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TEHETSÉGGONDOZÁS – TANULMÁNY**RECREATIONAL ACTIVITIES OF MOMS****Comparative Study of Recreational Activities of Mothers in Hungary and Jordan****ABSTRACT:**

Introduction: mothers around the world are at increased risk for health-related problems because of the level of inactivity before, during, and after pregnancy. Recreational habits in different countries may differ.

The experience gained from comparing these habits can provide useful information for each country. **Aims:** to examine among Hungarian and Jordanian mothers who have at least one child, what leisure activities are usually practiced and to compare their general health and recreational activities based on their self-report. **Online questionnaires** were conducted in both countries. **Results:**

jogging/running and aerobics were the most common before pregnancy. During pregnancy, walking, watching TV, reading, and various activities at home were the most common activities among women, but most of them were not physically active. Hungarian women were more active than Jordanians in all three observed stages. Nevertheless, they rated themselves less active than Jordanians. **Conclusion:** in both countries, more attention must be paid to pregnant women's recreational activities. For example, more special sessions must be organized and available for everyone.

Keywords: Recreation, Pregnancy, Physical activity.

**ÖSSZEFOGLALÁS:**

Az anyák világszerte fokozottan ki vannak téve az egészségügyi problémák kockázatának a terhesség előtti, alatti és utáni inaktivitásuk miatt. A szabadidős szokások országonként eltérőek lehetnek. E szokások összehasonlítása során szerzett tapasztalatok hasznos információkkal szolgálhatnak az egyes országok számára. **Célok:** megvizsgálni a magyar és jordániai nők szabadidős tevékenységeit, és összehasonlítani önértékelt általános egészségi állapotukat. Mindkét országban online kérdőívet alkalmaztak. **Eredmények:** A terhesség előtt a kocogás/futás és

az aerobik, a terhesség alatt a séta, a tévzés, az olvasás és a különféle otthoni tevékenységek voltak a leggyakoribbak, de a legtöbben egyáltalán nem voltak fizikailag aktívak. A magyar nők mindhárom megfigyelt szakaszban aktívabbak voltak, mint a jordániaiak. Ennek ellenére kevésbé tartották magukat aktívnak, mint a jordániaiak. **Következtetés:** mindkét országban nagyobb figyelmet kell fordítani a várandós nők szabadidős tevékenységére. Például specifikus foglalkozásokat kell szervezni számukra, és azokat mindenki számára elérhetővé kell tenni.

Kulcsszavak: rekreáció, várandósság, fizikai aktivitás

The rise of people's awareness about women's needs and rights has put a spotlight on pregnant women's health, leisure-time physical activity, and recreation. This correlation has received significant academic attention, from various studies conducted by several countries concerning leisure-time physical activity for pregnant women. Since leisure time is defined as the free time for an individual to practice any activity they desire, including resting or relaxation, recreation is defined as the activities practiced during leisure time for pleasure (Veal, A. J., 1992). Despite the enjoyment purposes, recreation has health and social effects; the health benefits are either emotional or physical, and the social benefits have a greater impact on society (Fenton et al., 2017). Many findings have shown that engaging in daily recreational outdoor sports benefits both physical and mental health (Weng & Chiang, 2014). Women during pregnancy go through a lot of physical/anatomical changes, Staying active during pregnancy has advantages for women's weight gain; women who remain active during pregnancy gain less weight than inactive women, and the big-

gest advantage of staying active is improving health (Health UCSF Medical Centre Women's, 2017). Small gains in exercise can reduce the number of illnesses linked to cardiovascular diseases. There are a few exercises that are specifically recommended for pregnant women, and these exercises have proven to favor both the mother and the fetus (Melzer et al., 2010). Before beginning the recommended workouts for pregnant women, women's physical health should be measured, and they must be supervised. In a study based in Sweden, researchers looked at pregnant women's pre-partum and early pregnancy physical activity and leisure time habits. The findings revealed that 47.1 percent of the women in the study did the recommended amount of exercise (Lindqvist et al., 2016). In Canada, where a survey compared non-pregnant and pregnant women's physical exercise, the accepted criterion for physical activity is 30 minutes or more for at least four days per week recommended by ACOG (Mota, P., & Bø, K. 2021). Only 23.3 percent of them met the Canadian standards, while 33.6 percent of non-pregnant women met the re-

quirements (Gaston & Vamos, 2013). All the countries that carried out this type of research had similarities in their results. But what about mothers in Hungary and Jordan? Do pregnant women in both countries practice similar activities and have the same lifestyles? This paper aims to address this research gap. We investigated the leisure-time physical activity and recreational habits of women who had experienced pregnancy at least once in both countries and compared them to each other.

