ERASMUS+ COOPERATION PARTNERSHIPS IN SPORT

"FIT-BALKANS"

Improving the Subjective Wellbeing of Young Women in Balkans through Interventions in their Physical Activity

Project n° 101049997_Fit-Balkans

BACKGROUND STUDY

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DISCLAIMER

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1- Worldwide trends in physical activity

Physical activity (PA), food, and reproduction are some of the minimal requirements for life. Physical activity behaviours are changing rapidly (Ng & Popkin, 2012). In modern life, humans can engineer most physical activities into their daily lives, even choosing not to be physically active (Ng & Popkin, 2012). Although more than 70% of countries have an operational physical activity policy, the scale and reach of its implementation are yet to have a national impact (World Health Organization, 2018; Sallis et al., 2016). One of the significant reasons for PA in the past few decades is the advancement in aesthetics and physical appearance to achieve the image of the perfect male and female bodies (Martinovic et al., 2021).

One way to explain gender differences in PA is to evaluate the participation of males and females in different areas of PA (at work, household, for transport, and during leisure time) and at different intensities (moderate and vigorous) (Guthold et al., 2018). Besides that, associations between changes in marital status and lifestyle behaviours such as food choices and physical activity are important (Barnekow-Bergkvist et al., 1996; Brown et al., 2009).

Several studies confirm that women tend to do less leisure time and lower-intensity physical activity than men (Guthold et al., 2011; Koohpayehzadeh et al., 2014; Mielke et al., 2018); generally, women have lower physical activity than men (Althoff et al., 2017; Koohpayehzadeh et al., 2014; Ranasinghe et al., 2013).

Physical activity is significantly varied across regions and income groups, and some data shows that being overweight or obese is significantly associated with household income (Grujičić et al., 2022). In wealthier countries, the transition to more sedentary occupations and personal motorized transportation explains the higher levels of inactivity. Conversely, in lower-income countries, more activity is undertaken at work and for transport (Guthold et al., 2018).

1-1- Definitions of forms of physical activities

Following World Health Organization "WHO" guidelines, there are many types of physical activities (WHO, 2022). From the point of view of some researchers, physical activity includes shopping, gardening, riding a bike to work, or walking upstairs. Exercise is a type of physical activity planned and structured to improve physical fitness (Senter et al., 2013).

As stated by the Centers for Disease Control and Prevention "CDC," there are two types of physical activities: moderate and vigorous. During moderate physical activities, heart rate and breathing are faster than normal, but there is the possibility of carrying on a conversation. Also, the heart rate increases substantially in vigorous activity, and breathing is too hard and fast to have a conversation (CDC, 2022b). The definition of Physical Activity and Exercise by WHO (2020), CDC (2022b), and HHS (2018) is introduced below:

Physical activity definition

WHO: *"Any bodily movement produced by skeletal muscles that requires energy expenditure."*

CDC: *"Any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level. Physical activity generally refers to the subset of physical activity that enhances health."*

HHS: *"Physical activity. Any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level. In these Guidelines, physical activity generally refers to the subset of physical activity that enhances health."*

Exercise definition

WHO: "*A subcategory of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective. "Exercise" and "exercise training" frequently are used interchangeably and generally refer to physical activity performed during leisure time with the primary purpose of improving or maintaining physical fitness, physical performance, or health."*

CDC: "*A subcategory of physical activity that is planned, structured, repetitive, and purposive in the sense that the improvement or maintenance of one or more components of physical fitness is the objective."*

HHS: "*A form of physical activity that is planned, structured, repetitive, and performed with the goal of improving health or fitness. All exercise is physical activity, but not all physical activity is exercise."*

1-2- Physical activity dose

Considering that people differ greatly in how much PA they need, the levels of physical activity are a concept to describe how much regular aerobic physical activity a person gets (HHS, 2018). PA and its intensity are categorized into different levels, see Table 1, which are related to how many health benefits a person obtains at a given level.

Table 1: Categorizing of levels of Physical Activity and Physical Activity Intensity. Source: HHS, 2018.

