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DIGITALNI AKADEMSKI ARHIVI I REPOZITORIJI

# Physical Activity and Quality of Life of Mothers of Preschool Children

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## ABSTRACT

*The main aim of this study was to explore physical activity regarding mothers of preschool children and connections concerning different aspects of their physical activity (at work, during transport, in free time, while doing housework) with subjective quality of life. Another aim was to investigate factors that are obstacles of living a physically active life in this population. The participants of the study were 252 Croatian women, who have at least one preschool child older than three years. The World Health Organization Quality Of Life – BREF questionnaire and International Physical Activity Questionnaire were used. Participants also gave some personal demographic data, and answered to questions about obstacles for participation in organized physical activity. Results of this research showed that mothers of preschool children were more physically active than the population of adults in general, but their physical activity was mostly housework activity. Physical activity in their free time was the only aspect of physical activity that was significantly correlated with different aspects of mother's subjective quality of life. Employed mothers and those who live in the towns had more physical activities in their free time. Organizational factors and feeling that family suffers for their absence were the most frequently perceived barriers for organized physical activity participation. Results revealed that only the physical activity in their free time contributes to mother's quality of life. Mothers of preschool children mostly do housework physical activity, so support of the social community for physical activity in their free time in this population is recommended. Such activities should be especially directed to unemployed mothers and those who live in the villages.*

**Key words:** physical activity, subjective quality of life, mothers of preschool children, woman, free time

## Introduction

Nowadays we know that physical activity is one of the bases of a healthy life<sup>1,2</sup>. Contrary to that cognition, today's way of living is mostly sedentary<sup>3–5</sup>. Older generations were more occupied by physical jobs<sup>6</sup>. As of today people are sitting or standing while working on their jobs, and watching television or sitting at the computer in their free time. They have to make an effort to find time and place for physical activity. That is much easier if a person has developed habits of regular physical activity during their childhood<sup>7</sup>. Development of those habits from early ages of life is a ground for healthy behavior in adulthood and a healthy life. Since children mostly learn their life habits from their parents and other significant people<sup>8</sup>, working on pointing out unhealthy habits in adulthood and changing them into healthier habits is necessary for a better life of generations that come. That is especially important for mothers of preschool children because they are the first role models for their children. Some research showed that a mothers' life is very stressful<sup>9,10</sup> and that

factor could affect their capability to practice physical activities in the free time.

### *Physical activity*

Physical activity is defined as »any bodily movement produced by skeletal muscles that result in energy expenditure«<sup>11</sup>. According to World Health Organization<sup>12</sup>, physical activity includes physical activities while doing housework, physical activities at work, physical activities during transport, fitness, sports and other physical activities in the free time. It is recommended to have minimum 150 minutes of medium or 75 minutes of high aerobic activity per week for adults and minimum of 60 minutes a day of medium or high intensity physical activity for children and adolescents<sup>13</sup>. Planned and continuous physical activity has an irreplaceable place in growth and development at a young age as well as maintaining a biological and

functional organism balance in every age of life<sup>14</sup>. Empirical investigations showed that physical inactivity was positively linked to different corporeal and mental diseases, like cardiovascular diseases<sup>1,15,16</sup> and hypertension<sup>1,17</sup>, type 2 diabetes<sup>18,19</sup>, obesity<sup>1,20,21</sup>, colorectal cancer<sup>22</sup>, depression and anxiety<sup>23–25</sup>. Physical activity is also positively linked to self-assessed health<sup>26,27</sup>. Results of physical (in)activity investigations show that a large part of the world population (31%) does not practice physical activity in its recommended amount<sup>28</sup>. Domínguez-Berjón et al.<sup>29</sup> found that inactivity is more frequent in women and older, less educated and people of lower socioeconomic standing. Results of a one Croatian survey showed that 35.8% of participants (around 44% of men and 30% of women) are physically inactive<sup>30</sup>, and another study showed that 60% do not practice any regular physical exercise<sup>2</sup>.