BACKGROUND

Pregnant Women's Health

Women's health and nutritional status can be affected by several factors such as individual behavior and psychological factors, health and nutrition services, social and cultural factors, and biological factors (Arulkumaran & Johnson, 2012). The first leading cause of death in Jordan is ischemic heart disease for both genders (CDC.gov), with a maternal mortality rate of 38.5 in 2020, highly affected by COVID-19 as the first cause of death with 20.3%, followed by 14.1% of pulmonary embolism (URC-CHS, 2022). Cardiovascular diseases remain the leading cause of death for Hungarian women with 55% in 2014 (Country Health Profile 2017 – Hungary), while the maternal mortality rate was 12 per 100,000 live births in 2017 (The World Bank, 2019). Also, certain conditions can be aggravated during pregnancy, these complications might leave permanent damage even after delivery (Arulkumaran & Johnson, 2012). When it comes to socioeconomic factors, low-income women had a greater frequency of several chronic illnesses and risk factors (Bombard JM, et al., 2012). In low-income countries usually, women are poor and less educated so they don't recognize their health problems properly and as a result, they don't seek any health care. Also, in developing countries women are suffering from malnutrition, which affects their newborn children, usually, they will be delivered at low weights. Nevertheless, Jordan is considered to be a third-world country (developing) (world population review) the income is declared an upper middle class, while Hungary is ranked as a second-world country with a high income (The World Bank, 2022). Even though, delivery of a child should proceed with skilled staff in all countries whether high-income or low-income. The health services for women need a lot of improvements, in addition to providing programs and recommendations regarding physical activity during pregnancy (Arulkumaran & Johnson, 2012).

Similarities in both countries

Hungary and Jordan are similar in a lot of things, starting with the land area Hungary's land area is 90,530 Km² with a 9,612,493 million population and a life expectancy for both sexes of 77.31 years (world meters, Hu). On the other hand, Jordan is located in the middle of the middle east and has a land area of 89,342 Km² with a population of 10,406,437 million and a life expectancy average of 75 years (world meters, Jo). The question is do people in these countries do the same recreational activities during leisure time? Studies show that living a sedentary life is a risk factor for various causes of death, morbidity, and disability. There is a lot of research comparing Hungary's health care system to other European countries, but no trace of studies comparing Hungary to Jordan or another Arabic country was found. An active lifestyle is highly related to mental and physical health, it provides longer years free of chronic diseases. In a research-based in Hungary (Makai et al., 2020), they were able to show that the levels of physical activities of healthy adults were improved using e-health programs. Another research measured how recreational and physical activities improved the quality of life for seniors in Hungary (Rétsági et al., 2020). In Arab countries including Jordan, physical inactivity is high among adults and children based on different factors, multi-sectoral efforts are needed such as increasing the awareness about the recreational and physical activities benefits, collaboration of ministries of health, sports, youth, and education (Sharara, Akik, Ghattas, & Obermeyer, 2018). In a cross-sectional study about leisure-time physical activity in Jordan (Barghouti, AbuRmaileh, Jallad, & Abd-Qudah, 2015) they concluded that participation in leisure-time was low, even though 50% of the Jordanians were aware of the health benefits coming from engaging in activities including physical activities. Further research should be done concerning recreation in Jordan, active lifestyle differences in both countries, and health aspects.

Pregnancy and exercise

Women go through a lot of physical changes during pregnancy, they usually gain weight, their body shapes differ and other changes happen in chemistry and function. The heart works more, body temperature increases a little bit, joints and ligaments especially in the pelvic area are more flexible and body secretions rise. Also, due to hormonal alterations and fatigue, a lot of mood swings can happen. Because of these various changes that happen in the woman's