Category	Definition
Inactive	Any moderate or vigorous-intensity physical activity beyond basic movement from daily activities.
Insufficiently active	Some moderate or vigorous-intensity PA less than 150 minutes of moderate-intensity PA in a week or 75 minutes of vigorous-intensity PA or the comparable combination. This level is less than the target scop for the primary guidelines for adults.
Active	It is equivalent to 150 to 300 minutes of moderate-intensity weekly physical activity. This level is lower than the target range for meeting the critical guidelines for adults.
Highly active	It is the equivalent of more than 300 minutes of moderate-intensity weekly PA. This level exceeds the guideline target range for adults.
Light-intensity activity	It is non-sedentary waking behaviour that requires less than 3.0 METs, including walking at a slow or leisurely speed, cooking activities, or light household works.
Moderate-intensity activity	It is contained 3.0 to less than 6.0 METs, including walking briskly and playing doubles tennis.

Vigorous-intensity activity	It requires 6.0 or more METs; examples include jogging, running, carrying heavy groceries or other loads upstairs, shoveling snow, or participating in a strenuous fitness class. Many adults do no vigorous-intensity physical activity.

Physical activity is so important that patients not enrolled in a formal cardiac rehabilitation program can be prescribed aerobic exercise for 30 minutes at least five days a week at a moderate intensity or 65 %–85 % of peak heart rate. Despite the health benefits that may be reaped from exercising, most people who live in the USA do not meet the recommended daily dose of 30 minutes of moderate-intensity exercise most days of the week (Lavie & Milani, 2011).

2- Application of exercise to prevention categories and physical inactivity consequences

Physical activity is crucial for healthy aging, which can reduce the rhythm of chronic diseases1 and prevent early death (CDC, 2022c). Chronic disease is a disorder or impairment of the normal state of well-being that requires continuous treatment, diagnosed by a specialist (ESCWA, 2021). Higher physical activity levels may extend life expectancy relative to the average lifespan for the physically active population (Booth et al., 2012). Moreover, there is a strong association between PA and important non-communicable diseases (NCD), so the members of WHO agreed to a 10% relative decrease in the prevalence of insufficient PA as one of the nine global targets to improve the prevention and treatment of NCD by 2025 (WHO, 2013).

Physical inactivity is insufficient to meet present physical activity recommendations (WHO, 2020). On the other hand, physical inactivity involves less physical activity levels required for optimal health and the prevention of premature death (Booth et al., 2012). Globally, in 2016, 27.5% of all adults were of insufficient PA, with lower activity in women than in men (31.7% vs. 23.4%), which represents a risk for adults due to possible risks of developing or exacerbating diseases connected with inactivity (Guthold et al., 2018).

Chronic diseases are major killers in the modern era. Physical inactivity is a primary cause of most chronic diseases (Booth et al., 2012). Physical activity helps to: maintain weight; reduces high blood pressure, the risk of type 2 diabetes, heart attack, stroke, the risk of osteoporosis; symptoms of depression and anxiety; delays the onset of dementia and several forms of cancer (CDC, 2022b); HHS, 2008; ISPAH, 2017; Warburton et al., 2010). For example: in the nurse's health study, obese patients who exercised 3.5 hours per week significantly decreased their risk of coronary artery disease compared with obese patients who did not exercise (Li et al., 2006). Furthermore, higher levels of physical activity are significantly associated with improved quality of life and reduced fatigue in women with breast cancer (McNeely et al., 2006).

It is essential to understand that some mechanisms by which inactivity causes chronic diseases differ from mechanisms by which exercise acts as primary prevention of the same diseases

[1] Chronic disease is slow in its progress (decades) and long in its continuance, as opposed to acute disease, characterized by a swift onset and short course (Booth et al., 2012).

(Booth et al., 2012). Hence, the global recommendations of WHO and CDC for physical activity for the population aged 18 to 64 years emphasize that consistency in the frequency, duration, intensity, type, and total amount of daily (regular) PA is necessary to reduce the risk for NCD (WHO, 2022; Bull et al., 2020).

2-1- Physical activity and chronic diseases

The displacement of the human lifestyle from being physically active in the natural outdoor environment to a sedentary indoor one is the root of many endemic and chronic diseases (Bouchard et al., 1989). Overwhelming evidence proves that reductions in daily physical activity are the primary causes of chronic diseases and that physical activity, or exercise, is a rehabilitative treatment for dysfunctions caused by inactivity (Booth et al., 2012).

An underappreciated primary cause of most chronic conditions is the lack of exercise or sufficient daily physical activity ("physical inactivity") (Booth et al., 2012; HHS, 2003; Strong et al., 2005). Also, insufficient physical activity is a significant risk factor for NCD and deteriorates the quality of life and mental health (Guthold et al., 2018).