### ***Subjective quality of life***

Quality of life is a multidimensional construct that refers to objective and subjective sense of self-wellbeing<sup>31</sup>. Multiple definitions of this construct exceed the objective of this work, so we will bring up only definition of World Health Organization. According to World Health Organization, quality of life is »...individuals perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns...«<sup>32</sup>. One of the main postulates regarding quality of life theories is that there are objective and subjective components of quality of life. Objective components are culturally relevant measures of objective wellbeing like physical health, autonomy, adequate nutritional food and water, adequate protective housing, non-hazardous work and physical environments, appropriate health care, security in childhood, physical and economic security, safe birth control and childbearing, and appropriate basic and cross-cultural education<sup>33</sup>. Subjective components refer to subjective value of some domains of life like material wellbeing, emotional wellbeing, health, productivity, intimacy, safety and community<sup>34</sup>. It is important to underline that values system affects all domains of subjective quality of life<sup>35,36</sup>.

As we already suggested, physical activity contributes positively to different health outcomes and different aspects of psychological wellbeing, like mood, level of energy and body image<sup>37</sup>. It is reasonable to presume that physical activity is also connected with subjective quality of life<sup>38–40</sup>, especially with its component related to health.

### ***Importance of physical activity of preschool children mothers***

Mothers of preschool children live a very stressful life<sup>9,10</sup>. Children at a preschool age demand full time care and parents are responsible for all of their needs, such as health, physical, emotional and social needs. Women are responsible for the majority of the housework. If they are employed, they are often in the life period when they are

just starting their careers. We presume that, for all mentioned reasons, mothers of preschool children do not have much free time for physical activity. Absence of physical activity could affect their objective and subjective quality of life as well as the quality of life of their children. Furthermore, mothers are the first models for their children's habits development and their physical inactivity could affect physical inactivity and quality of life of their children in the future<sup>41</sup>.

### ***Aim of this study***

In this study, we wanted to explore the physical activity of preschool children mothers and the connection of physical activity with their quality of life. We have not found a research that explores this problem in the available literature. We also wanted to investigate the factors that are the barriers of living a physically active life in this population.

Hypotheses were that mothers' physical activity is mostly done in the household and physical activity in their free time, especially organized activities, is rare. We also hypothesized that mother's physical activity in the free time is associated with their quality of life.

According to previous research, barriers of physical activity participation are mostly derived from several categories: social factors, care-giving duties, and access to exercise opportunities<sup>42</sup>. We assumed that the main obstacles for practicing physical activity in this population are a deficit of time, and organizational problems.

### ***Method***

Participants were recruited with the help of psychology students. The booklets with research questionnaires were distributed to mothers of an at least one preschool child older than three years in the region of Slavonia in Croatia. Participants fulfilled questionnaires in their homes with the help of students.

### ***Instruments***

#### ***Demographics information***

First, we asked participants to answer some demographic questions, as age, size of settlement, number of children and employment status. They also answered the question about factors that make organized physical activity challenging for them.

#### ***World Health Organization Quality Of Life- BREF (WHOQOL-BREF)***

The WHOQOL-BREF is a short version of the WHOQOL-100 questionnaire developed by World Health Organization. It is aimed to measure six domains of subjective quality of life. WHOQOL-BREF was developed in the con-

text of four domains of Quality Of Life: physical, psychological, social and environmental<sup>43</sup>. It consists of 26 items that inquire »how much«, »how completely«, »how often«, »how good« or »how satisfied« the respondent felt in the last two weeks. Respondents give their answers on four types of 5-point Likert interval scale, designed to reflect intensity, capacity, frequency and evaluation. Among 26 items, 24 of them make up the four dimensions of physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items), whereas the remaining two items measure overall QOL and general health. Total results for four domains are given. For these four domains, scores are transformed on the scale from zero to 100 to enable comparisons between domains composed of unequal numbers of items. Cronbach alpha coefficient of internal consistency of this questionnaire in this research was  $\alpha=0.88$ . Cronbach alpha coefficients of the subscales of the questionnaire are lower (physical domain=0.72; psychological domain=0.76; social domain=0.68; environmental domain=0.69).

### International Physical Activity Questionnaire – IPAQ

This 27 items questionnaire measures frequency, duration and level of intensity of physical activity in four domains of life: (1) transportation, (2) work, (3) household and gardening tasks and (4) free time, including exercise and sport participation<sup>44</sup>. The questionnaire also includes questions about the amount of time spent sitting down as an indicator of sedentary behavior; but we did not include those data in this work. For each domain, the number of days per week and time per day spent in both moderate and vigorous activity were recorded. Time spent walking while working, during transportation and in free time was also included. Outcome measures were MET (metabolic equivalents) hours per week. Metabolic equivalents represent the weekly amount of physical activity, and are a product of frequency, duration, and intensity of physical

activity in the last seven days. Physical activity data from the questionnaires were transformed into energy expenditure estimates as MET using published values. To calculate the weekly physical activity (MET-hour/week), the number of hours in each activity class was multiplied by the specific MET score for that activity (3.3 for walking, 4.0 for moderate-intensity activity, and 8.0 for vigorous-intensity activity).