body during pregnancy they go through a lot of discomforts such as nausea, vomiting, constipation, frequent urination, heartburn, fatigue, insomnia, dizziness, hemorrhoids, swelling in hands and feet, breast tenderness, leg cramps and backache (Health UCSF Medical Centre Women's, 2017). Some exercises are recommended especially for pregnant women, these exercises have shown noticeable benefits to both the mother and the fetus (Melzer et al., 2010). Staying active can help decrease maternal weight gain and promote a sense of well-being if done regularly (Barakat et al., 2011). It has been shown that exercise decreases the risk of pre-eclampsia, relieves pregnancy-related musculoskeletal conditions including back pain, decreases discomfort in musculoskeletal symptoms, reduces the frequency of muscle cramps, reduces lower limbs edema, and fatigue, and treats or prevents gestational diabetes (Babbar et al., 2012). Aerobic exercises in specific were shown to reduce gaining body fat and improve maternal heart health, and circuit training improves fetal heart function and development (Moyer et al., 2015). Aerobic fitness gets better in the case of active women compared to inactive ones, they have lower sleeping heart rates, and improvements occur related to shortness of breath (Melzer et al., 2010).

Leisure-time physical activity (LTPA)

There are a lot of studies based on countries related to leisure-time physical activity for pregnant women. In Sweden, they investigated pregnant women's pre-partum and early pregnancy physical activities during leisure-time, the results showed that out of the selected population 47.1% of women performed the recommended level of exercise, and almost all of these women had a low BMI, very good self-rated health and high education level (Lindquist et al., 2016). Another cross-sectional study in Spain examined the LTPA spent by pregnant women in their first half of pregnancy following the standards of the American College of Sports and Medicine (ACSM) and the American College of Obstetricians and Gynecologists (ACOG). Results showed that one in five women followed the ACOG criteria in LTPA, while seven of ten followed the easier criteria of ACSM. Also, younger women and the less educated participated less in activities, which points out that in the case of this category of pregnancy more information should be given about the advantages of exercise and the recommended programs for them (Amezcu-Prieto et al., 2011).

A study in Serbia examined the LTPA in the case of pregnant women during the first trimester. The results showed that 27.2% of pregnant women were inactive, and this inactivity was related to low education levels, and poor self-rated health (Todorovic et al., 2020). On the other hand, pregnant women in Brazil showed lower participation percentages in LTPA. 14.8% were active in the months preceding pregnancy, and 12.9% during pregnancy. In the first trimester 10.4% were active, 8.5% in the second half of pregnancy, and 6.5% in the third trimester. In total, only 4.3% were active during the whole pregnancy. While in Canada, a study compared the physical activity of non-pregnant and pregnant women.

Results showed that almost 85% of pregnant women participated in leisure activities, 58% in regular exercises, and in total, only 23.3% of them met the Canadian criteria, while 33.6% among the non-pregnant women followed the recommended guidelines (Gaston & Vamos, 2013). Ultimately all of the previously mentioned research results showed that the performed activity by pregnant women was walking, followed by swimming and household work.

Women's physical activity in both countries

In a study concerning the effect of physical activity on the quality of life for pregnant women in Hungary, the results indicated a positive influence on the quality of life of mothers. Before pregnancy, 84.1% participated in physical activity, and during pregnancy, only 41.8% continued. The study showed that pregnant women become less active during pregnancy, but women who kept participating in physical activity showed enhancement in their mental health and lifestyle (Csernák, G., et al., 2018). On the other hand, in Jordan, the findings of a study indicated that the Department of Physical Education College's position in supporting women's sports and reducing the barriers and obstacles faced by female students of the Faculty of Physical Education was modest in general (2016, حسونة & الببطيني). Another study based in Amman, the capital of Jordan found that athletic mothers' role in raising athletic generations contributes significantly to the Society's sporting achievements. According to the study's findings, the author suggested encouraging women to continue exercising because this directly affects how early in their age children adopt sports and engage in activities during leisure-time (2013, نادر & الببطيني). More research should be conducted, regarding pregnant women and their physical activity in Jordan.

METHODS

The survey type was a questionnaire, and the design of questions was multiple choice. The sampling method was a non-probability voluntary response sample. The questionnaire was conducted online randomly for two weeks, using Google Forms, permission was granted from the participants through the questionnaire, and their responses were collected anonymously. The participants' surveys were divided into two based on nationality. The Hungarian women received a Hungarian questionnaire, and the Jordanian women received it in Arabic. The final results were translated into English, analyzed, and compared between Hungary and Jordan. Also, the results were compared to each other in the same country based on the pre-, during, and postpartum phases.