Inactivity causes loss of functional capacities and decreases in the capacities of functional systems, leading to premature deterioration of health in humans and raised risk factors for 30 chronic diseases (Booth et al., 2012). Moreover, an increased risk of developing colon cancer has been associated with inactivity (Wolin et al., 2009), while it also causes up to 1/3rd of depression (Booth et al., 2012). According to the National Health and Nutrition Evaluation survey, patients with depression are less likely to participate in vigorous physical activity than those without depression (Booth et al., 2012; Song et al., 2012). Infact, inactivity causes depression, and depression causes inactivity.

Physical activity can help manage the conditions and complications of people with chronic diseases (CDC, 2022c). However, exercise and chronic diseases are complex polygenic conditions (Booth et al., 2012).

2-2- Physical inactivity and mortality

The extensive evidence establishes that PA deficiency hurts almost all cells and organs in the body and causes dysfunction and accelerated death (Booth et al., 2012). In other words, less physical activity shortens years of lifespan relative to the average (Fraser & Shavlik, 2001). For example, the cardiovascular mortality risk in physically unfit individuals with less physical activity is more than in obese people with PA (Fogelholm, 2010). Conversely, exercise training leads to modest reductions in all-cause mortality and hospitalization in heart failure patients (Flynn et al., 2009).

Healthy behavioural choices in Californian Adventists extend life expectancy by several years, even as much as a decade (Fraser & Shavlik, 2001). Research about Swedish Monozygotic twins (derived from a single ovum "MZ") shows that the higher physically active MZ had lower mortality than their inactive MZ pair (Gillespie et al., 2012). PA also prevents premature mortality caused by NCD non-communicable diseases include: insulin resistance, diabetes, dyslipidemia, hypertension, cardiovascular disease, chronic obstructive pulmonary disease, and others) (Bull et al., 2020; Golightly, 2017).

2-3- The lasting effects of exercise on well-being and physical fitness

There is considerable evidence supporting the health benefits of physical activity and exercise. In the view of Booth et al. (2012), exercise is a primary, secondary, and tertiary preventer of disease are as follows:

- Primary prevention (direct treatment of cause to prevent disease occurrence) is voluntary avoidance of physical inactivity or treatment of physical inactivity with physical activity;
- Secondary treatment [eliminating one cause (physical inactivity) of existing hypertension by eliminating physical inactivity] is the treatment of existing hypertension with physical activity;
- Tertiary prevention with physical activity is cardiac rehabilitation, where exercise benefits do not reverse the anatomical pathology from myocardial infarction. The most significant health benefit of physical activity is the primary prevention of 35 chronic diseases to become clinically overt.

Physical activity improves mental health across the lifespan (Hillman et al., 2008). Regular PA reduces the risk of being overweight and obese, causes symptoms of depression and anxiety, improves the process of thinking, learning, and judgment, and ensures healthy growth and development of young students (Bull et al., 2020; Golightly, 2017). Women who reported being physically active at any point in life had a lower likelihood of cognitive impairment in late life (Middleton et al., 2010).

Exercise is a low-risk, beneficial treatment for many common medical problems faced by women in the United States, from coronary artery disease to osteoporosis to osteoarthritis (Senter et al., 2013). Moreover, PA results in both gravitational and muscle-contraction loading of the skeleton and, therefore, is the primary prevention of osteoporosis (Booth et al., 2012). Considering mental health, PA can prevent 20–30% of depression. So, moderate- and vigorous-intensity PA improves health (World Health Organization, 2022), and physically active individuals tend to take fewer sick days (CDC, 2022c). The patients benefit the most from an exercise intervention (Senter et al., 2013).

3- Relation of physical activity with women's well-being and quality of life

Well-being both physical and mental is directly associated with physical activity. Women's physical activity patterns are often established at a young age, however different stages of a woman's life present various age and lifestyle related barriers. For example, among girls and young women, adolescence often marks a substantial reduction in engaging in physical activities, as the activities in which girls participated during childhood are abandoned (Mulvihill, Rivers, and Aggleton 2000). Young and middle-aged women on the other hand, have time constraints as they need to cope with increased career and family responsibilities, while the physical condition of older women deteriorates preventing them to endorse to PA as easily (Ansari and Lovell 2009). Still, PA is important in all ages as it contributes to the improvement of well-being.