## Results

### Participants

The participants of the study were 252 women who live in the region of Slavonia, Croatia. According to the physical activity questionnaire guidelines, results of 13 participants were excluded because they fulfilled this questionnaire in the wrong way (reporting more than 16 hours of physical activity per day). The final sample consisted of 239 women, aged between 19 and 54 years ( $\bar{X}=34.5$ ,  $SD=5.35$ ). Majority (96.2%) of the participants were married and the minority was cohabitate (3.3%). In addition, majority of the participants were employed (77.2%). In total, 38.5% participants lived in a village, 30.7% in a small town (<30,000 habitants), 16.0% in a bigger town (30,000–100,000 habitants) and 14.7% in a big city (>100,000 habitants). Almost third (29.3%) of participants had one child, 51.5% of participants had two, 16.3% of participants had three and about 2.9% of participants had four and more children.

### Physical activity and quality of life average results

Descriptive statistics are shown in Table 1. Because most of the variables depart from the normal distribution, we performed nonparametric tests.

Among different aspects of physical activity, the highest median result in our sample was for housework physical activity ( $M=64.00$  MET-hour/week), while median

**TABLE 1**  
DESCRIPTIVE STATISTICS OF THE MEASURES

Variables	Median	CI	TR	K-S
Physical activity at work	0.00	0.00–0.00	0–550.2	5.711***
Transport physical activity	6.00	4.00–8.25	0–130.2	3.984***
Housework physical activity	64.00	53.60–76.00	0–576.0	2.310***
Physical activity in free time	8.25	6.60–11.23	0–199.2	3.329***
Total physical activity	117.75	101.67–144.00	2.2–843.5	2.400***
Mother physical health QOL	81	75–81	38–100	2.935**
Mother psychological health QOL	75	69–75	25–100	2.563***
Mother social relationships QOL	75	75–81	31–100	2.372***
Mother environment QOL	69	69–69	38–100	1.334***
Mother general QOL	4	4–4	2–5	5.198***
Mother general health QOL	4	4–4	2–5	4.869***

Legend: CI – confidence interval for medians; TR – total range; K-S – Kolmogorov Smirnov test; \*\*\* $p<0.001$ , \*\* $p<0.01$ , \* $p<0.05$

results for other aspects were much lower ( $M_{\text{FREETIME}}=8.25$  MET-hour/week;  $M_{\text{TRANSPORT}}=6.00$  MET-hour/week;  $M_{\text{JOB}}=0.00$  MET-hour/week). Median of total physical activity was unexpectedly high ( $M=117.75$  MET-hour/week).

Medians of general assessments of quality of life and health quality of life were around four, on a five-point scale. Results of other quality of life aspects that were derived from more than one item were transformed into a scale from one to 100 according to the questionnaire using guides<sup>26</sup>. Among these variables, the lowest result was found in the environment quality of life variable ( $M=69$ ) and the highest in the physical quality of life ( $M=81$ ).

### Correlation analysis

To explore relationships between variables, we counted Spearman’s correlation coefficients, which are presented in Table 2.

The correlation coefficients between different aspects of physical activity were low. The biggest correlation was the one between the transport physical activity and the physical activity in free time ( $\rho=0.27$ ,  $p<0.001$ ). However, the physical activity in free time was in the negative correlation with the housework physical activity ( $\rho=-0.17$ ,  $p<0.05$ ). The highest correlation with the total physical activity had the housework physical activity ( $\rho=0.75$ ,  $p<0.001$ ), then the physical activity at the job ( $\rho=0.50$ ,  $p<0.001$ ) and in the transport ( $\rho=0.26$ ,  $p<0.001$ ). The physical activity in free time was not connected at all with total physical activity ( $\rho=0.13$ ,  $p>0.05$ ).