The data were analyzed using Excel and the Statistical Package for the Social Sciences (SPSS), version 25.0. (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0, IBM Corp., Armonk, NY, USA). The mean and standard deviation were estimated for numerical variables, as well as absolute numbers and percentage of the occurrence of answers for categorical variables. Pearson's chi-square test was used to investigate an association between two categorical variables. The student's t-test was used to compare the Likert scale questions.

Demographics

91 mothers from Jordan and 52 mothers from Hungary who experienced pregnancy and have at least one child participated in the study. 71.43% of Jordanian moms and 69.23% of Hungarians were college/university graduates. Hungarian women's age was mostly 25-34, while respondents' age from Jordan was more distributed into different age groups equally between 25-34 and 35-44. 78.02% of Jordan were unemployed in comparison to the Hungarians 23.08%. Usually married women in Jordan are unemployed, even though this case is changing nowadays there are still a huge number of women who leave their jobs once they got married. In both Jordan and Hungary, the participants were (97.80% - 78.85%) married, respectively. In the Jordanian religion and culture, it's not allowed for women to give birth to children without being married, that is why no one identified herself as a single mother or in a relationship, it is either married or divorced. Children's number is different in rates, Hungarian women had 11.54% for 3 or more children, while Jordanian women had 54.95% for 3 or more children. Jordan's growth rate is

considered a rapid one (World Population, Jo), while Hungary has a negative growth rate which is completely the opposite (World Population, Hu). This explains why Hungarian women replied the most having only 1-2 children.

RESULTS

Leisure-time activity participation

Results in leisure-time activities participation were very close in both countries. 58% of Hungarian women answered they take part in leisure activities, while 51% of Jordanians did so. The difference between the two countries is not significant ($p=0.410$).

Time spent in physical activities

Before pregnancy, physical activity for women in Jordan was ranging from not active at all or for 1-2 days, while Hungarians ranged between 1-2 days to 3-5 days. These results showed that women even before pregnancy used to spend the least time in activities or no time at all in Jordan, which indicates women live a physically inactive lifestyle even if they are not pregnant. Hungarian women indicated to be physically more active ($p < 0.001$).

During pregnancy, women in both countries became physically less active. The ratio of those being physically active for more than 5 days dropped to 3.3% for Jordanians and 5.8% for Hungarians, and the ratio of those who were physically not active at all increased by 46.2% and 25% for Jordanians and Hungarians, respectively. This affected the time spent in the recommended timetable of physical exercises, in both countries a higher number of women spent < 30 mins in physical exercise, and a few stayed active to the same extent as before pregnancy. Between Hungarian and Jordanian women the frequency of weekly/daily physical activity during and after pregnancy is significantly different ($p < 0.050$). (Figure 1. and Figure 2.)

Figure 2. shows the total average time spent on physical activity per day in the two countries. In the case of Hungarian women before pregnancy, the time frame 30-59 minutes spent on physical activity gained the highest percentage (51.9%), while for Jordanian women the time frame < 30 mins per day was chosen the most frequently (59.3%), meaning that they weren't active at all or they did the least amount of physical activity which is < 30 mins. As for during pregnancy, Hungarian women showed a decrease in the time spent in physical activities, 46.2% spent < 30 mins, while the Jordanian women's percentage increased to 73.6% in the same category.

Recreational activity preferences

Mental recreational activities

The most activity performed by mental recreation for Jordanian women was home maintenance (*gardening...etc.*) followed by reading/watching tv and walking, for Hungarians it was different, starting with reading/watching tv, then walking, followed by home maintenance. Outdoor activities such as camping came in fourth place for both countries. During pregnancy, women in both countries became less active. Interestingly, walking in parks or trails for relaxation purposes became the most activity performed in mental recreation activity followed by home maintenance in Jordan, and reading/watching tv in Hungary.

After pregnancy in a few months, women almost returned to the same habits as they had before pregnancy, with little differences. In Jordan, walking and home maintenance was the most frequent activity followed by reading/watching tv, while in Hungary the order was walking followed by reading/watching tv and home maintenance among the mental recreation activities. Yoga/Pilates had the lowest participation rate in all three phases.

The results showed that there wasn't much diversity in doing an activity, the first three places were occupied by reading/watching tv, household work, and walking. But the order of these activities changed based on the phase, which means that the priorities of these women changed as an effect of pregnancy.