3-1- Physical activity and women's well-being

Well-being can be determined through several standardized questionnaires. Some examples follow:

- General Health Questionnaire, GHQ, (Goldberg 1978)
- Affectometer, (Kammann and Flett 1983)
- Beck Depression Inventory (BDI) (Beck, Steer, and Brown 1987)
- Health Questionnaire for Adults (HQA) (Pietilä, 1994)
- Medical Outcomes Study (MOS)
- MOS Short-Form General Health Survey (Monica and California 90401-3208 n.d.)
- Gothenburg Quality of Life Instrument (GQL), (Tibblin et al. 1990)
- Rosenberg Self-Esteem Scale, (Rosenberg 2015)
- Subjective Vitality Scale, (Ryan and Frederick 1997)

Numerous studies exploring the association between women's PA and well-being can be found in international literature, with their results indicating a positive correlation of PA and well-being (Brehm and Iannotta 1998; Molina-García, Castillo, and Queralt 2011; Staurowsky et al. 2015). Different age groups are considered, and the ones most commonly explored are students, middle-aged and older women, while studies on young women (e.g. 26-40years) are less frequent. A major difference between the studies is once again the definition of PA, the definition of well-being and the subsequent instrument/scale utilized. The following part of this section presents indicative findings from some studies.

A very detailed report by Staurowsky et al. (2015) accumulating the findings of numerous studies on the association between PA and well-being of American girls and young women reports negative associations considering cardiovascular disease occurrence, cancer (risk and post-cancer diagnosis), obesity, osteoporosis, Alzheimer's disease and related dementias, substance abuse (tobacco, alcohol, drugs or other substances), depression, anxiety disorders and suicide, among others. Evidently body image is positively associated with PA, while considering self-esteem international research presents contradictory findings.

Brown et al. (2000) explored the relationship between physical activity (as described through the frequency of engaging in vigorous exercise lasting 20 minutes or more) and well-being on three different populations: young women (ages 18-23), middle-aged (45-50 years) and older women (70-75years). They explored well-being through three indicators – namely: vitality, general health and mental health. In general increase of PA resulted in an increase of all three well-being indicators for the young and middle-aged population. What differed was the magnitude of increase, which was in most cases greater for the lower levels of PA, while for the intermediate and higher PA values the increase rate was generally lower. For older women, an exception was found in the pattern involving mental health, where after a particular threshold value of PA, mental health deteriorated with the increase of PA.

Kull (2002) explored a group of women aged 18-45. The reason for selecting this age group was that it is linked with most of the gender-specific factors that are associated with women's poor mental health. These include stress from relationships, giving birth, domestic violence, poor status work, poverty, weight and body image concern and the difficult of dividing attention between the roles of the parent and the worker (O'Leary and Helgeson 1997). PA activity was

described through its frequency as: active (participating in PA 3 or more times a week), moderately active (participating in PA 1-2 times a week) and inactive (participating in PA less than once a week). Physically active women perceived themselves as healthier individuals, while they also exhibited a more positive attitude towards their life, they had less need of resting and complained less about ailing health. At the same time, inactive women were associated with low poor mental health and depressiveness. Active and moderately active women did not present significant differences considering their levels of mental health.

Blomstrand et al. (2009) associated women's PA with well-being, while a cross-sectional analysis was performed as they analysed data from an initial survey and three follow-up surveys of 12, 24 and 32 years after the initial one. Results indicated that over the years the proportion of inactive women remained more or less unchanged, the proportion of intermediately active women decreased, while the proportion involving high and very high PA increased. Statistically significant associations were found between changes in PA and in well-being during most of the study periods.

Bondarev et al. (2021) associated PA with the mental well-being of middle-aged women (47-55 years) following adjustments of different participant characteristics (e.g. body height, fat mass, menopausal status, marital and employment status and so on). In this research, PA ranged from household duties, leisure time PA to competitive sports. Results indicated that women with medium or high level of physical activity presented lower depressive symptoms, whereas negative affectivity did not seem to be affected by the PA levels. At the same time, PA was positively associated with positive affectivity, while 6 minutes of daily walking were linked with higher life satisfaction. A similar age group (45-55 years) was also studied by Netz et al. (2008) over a four year period, and results were consistent with similar studies: PA improves self-reported psychological well-being.

Peeters et al. (2014) explored the association of well-being with different types of PA, namely: house and garden and transport, for young (25-30 years), middle-aged (50-55 years) and older (76-81 years) women. Positive associations were found between transport and physical and mental well-being for all age groups, House and garden activities presented positive correlations for middle-aged and older women, however they were of a lower magnitude.

