The 68.5% level of physical activity among Wroclaw residents proved to be sufficient in the context of the WHO recommendations. More than half (56.3%) of the respondents undertook at least 75 minutes of high-intensity physical activity, and 12.2% carried out moderate activity for at least 150 minutes per week. Among men, the chance that they would assess their quality of life as high was 82% more in people performing at least 75 minutes of high-intensity physical activity per week than in those undertaking less physical activity.

Conclusions. Most participants met the WHO health-promoting physical activity standards. In the group of men, statistically significant positive relationships were observed between quality of life and high-intensity physical activity.

Key words: exercise, quality of life, World Health Organization.
program and the control group. After completing the training program, a statistically significant increase in subjective quality of life was found among the program participants, but not in the control group. Similar results were attained by Mansikkamaki et al. [21], in whose study participants in PA programs assessed their perceived health condition better in the physical domain than the control group. In the study by Macaluso et al. [22], participants of a 12-week physical training program significantly improved their health condition and subjective quality of life in the physical and psychological domains.

So far, however, there have been few studies regarding healthy people in younger working age. Their analysis allows one to presume that some aspects of the quality of life are assessed better by physically active individuals than by physically inactive people. Nevertheless, this applies only to those with an adequately high level of physical activity [23].

**Objectives**

In this context, the purpose of the paper is to identify the relationships between quality of life and physical activity in younger working-age people.

**Material and methods**

**Study design**

The research process included: determination of the research problem, selection of methods, techniques and research tools, selection of the research sample, conducting research, analysis of test results and presentation of research results.

**Setting**

The research was performed in 2014 and 2015 in Wroclaw.

**Participants**

The sample selection was random using a three-level stratification. First, using a random number table, ten residential areas were selected from all alphabetically ordered Wroclaw areas. Next, three streets from each selected residential area were chosen, whose residents were asked to fill in the questionnaires. The number of respondents from particular residential areas was proportionate to the number of residents of these areas.

**Variables and data sources**

The International Physical Activity Questionnaire, Short Form (IPAQ-SF) was used to assess habitual physical activity [24]. Physical activity was determined in accordance with the World Health Organization (WHO) recommendations. On the basis of the recommendations, the participants were divided into the following groups [25]:

1. people who met the first WHO criterion (Yes I), i.e. those who undertook at least 75 minutes of high-intensity physical activity per week;
2. people who met the second WHO criterion (Yes II), i.e. those who undertook at least 150 minutes of moderate-intensity physical activity per week;
3. people not meeting the WHO criteria (No), i.e. those who undertook physical activity for less than 150 minutes (moderate intensity) or 75 minutes (high intensity).

Quality of life was assessed with the World Health Organization Quality of Life (WHOQoL-BREF) questionnaire [26].

**Ethical issue**

The research project received a positive opinion from the Commission of Bioethics of the University School of Physical Education in Wroclaw.

**Study size**

The minimal sample size \( n \) representative of younger working-age Wroclaw residents was calculated using the following formula:

\[
n = \frac{N \cdot \left(\frac{\mu^2}{\sigma^2} + \frac{4q^2}{\pi^2} - \frac{4pq}{\pi^2}\right)}{2(1 - \alpha)}
\]

where: \( N \) – number of Wroclaw residents on December 31, 2013, \( p \) – fraction of younger working-age Wroclaw residents on December 31, 2013, \( q \) – constant calculated as \( 1 - p \), \( \alpha \) – expected estimation error of \( p \) (\( \alpha = 1.5\% \)), \( \alpha = 0.05 \) – confidence interval \( 1 - \alpha \) (\( \alpha = 0.05 = 1.96 \)).

**Quantitative variables and statistical analyses**

The quality of life indicator was expressed on a nominal scale. The results obtained on a point scale (1–5 points) were converted into a sten scale (1–10 stens); the following formula was applied:

\[
S = 5.5 + 2 \times Z,
\]

where: \( S \) – input variable values after transformation, \( Z \) – input variable values after standardization into mean and standard deviation for the research sample.