Physical recreational activities

Before pregnancy among the physical recreation activities running came first, followed by aerobic classes for both countries. Seven (~ 8%) women from Jordan reported that they were not active at all, and two (~ 4%) did so from Hungary. Swimming and weight lifting were in third place for Jordanian women, and weight lifting alone for Hungarian women. While during pregnancy the number of those performing physical recreational activities decreased, jogging and aerobic classes were still the most popular in terms of participation. Swimming was the preferred activity performed by pregnant women in previous studies, but in Jordan and Hungary both, women barely participated in it. 16 (~ 18%) women from Jordan and 12 (~ 23%) women from Hungary reported that they didn't do any physical recreation activity. After pregnancy, jogging and aerobics still had the highest rates, however, the Hungarian women participated less than before the pregnancy phase. Women who didn't participate in any activities after pregnancy

Figure 1. How many days are you active per week

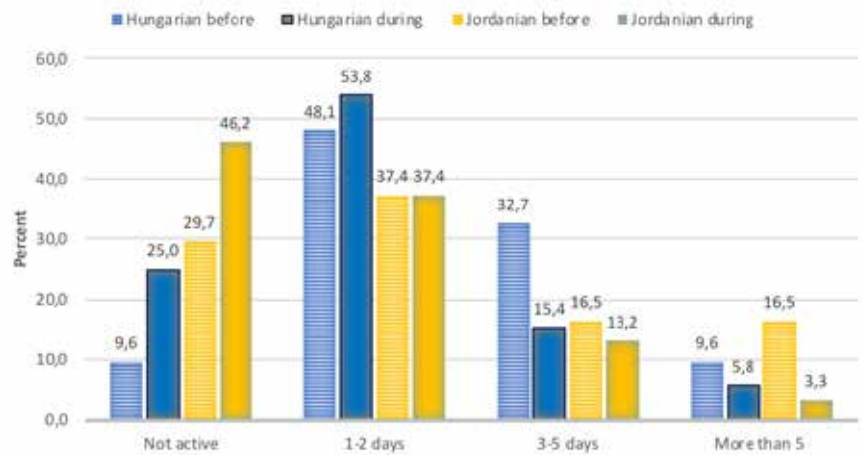


Figure 2. Total average time per day in activity

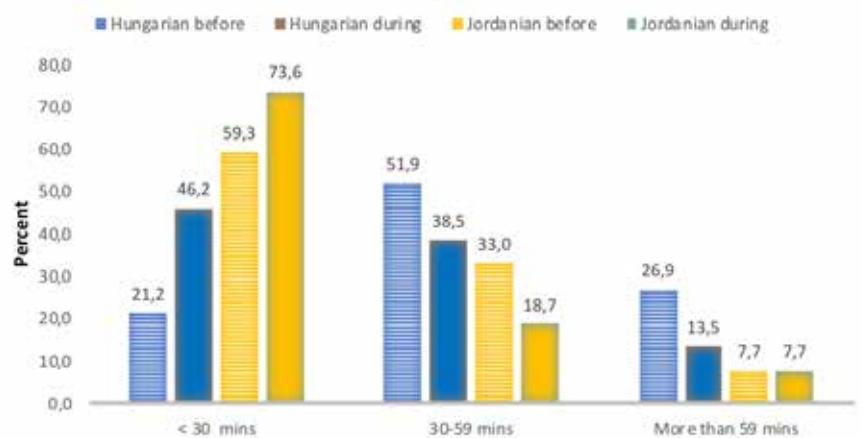
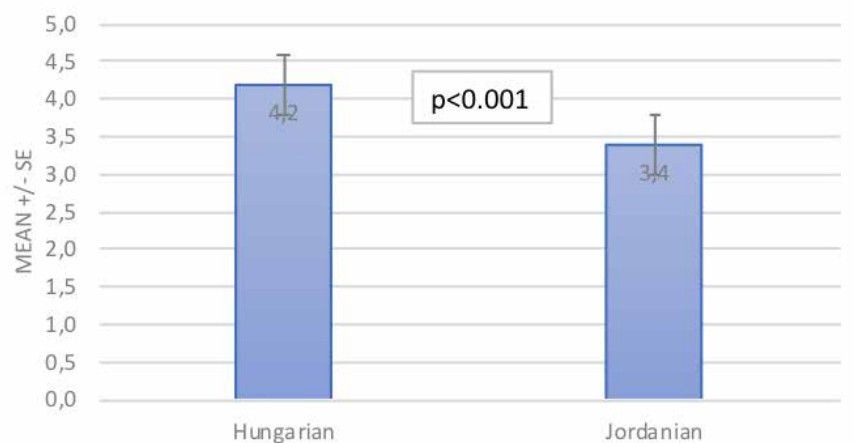


Figure 3.