As already noted, it is evident that PA results in well-being improvement considering both physical and mental well-being. What is of interest though, is the determination of the optimal PA levels for the different sub-populations, as well as the design of measures that actually achieve the increase of PA. Brown et al. (2000) identified specific threshold levels for the different age groups in their studies. Several studies indicate that there is no statistically significant difference on well-being between intermediate or highly active women. Besides that, some studies indicated a negative association between well-being and PA, when PA is over a threshold value. Again, these results should be interpreted with caution, as it might be the other way round, that is: people with deteriorating well-being need to (and do) exercise more, to improve their condition. In general, the findings derived from studies such as those that have already been described might not be highly accurate, as another interpretation of these results could be that women that exhibit higher well-being indicators tend to exercise more, and not the other way round. Still, the majority of studies exploring the relationship between women's well-being and PA utilized the aforementioned approach. Another type of studies that provides

more reliable results is the randomised controlled trial (RCT) studies. Such studies explore dedicated interventions towards increasing PA and will be presented in a following section.

3-2- Women's motivational factors for physical activities

Given the established benefits of physical activities on both mental and physical health, as well as, on other aspects of our life, it is important to understand what motivates people to exercise. In particular, within the framework of Fit-Balkans, women's motivational factors towards physical activities are explored to facilitate the design of targeted and effective incentives that have the potential to increase the physical activity engagement of women.

International researchers have proposed different methodological approaches leading to different motivation classifications and have designed several tools to identify motivational factors for physical activities. Still, the majority of studies that explore male and female sub-populations note substantial differences between the two genders, irrespectively of the applied methodology.

Motivation differs considering the level of motivation (i.e. how much motivated one is) and the orientation of motivation (i.e. the type of motivation that one has) (Ryan and Deci 2000). Orientation refers to the underlying attitudes and goals that give rise to the action, hence motivational factors can be classified to intrinsic and extrinsic ones. The first involve doing something because it is inherently interesting or enjoyable, while the second involves doing something because it leads to a specific outcome. This approach is based on the Self-Determination Theory (SDT) and has proven to provide a solid foundation for exploring motivational factors (Rogers et al., 2008). It is also valid for motivational factors considering physical activities.

Standardised instruments for identifying individual's motives considering physical activity include the following:

- Reasons for Exercise Inventory, REI (Siberstein et al., 1988)
- Personal Incentives for Exercise (Duda and Tappe 1988)
- Motivation for Physical Activity Measure, MPAM (Frederick and Ryan 1993)
- Motivation for Physical Activity Measure – Revised, MPAM-R (Ryan and Frederick 1997)
- Exercise Motivations Inventory, EMI (Markland and Hardy 1993)
- Modified Exercise Motivations Inventory, EMI-2 (Markland and Ingledew 1997)
- Sport Motivation Scale, SMS (Pelletier et al. 1995)
- Exercise Motivation Scale, EMS (F. Li 1999)
- Participation Motivation Questionnaire, PMQ (Gill, Gross, and Huddleston 1983)

Indicatively, the EMI scale includes the following factor categories: stress management, weight management, recreation, social recognition, enjoyment, appearance, personal development, affiliation, ill health avoidance, competition, fitness and health pressures. The modified version of EMI, EMI-2, includes 51 items under the following categories: stress management, weight management, revitalization, social recognition, enjoyment, appearance, affiliation, ill-health avoidance, competition, health pressures, challenge, nimbleness, strength and endurance, and positive health (have a healthy body). The MPAM scale includes 23 items under three factor

categories: interest-enjoyment, competence and body-related reasons. Its modified version, the MPAM-R, includes 30 items, and the changes from the initial tool involve the division of body-related reasons to two categories – namely: fitness and appearance-based, and the addition of a category for social motives. Furthermore, specific items related to psychological health and competition are omitted in the modified version. The OMQ scale includes eight categories: achievement, team (affiliation/social), fitness, energy release, to be with others, skill, friends, fun.

Methodological approaches also distinguish between the different types of physical activity, for example whether these involve exercise or sport participation. Another distinction involves utilitarian and recreational exercise. Utilitarian exercise involves other activities that may also include some type of exercise, and includes household and gardening activities and transport i.e. walking or cycling. Utilitarian walking/cycling refers to walking or cycling for transport, while, the goal of recreational walking/cycling is to exercise or to have fun (Hekler et al. 2012). The manner in which activity is undertaken is also considered, for example, Kilpatrick et al (2005), described physical activity through frequency, duration, intensity and adherence. It is anticipated that the aforementioned different types or manners of physical activity are related to different motivational factors.