Furthermore, correlation analysis showed that the general quality of life and general health quality of life were both connected with different aspects of quality of life. Sizes of correlations were low to moderate (Table 2). Among different aspects of quality of life, general quality of life had the highest correlation with psychological and environmental quality of life ( $\rho=0.50$ ,  $p<0.001$ ) and the lowest with social relationship quality of life ( $\rho=0.31$ ,

$p<0.001$ ). Correlation between general quality of life and general health quality was relatively small ( $\rho=0.34$ ,  $p<0.001$ ).

Correlations between physical activity and quality of life variables showed that only physical activity in the free time was connected with some aspects of quality of life (physical, psychological, environmental and general). Correlation coefficients were around 0.2 (Table 2).

### Physical activity and quality of life according to the size of settlement, employment and number of children

We wanted to examine if participants with different demographic characteristics had different levels of physical activity. Considering physical activity variables were not normally distributed, we performed Kruskal-Wallis test to see if there are any differences in different aspect of physical activity depending on demographic variables. First, we tested if the participants who lived in settlements of different sizes (village, small town, medium town and big town) differentiated in physical activity. Results showed that there was statistical significant difference in the level of the housework physical activity, and the physical activity in their free time between subjects from settlements of different sizes. Participant who lived in the villages had more housework physical activity ( $\chi^2=12.736$ ,  $p<0.001$ ), and participants who lived in the towns (small town, medium town and big town) had more physical activities in their free time ( $\chi^2=8.956$ ,  $p<0.05$ ). Furthermore, there was no difference in total physical activity between groups.

Likewise, we conducted Mann-Whitney test to investigate the differences between employed and unemployed participants in physical activity. Although the difference between employed and unemployed participants in total physical activity was not found, in all four aspect of physical activity differences were significant. Naturally, em-

**TABLE 2**  
INTERCORRELATIONS (SPEARMANS COEFFICIENTS OF CORRELATIONS) OF THE VARIABLES

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Physical activity at work	–									
2. Transport physical activity	0.08	–								
3. House work physical activity	0.05	0.01	–							
4. Free time physical activity	0.12	0.27***	-0.17*	–						
5. Total physical activity	0.50***	0.26***	0.75***	0.13	–					
6. Mother physic. health QOL	0.01	0.08	0.04	0.20**	0.05	–				
7. Mother psycho. health QOL	0.06	0.01	-0.02	0.24***	0.04	0.55***	–			
8. Mother social relationships QOL	0.06	0.03	0.06	0.08	0.07	0.35***	0.48***	–		
9. Mother enviroment QOL	-0.12	-0.08	-0.06	0.22**	-0.06	0.54***	0.52***	0.41***	–	
10. Mother general QOL	0.04	0.05	-0.10	0.23***	-0.01	0.44***	0.50***	0.31***	0.50***	–
11. Mother gener0. health QOL	0.03	0.12	0.02	0.06	0.06	0.53***	0.35***	0.30***	0.35***	0.34***

Legend: \*\*\* $p<0.001$ ; \*\* $p<0.01$ ; \* $p<0.05$



ployed participants were more active at the job<sup>1</sup> ( $\chi^2=5.479$ ,  $p<0.001$ ) but also in the free time ( $\chi^2=3.264$ ,  $p<0.001$ ). Unemployed mothers had larger results in transport physical activity ( $\chi^2=2.042$ ,  $p<0.05$ ) and housework physical activity ( $\chi^2=3.147$ ,  $p<0.001$ ).

Furthermore, depending on the number of children, Mann-Whitney Test showed that there was difference only in the housework physical activity ( $\chi^2=10.603$ ,  $p<0.05$ ). As expected, participants with more children had more housework physical activities.

For the different components of quality of life, we also computed if there were differences between participants with different socio-demographic characteristics. Results have shown that there was no statistical significant differences in the level of different aspects of quality of life between participants who lived in settlements of different size, were employed or unemployed, or had different marital status. Contrariwise, the number of children had an impact to physical health quality of life ( $\chi^2=10.827$ ,  $p<0.01$ ), and psychological health quality of life ( $\chi^2=6.867$ ,  $p<0.05$ ). Mann-Whitney test showed that the mothers with three and more children had higher levels of physical health quality of life ( $\chi^2=3.087$ ,  $p<0.01$ ) and psychological health quality of life ( $\chi^2=2.547$ ,  $p<0.05$ ) than mothers with two children.