Self-evaluation of health



were 8 (~ 9%) from Jordan and 9 (~ 17%) from Hungary. The findings show during pregnancy, women tend to be less active and change their activity preferences. But after pregnancy, they mostly returned to the normal activities they used to do before.

Self-evaluation of health and physical activity

Likert's scale questions were administered for self-evaluation concerning

pregnancy and physical activities. The rating scales ranged from 1 (= *poor*) to 5 (= *excellent*).

Women who considered their health very good were the highest in numbers in both countries, the mean and standard error of health in the two countries are shown in [Figure 3](#).

Based on the average scores, the Hungarian women considered their health to be significantly better than the Jordanian women ($p < 0.001$)

The results showed that Hungarian women spent much more time in activities than the Jordanian women, but the Jordanians still highly rated themselves as active people, which could be related to their understanding of the word active. (Figure 4.)

Jordanian women mostly agreed on not having enough time for activities, while Hungarians half of them agreed, and the other disagreed. Jordanian women highly agreed with changing exercises to lighter ones during pregnancy while Hungarians disagreed. Most women in Jordan were neutral and agreed to go back to previous activities before pregnancy, while Hungarian women mostly strongly disagreed, the mean and standard error are shown in Figure 5.

The difference between the two countries is statistically not significant ($p=0.890$) shown in Figure 6.

Women in both countries had no differences regarding changing their activities to lighter ones or going back to the same activities after pregnancy. (Figure 6.) Both countries had the highest rates of never participating in any physical activity for pregnant women, followed by sometimes and lowest in always joining physical activity classes. (Figure 7.) This indicates that there isn't enough focus on pregnant women's activity, and there isn't any availability for such classes that are made specifically for pregnant women.

CONCLUSION

Based on a comparative analysis of recreational activities for all the mothers who have at least one child, concerning their activities before, during, and after their pregnancy between Hungary and Jordan, it can be concluded that women before pregnancy participated almost in the same activities, there was not any noticeable difference in the activity preference. Considering the differences in the income, growth, and development of each country, Hungarian women were more active than the Jordanians in the time spent on activities. Walking was the preferred mental recreational activity during leisure-time in both countries. In addition, the most common activities in physical recreation were jogging/running and aerobic classes in both countries during all phases. Women who want to experience pregnancy should be aware of the recommended activities during this period and be more aware of their maternal health concerning recreational activities during leisure-time. City recreation departments in both countries should offer more care to pregnant women concerning their activities, such as offering specific classes for pregnant women led by recreation specialists and

Figure 4.

Maternal activity evaluation

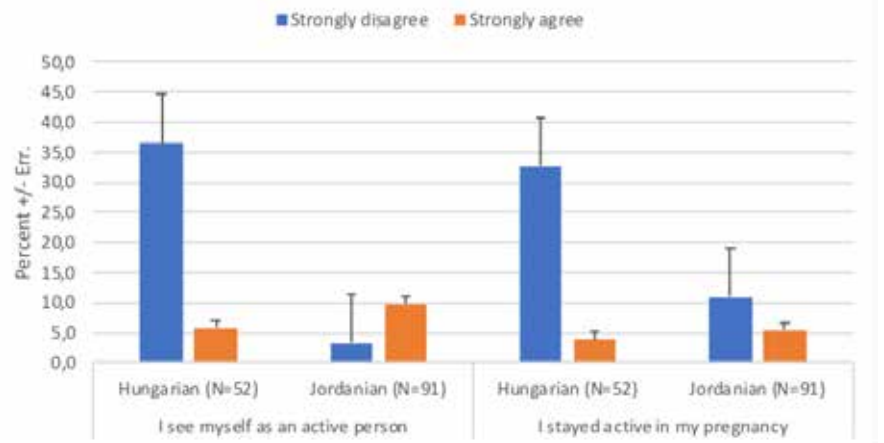


Figure 5.