In an early study dated 1971, Cunningham (1970) noted that the main objective of female students (the sample involved students engaging in a physical education activity program) for participating in physical activities was to improve their fitness and health. These attitudes are still valid today, as most researchers identify these motives as the most significant ones. Motives for exercise among female students, were identified to involve extrinsic factors, as they were mainly related to physical and psychological health, body weight and appearance (Kilpatrick, Hebert, and Bartholomew 2005), while intrinsic factors such as enjoyment did not play such a significant role. One the other hand, the ranking analysis of motives for sports indicated that the most significant motives were affiliation, enjoyment, challenge and competition, while appearance and health related factors were the least important.

Motives related to weight and appearance comprise the primary objectives of women from early adolescence to older ages (Roychowdhury 2012; Egli et al. 2011; Morgan et al. 2003; Roberts, Reeves, and Ryrie 2015; Rodrigues et al. 2022; Caglar, Canlan, and Demir 2009; Martín, Moscoso, and Pedrajas 2013). Vučković, Krejač, and Kajtna (2022) conducted a study to explore college student motives for exercise after the Covid lockdown; weight management was still the primary motive. At the same time, Ednie and Stibor (2017), found that appearance motives were negatively correlated with exercise. In particular, participants who rated appearance motives more were less probable to engage in exercise activities. They attributed this result to the questions under which appearance was described. Al-Eisa et al. (2016) explored female college students' motivational factors utilizing EMI-2, and results indicated that positive health, ill-health avoidance and weight management were the predominant factors. Besides that, they divided their sample into two groups: the base and the intervention group. A number of exercise related triggers were communicated to the participants through their Instagram accounts in the intervention group. Results indicated a higher inclination to exercise for the intervention group, indicating that social media can effectively support the promotion of physical activity for the younger population.

Stress management or mood management, also appears as a contributory motivational factor in several studies, irrespectively of the methodology used. Cash, Now, and Grant (1994) utilized the REI method, and the items “to cope with sadness, depression” and “to cope with stress, anxiety” received very high scores considering the reasons to exercise. Kilpatrick, Hebert, and Bartholomew (2005) utilized the EMI-2 method and concluded that stress management factors motivate women towards engaging in physical activities.

Social relevant motives comprise yet another factor category related to women’s physical activity (Morgan et al. 2003; Rodrigues et al. 2022; Martín, Moscoso, and Pedrajas 2013) . Indeed, Vlachopoulos et al. (2013) noted that women are more often motivated to engage in exercise due to body image perception or social interaction, compared to men.

Exercise motives differ with individual’s characteristics including their body condition (e.g. as defined by the BMI) (e.g. see Zervou et al. (2017)), their character (examples include self-esteem, trait anxiety and social physique anxiety) (e.g. see Zervou et al. (2017)), their cultural and religious background (e.g. see Li et al., 2015), the amount of exercise that they perform (e.g. see Thøgersen-Ntoumani et al. 2007), their health condition (e.g. see Klompstra, Jaarsma, and Strömberg, 2015), and so on. Exercise motives depend on the amount of exercise that individuals engage in. Thøgersen-Ntoumani et al. (2007) found that women’s motives to exercise also differ considering the amount of exercise they perform. They divided their sample into three sub-groups, those who do not exercise, those who do some exercise (less than 2.5hours per week) and those who exercise for at least 2.5hours per week, which is considered to be the recommended amount of exercise. They concluded that women internalize exercise behaviour as they become more physically active, while controlling motives were still found to be pertinent. Exercise motives also depend on the cultural and religious background of individuals. C. Li et al. (2015) utilized a sample of Oman, Pakistan and U.S. undergraduate students. Improve health and appearance, and relaxation motives scored the highest for Oman women, improve appearance and relaxation for women in Pakistan and improve appearance and develop athletic skills for U.S. women.

Specific guidelines emerged through the study of international literature on women’s physical activity motives. Motivational factors may differ depending on the characteristics of the studied population, the instrument used to capture motives, as well as the definition of physical activity that is employed in the research. Apparently, there are more or less appropriate methods that depend mainly on the aim of the study, and the researcher should be careful when selecting the most appropriate ones. Although analysis results will be valid, regardless of the applied approach, comparisons with different datasets or studies should be performed with great caution.