On the basis of the sten scale results, groups of different quality of life self-assessment were distinguished. In the evaluation of quality of life, the following boundary values were assumed: < 6 stens (low), 6 stens (average), > 6 stens (high).

Multinomial logistic regression served to estimate the relationships of quality of life and physical activity. Statistical conclusions were drawn with a significance level of \( \alpha < 0.05 \).

**Results**

**Participants**

The study was conducted among 2,691 people (1,321 males and 1,370 females) aged 18–44 years.

**Descriptive data**

Taking into account the age of the respondents, people aged 25–34 years (44.2%) formed the largest group. Individuals aged 35–44 years accounted for 32.8%, and those aged 18–24 for 23% of all the participants. A total of 41.8% of the respondents had secondary education, 33.1% – primary, junior high and basic vocational education, and 25.1% – higher education. The majority of the participants were white-collar workers (26.3%) or blue-collar workers (25.6%). The remaining groups included pupils and students (23.1%), entrepreneurs (14.7%) and the unemployed and housekeeping (10.3%). Most of the respondents (56.3%) were single, the remaining 43.7% were married. Among the studied Wroclaw residents, the majority had an average monthly gross household income of above 2,000 PLN (27.2%) per person or 1,001–1,500 PLN (25.4%) per person. The average monthly gross income per capita in 22.1% of the respondents’ households equaled 501–1,000 PLN, in 19.6% – 1,501–2,000 PLN, and in 5.7% – below 500 PLN. More than half (52%) of the participants assessed their quality of life as average, 29.5% as low, and 18.5% as high (Table 1).

**Outcome data**

The 68.5% physical activity level among the participants was sufficient in the context of WHO recommendations. More than half (56.3%) of the respondents performed high-intensity activity for at least 75 minutes per week, and 12.2% performed moderate-intensity activity for at least 150 minutes. Almost every
third individual (31.5%) did not meet the WHO standards. The recommendations were more often fulfilled by males (71.8%) than females (65.3%). The first criterion was met by 62.4% of males and 50.3% of females, and the second one by 9.4% of males and 15.0% of females (Table 2).

Main results and other analyses

Among males, the chance that they would assess their quality of life as average, and not low, was 56% more in people who met the first WHO criterion than in those not meeting any standards. The chance that the respondents would rate their quality of life as high, and not low, was 82% more in people performing high-intensity activity for at least 75 minutes per week than in those who undertook an insufficient amount of physical activity. No significant relationships were noted between quality of life and moderate-intensity activity (Table 3).

The relationships of quality of life and physical activity in females were statistically insignificant (Table 4).
such factors as age or health status. The quality of life in groups selected with the consideration of these factors could differ in each of these cases. The joint analysis of the whole group of younger working-age Wroclaw residents constitutes another limitation of the article. It is recommended for future research to analyze the impact of physical effort on the quality of life in groups selected with the consideration of such factors as age or health status.

### Generalizability

The obtained results also entitle the authors to recommend actions aimed at increasing physical activity among the younger working-age population. Such actions should be taken both by the people themselves and by organizations and socio-economic policy entities. A sufficiently high volume of physical activity and its high intensity may contribute to improving people’s quality of life, especially in males.

### Conclusions

1. Most participants met the WHO health-promoting physical activity standards.
2. Among males, statistically significant positive relationships were observed between quality of life and high-intensity physical activity.
3. Physical activity should be an important element of preventive care and should be recommended to patients by doctors and nurses.

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References


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Address for correspondence:
Daniel Puciato, PhD, Assoc. Prof.
Wydział Wychowania Fizycznego i Fizjoterapii
Politechnika Opolska
ul. Prószkowska 76
45-758 Opole
Polska
Tel.: +48 77 44-98-299
E-mail: d.puciato@po.opole.pl