Activity before, during and after pregnancy

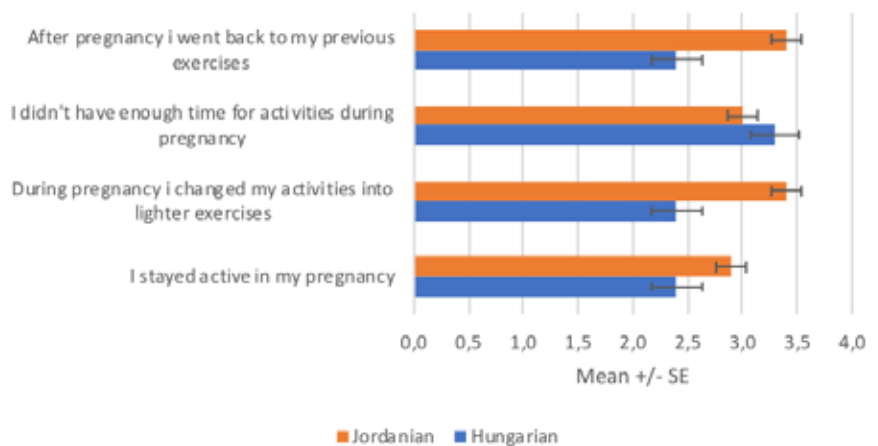
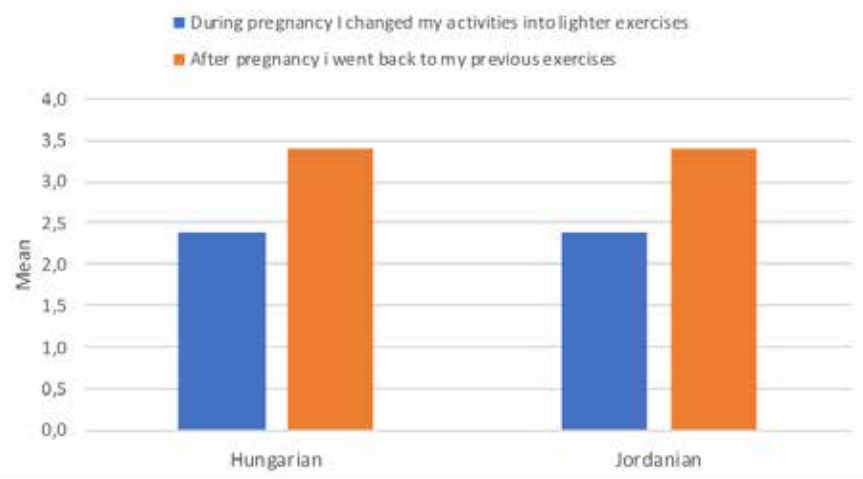


Figure 6.

Maternal and postpartum activities



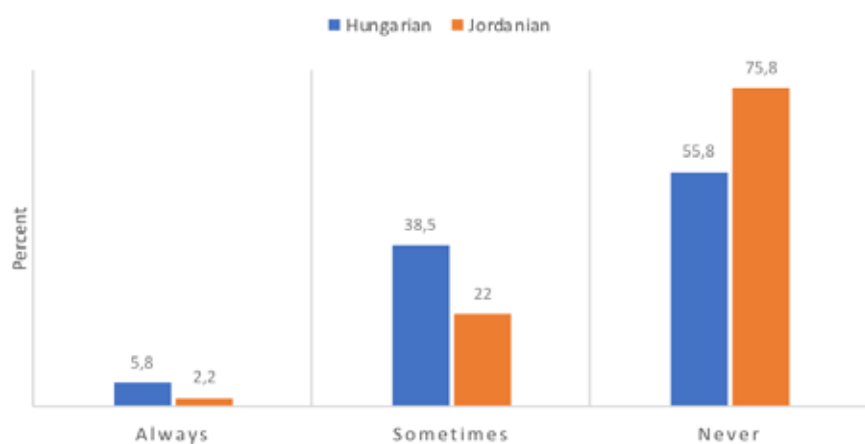
making them available and reachable for everyone, by following recommended exercises that act as a guide for pregnant women under supervision.

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Figure 7. During pregnancy I have joined physical activity classes for pregnant women



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