3-3- Barriers in optimal physical activity and its overcoming

Many technological advancements and conveniences have made our lives easier and less active. Also, the environment in which we live significantly influences our level of physical activity. Still, many physiological, behavioural, and psychological factors may affect our plans to become physically active.

Physical inactivity commonly occurs throughout our life, particularly during adolescence and young adulthood (Silva, R.M.F., et al.,2022). Perceived barriers to physical activity are factors

a person views as impediments to physical activity (WHO, 2022). There are three barriers to engaging in physical activity across the adult lifespan: time, energy, and motivation (CDC, 2022a).

Barriers can be categorized into internal and external barriers. Internal barriers comprise personal factors such as preferences and attitudes, while external barriers involve the environment (Koh, Y.S. et al., 2022, Silva; R.M.F. et al.,2022). The most common personal factors that barriers adults do not engage in physical activity include insufficient time to exercise, non-enjoyment of exercise, lack of self-motivation, boredom with exercise, low self-efficacy and energy, fear of being injured, lack of self-management skills, lack of encouragement and support from family or friends, non-availability of parks, sidewalks, bicycle trails, or safe and pleasant walking paths close to workplace and home, etc. Also, some factors such as traffic, availability of public transportation, crime, and pollution affect physical activities as an environmental barrier (Sallis, J.F. et al.,2016). In addition, socioeconomic barriers permeate all of the barriers (Silva et al., 2022).

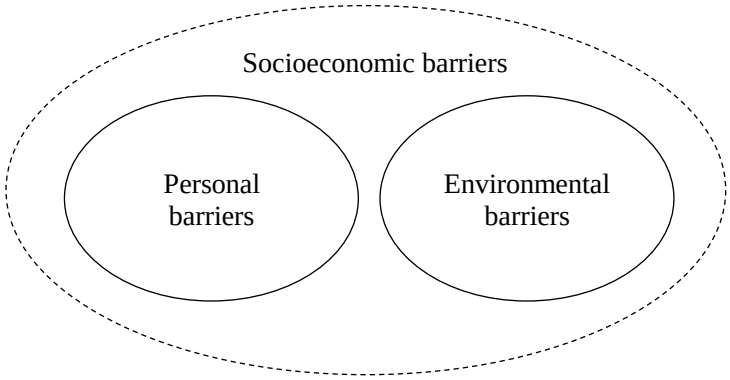

Figure 1: Barriers that effect to physical Activities. Designed by author.

Individuals can be motivated to overcome internal barriers (fatigue, lack of time, cost, and age) through social support and emphasis on exercise benefits. External barriers (weather and lack of pavements or parks) can be reduced by raising awareness of existing infrastructure. Sedentary behaviour can be improved by implementing workplace measures, such as reducing the time spent sitting (Koh Y.S. et al., 2022).

Understanding common barriers to physical activity and developing strategies to overcome them may help us make physical activity part of our daily life. To overcome the barriers to physical activity, the Centers for Disease Control and Prevention identified barriers and strategies, see Table 2, to overcome.

Table 2: Suggestions for overcoming barriers to physical activity. Source: CDC, 2022a.

Factors	Suggestions
Lack of time	- Identify available time slots by monitoring daily activities for one week. Identify at least five 30-minute time slots that could use for physical activity. - Add physical activity to the daily routine. For example, you can walk or bike to work or shopping, organize school activities about physical activity, walk the dog, take the stairs, exercise while watching TV, park farther away from your destination, and so on. - Take advantage of work physical activity facilities. Hold walking-in meetings and conference calls. During phone calls, try to stand, stretch or move, and walk around some.
Lack of energy	- Considering your energy, schedule physical activity for times in the day or week. - Convince yourself that physical activity could increase your energy level if you give yourself a chance to your body.
Lack of motivation	- Make physical activity a routine part of your daily or weekly life and write it on your calendar (planning ahead). - Find a friend to exercise with you regularly. - Join an exercise group or class.
Lack of skill	- Choose activities that don't require new skills, such as walking, climbing stairs, and jogging. - To develop new skills participate in some courses.
Social support	- Explain your physical activity interest to friends and family and ask them to support your efforts. - Plan social activities involving exercise. For example, invite your friends and family members to exercise with you. - Join a gym or sports group, such as the YMCA or a hiking club, to create new friendships with physically active people.
Fear of injury	- Learn the warm-up and cool-down to prevent injury. - Based on your age, fitness level, skill level, and health status choose the appropriate exercise. - Select exercises that you are sure you can perform safely, then improve the amount you do gradually as your confidence and abilities grow.
High costs and lack of facilities	- Identify affordable resources available in your community. - Choose activities that require minimal facilities and equipment, such as walking, jogging, jumping rope, and calisthenics.
Weather conditions	- Set regular activities that are available regardless of the weather conditions, such as indoor swimming, rope skipping, and home activities, including indoor cycling and exercise videos.