### Perceived barriers for organized physical activity participation

In the last step of the analysis, we wanted to explore what are the perceived barriers for organized physical activity participation of mothers because organized physical activities are mostly offered for women and have the most elaborate programs for physical activation. Here, we are presenting mother's assessments of different factors, like organization of going to organized activity, lack of motivation and interest and so on (Figure 1).

As expected, the biggest challenge for mothers of preschool children is an organization of physical activity. As we can see (Figure 1), the most problematic factors are lack of free time, organization of babysitting and maintenance schedule of activity classes. Next to those are feelings that family suffers for their absence. Other factors are also relevant in some way, but not as much as those four.

We also tested if there were differences in factors that are perceived barriers for organized physical activity participation between mothers with different socio-demographic status. After calculating chi-square test we found that mothers from settlements of different sizes had statistically different answers about impact of »access to organized activities« ( $\chi^2=31.703$ ,  $p<0.01$ ). As expected, mothers who lived in villages and small towns have indicated

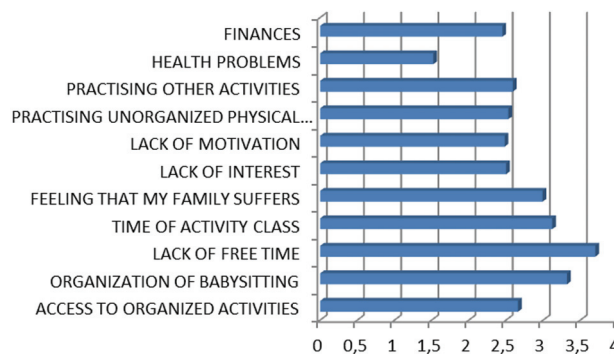


Fig. 1. Average estimates of importance of factors that complicate organized physical activity practicing.

less access to organized activities. In addition, employed mothers stated more often the »lack of free time« as a problem for their physical activity ( $\chi^2=17.622$ ,  $p<0.001$ ). Mothers with more children more often quoted »feeling that my family suffers« as their problem ( $\chi^2=16.377$ ,  $p<0.05$ ).

### Discussion

Participants in this study, mothers of preschool children, were physically active mostly during housework ( $M=64.00$  MET-hour/week), while other forms of physical activity were rather rare. Median of physical activity at work was unexpectedly low ( $0.00$  MET-hour/week). That could be due to the fact that women have less active jobs than men do and nearly 1/4 of the sample was unemployed. Median of physical activities during transport of participants was similar to the population value<sup>45</sup>, and physical activity in free time median was somewhat higher in this study ( $M=8.25$  MET-hour/week). That result was expected, because the data was collected in the spring when mothers with their children often go out for a walk or at the playground. These data are partly comparable to already mentioned data collected on representative adult sample in Croatia<sup>45</sup>. People in Croatia were mostly physically active at work ( $\bar{X}=30.4$  MET-hour/week). Physical activity during housework was less present ( $\bar{X}=13.1$  MET-hour/week), as well as in transport ( $\bar{X}=5.0$  MET-hour/week) and in free time ( $\bar{X}=6.0$  MET-hour/week). Above referenced research also showed differences between men and women in physical activity patterns. Men were much more active at work, and women were much more physically active in the household<sup>45</sup>. Results of our research showed the same pattern. However, it seems that the female pattern of physical activity was even more observable in our sample.

Unexpectedly, median of total physical activity in this sample was  $117.75$  MET-hour/week, which was much larger than in a representative sample ( $\bar{X}=58.2$  MET-hour/week). That result could be explained by the characteristics of this sample, compared to other categories of participants that are forming the representative sample. However, participants of this study were mothers of small

<sup>1</sup> Physical activity at work was counted for unemployed participant too, because instruction for reporting that aspect of physical activity in the IPAQ<sup>44</sup> suggested that participants should give the answers about any kind of jobs outside the house, including unpaid jobs.

children that have many responsibilities with kids and in their homes, and many of them include physical activity (walking and going out with children, child care, etc.). However, Jurakić, Pedišić and Andijašević<sup>45</sup> study showed that the most active age categories of women are those between 45 and 64 years, and that is not in line with our result.

As expected, different aspects of physical activity were relatively independent. Total physical activity was mostly correlated with housework physical activity ( $\rho=0.75$ ,  $p<0.001$ ) and physical activity at work ( $\rho=0.50$ ,  $p<0.001$ ). As regards the correlations between different aspects of physical activity, the biggest one was between physical activity during transport and physical activity in free time ( $\rho=0.27$ ,  $p<0.001$ ). We could assume that participants who use physically active ways of transport are more aware of the importance of physical activity, so they do more physical activity in their free time too. Physical activity in free time was in the negative correlation with housework physical activity ( $\rho=-0.17$ ,  $p<0.05$ ), but correlation was very low. However, this result is in line with the already mentioned result about the difference in physical activity between employed and unemployed mothers according to which employed mothers do more physical activity in their free time, and unemployed mothers do more housework physical activity.

Average values of the general quality of life and general health quality of life variables were around 4. Because five was maximum possible result, we can say that participants were quite content with their life and their health in general. Among other quality of life variables, that are counted from more than one item and transformed to zero to 100 scale, the lowest result was found in the environment quality of life variable ( $M=69$ ). Other research in Croatia and abroad found lowest results in that component of quality of life too<sup>46,47</sup>, and that goes in line with the (poor) socio-economic situation in Croatia. Average results of other quality of life components in this study were also similar to before mentioned studies results. American adult sample<sup>47</sup> had somewhat lower psychological health quality of life than our sample. They also had higher social relationships quality of life while physical quality of life was almost equal. Compared to results of healthcare workers in Croatia, sample in our research had higher results in all components of quality of life, and the difference is the largest in the physical health and the environment quality of life components (around 5 units). Difference in that domains between two samples could be shown because the sample of healthcare workers were older ( $M_{AGE}=42$ ), and they had jobs that are in the categories of most stressful jobs which certainly affect their assessments of environment quality. In addition, we found that general health quality of life was more connected to physical health quality of life ( $\rho=0.53$ ,  $p<0.001$ ), and equally to others components ( $\rho=0.30-0.35$ ,  $p<0.001$ ). Correlation between general quality of life and general health quality was relatively small ( $\rho=0.34$ ,  $p<0.001$ ).

Of all physical activity variables, only physical activity in the free time was connected with general health qual-

ity of life. Magnitude of correlations was around 0.2. Of all quality of life variables, significant correlations with physical activity in their free time did not have only general health quality of life and social relationships quality of life. Physical activity in the free time contributed to the general quality of life, physical and psychological health quality of life and environment quality of life. Although mothers of preschool children were, according to results of this survey, in general, physically very active, that activity is not connected to their quality of life. Only aspect of physical activity that was connected to their quality of life (physical activity in free time) was not connected at all with mother total physical activity. In the Jurakić, Pedišić and Greblo<sup>48</sup> research in women sample was also shown that only physical activity in free time contributes to some aspects of quality of life (vitality, mental health and mental component summary score). Magnitude of correlation coefficients in our research, as well as in before mentioned research are low, indeed. New studies with longitudinal methods would be very useful, so causal effects of different aspects of physical activity on quality of life could be explored. The research about effects of exercise program on health-related quality of life in postpartum mothers confirmed the existence of such positive effect<sup>49</sup>.

Examination of differences in the physical activity according to demographic characteristics showed that participants who lived in villages had more housework physical activity, and on the contrary, participants who lived in towns had more physical activity in free time. Those groups did not differ in the total physical activity results. Observed differences are probably the reflection of different lifestyles in villages and towns. Village residents are more turned to different jobs in the household, and they often do not have many opportunities for the physical activity in their free time. Investigation that was conducted by Jurakić, Pedišić and Andijašević<sup>45</sup> and data from all Europe<sup>50</sup> showed that people in bigger settlements are more physically inactive, but it seems that this is not the case in this sample.

Our study showed that employed participants had more activity on the job and in their free time. First result is self-understandable and second could be due to higher socioeconomic status of employed participants. Because of it they had more funds for some organized physical activities. Unemployed mothers had higher results in the physical activity during transport and the housework physical activity. That is probably because they have more free time and spend more time in the house. This data could be comparable to data from Jurakić, Pedišić and Andijašević<sup>45</sup> research about the contribution of household income to physical activity because employment is connected to the income of the family. In their research, income was connected only with physical activity during transport. Specifically, participants with lower income are more physically active in the transport. Furthermore, result showed that participants with more children had more housework physical activity, expectedly.

Of all demographic variables, only number of children was relevant for mother's quality of life. Mothers with

three and more children had higher physical and psychological health quality of life than mothers with two children. This result could be partially explained by positive correlation between the number of children and age in this research ( $r=0.18$ ;  $p<0.01$ ), although relationship between age and psychological and physical quality of life in similar age groups is not clear<sup>51,52</sup>. It is possible that women and families that have better quality of life in both these aspects, more often decide to have a third child.

We also wanted to show the perceived barriers for organized physical activity participation of mothers of small children. As expected, the biggest challenge is organization of such activities. However, we also evidenced some differences according to demographic characteristics of participants. Mothers who live in villages and small towns have stated less access to organized activities, employed mothers stated more often that »lack of free time« is a factor that complicates practicing organized physical activities, and mothers with more children more often feel that family suffers for their absence. However, it is important to underline that mothers as a challenging factor indicate practicing unorganized physical activities as well.

At the end of the discussion section, it should be emphasized that there are several limitations of our study. Because of the design of our research, it was not allowed to make conclusions about causal effect of physical activity on quality of life. Conclusions about causal effects could be done only based on longitudinal data analysis. Furthermore, as our sample is convenience sample, generalization of our findings is limited, and they should be confirmed on the representative sample. There is also a question of com-

plexity of physical activity concept and problem of self-report questionnaires use instead of objective indicators of physical activity. However, more information about physical activities and their benefits for quality of life in mothers of preschool age children we could get by qualitative methods applying.

Results of this research showed that mothers of preschool children are more physically active than the population of adults in general, but their physical activity is mostly housework activity. That physical activation does not contribute to any aspect of their subjective quality of life. Physical activity in free time is only aspect of physical activity that is significantly correlated with different aspects of mother's quality of life. This research showed that employed mothers and those that live in towns have more activities in the free time. According to that, different activities in the community, directed to unemployed mothers and those who live in the villages, should be recommended. Such activities need to be adjusted to mothers of small children. One way for that would be activities that include mother and children interaction. They would decrease organization problems and feeling that family suffers for mother's absence. In the same way, such activities would be an encouragement for children's physical activity. Furthermore, interventions need to be directed to education about the usefulness of physical activity for physical and mental health as well as concrete exercises that mothers can practice at their homes or in the neighborhood by themselves. We hope that the results of this research will serve as guidelines for different local community interventions directed to physical activity of mothers of preschool children.

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## TJELESNA AKTIVNOST I KVALITETA ŽIVOTA MAJKI DJECE PREDŠKOLSKE DOBI

### SAŽETAK

Cilj ovog istraživanja bio je ispitati tjelesnu aktivnost majki djece predškolske dobi te povezane različitim aspektima tjelesne aktivnosti (na poslu, u transportu, u slobodno vrijeme i za vrijeme obavljanja kućanskih poslova) sa subjektivnom kvalitetom života. Dodatni cilj bio je istražiti koje su prepreke tjelesno aktivnom životu u toj populaciji. U istraživanju su sudjelovale 252 žene iz Hrvatske koje imaju barem jedno dijete predškolske dobi. Primijenjeni su upitnik kvalitete života Svjetske zdravstvene organizacije (World Health Organization Quality Of Life – BREF) i Međunarodni upitnik tjelesne aktivnosti. Od sudionika su također prikupljeni demografski podaci i odgovori na pitanje o faktorima koji otežavaju prakticiranje organiziranih tjelesnih aktivnosti. Rezultati istraživanja su pokazali da su majke djece predškolske dobi tjelesno aktivnije od opće populacije, ali da je njihova tjelesna aktivnost uglavnom povezana s kućanskim poslovima. Tjelesna aktivnost u slobodno vrijeme je jedini aspekt tjelesne aktivnosti koji je statistički značajno povezan s različitim aspektima subjektivne kvalitete života majki. Zaposlene majke i one koje žive u gradovima su tjelesno aktivnije u slobodno vrijeme. Organizacijski faktori i osjećaj da otatelj trpi zbog njihove odsutnosti su faktori koji najčešće otežavaju prakticiranje organiziranih tjelesnih aktivnosti. Rezultati su pokazali da samo tjelesna aktivnost u slobodno vrijeme doprinosi subjektivnoj kvaliteti života majki. S obzirom da su majke djece predškolske dobi uglavnom tjelesno aktivne u kućanstvu, preporuča se podrška društvene zajednice tjelesnoj aktivnosti u slobodno vrijeme u toj populaciji. Takve aktivnosti bi posebno trebale biti usmjerene na nezaposlene majke i one koje žive na selu.