3-4- The impact of “exercise intervention” on women

Although it is widely recognized that physical activity is an important element towards improving well-being, a substantial proportion of the population does not achieve the recommended goal of moderate intensity aerobic exercise. Besides that, statistical data demonstrates that women often exercise less than men. Although a substantial proportion of women may be motivated to endorse PA, the effect of barriers prohibiting PA might overcome

motivation. Furthermore, some women are not motivated at all to engage in PA. At the same time, for a significant proportion of the female population specific conditions, which are health related, reinforce the need for PA. Exercise interventions comprise a tool that increases exercise motivation and facilitates participant engagement. It involves an organized program of physical activity provided to a group with some common characteristics, usually aiming at particular physical or mental issue, for a predetermined duration, and provided by a specific group or organization.

Even within the framework of such exercise programs i.e. short-term, targeted at participant needs, drop-out rates are still observed. Differences between the interventions may include the location i.e, they could be at a dedicated location, home-based, work-based or a combination of the above, the type of interaction i.e. with physical presence or web-based, the type of exercises, the frequency and the duration of the sessions, and last the duration of the program. These parameters affect participation and drop-out rates as well as the anticipated and recorded effect on participant well-being (Cox et al. 2003; Burnet et al. 2020). Furthermore, it has also been found that retaining exercising following the end of the intervention programs is a challenge (MacKeen et al. 1983).

Usually exercise interventions address specific needs, and as such involve specific target groups. Such target populations may include: overweigth/obese, post-menopausal women, pregnant women, people with physical or mental health issues, or people of particular age categories.

Most studies focus on the population of obese women. De Vos et al. (2016) found that a tailor-made weight-loss intervention combining visits to dietitian and participation in exercise classes resulted in a reduction of weight and increase in physical activity engagement. However, they noted that achieving high compliance is a challenge. It should be noted though, that the duration of the explored intervention was quite long (i.e.2.5 years). Another challenge is retaining exercise even following the end of the intervention program. Nevertheless, Del Rey-Moya et al. (2013) found that obese women participating in intervention programs had a higher probability of exercising following the interventions, compared to the no-intervention control group. Obese post-menopausal women experience higher difficulties in achieving weight loss. Imayama et al. (2011) explored the effect of combined dietary weight loss and exercise interventions on obese postmenopausal women. Results indicated that the combination of diet and exercise had a greater positive effect compared to standalone diet or exercise interventions. Weight loss was achieved regardless of the intervention type, while improvements were found in several different items of the health-related quality of life index and in psychological health indicators (e.g. depression, stress). Rhew et al. (2007) explored the impact of an exercise intervention on health behaviors for obese post-menopausal women introducing a moderate-intensity exercise program and a low-intensity stretching program. Statistically significant differences were not found between the two explored groups considering dietary intake, alcohol consumption and medication, indicating the importance of diet interventions for the explored population.

Other target groups may involve specific age categories. Usually, exercise interventions focus on middle-aged or elderly women. A significant problem for the middle-aged population is sedentary work. Sedentary work, except for keeping people inactive for several hours also

comprises the cause of several health conditions especially those related to neck, shoulder and back problems. As a high proportion of the population is engaged in sedentary work, interventions targeting this particular population are of great importance. Barranco-Ruiz and Villa-González (2020) observed an improvement of the physical wellbeing of healthy sedentary women employees following an exercise intervention taking place in the afternoon at their workplace, through the improvement of several relevant indicators including shoulder-neck mobility, handgrip test, one-stand leg test, dynamic sit-up and so on. Workplace exercise interventions have the potential of comprising a successful form of interventions, as they entail easiness in attending, i.e. participants do not have to travel to a different location, and the potential of increasing social engagement at workplace. Sjögren et al. (2008) explored the impact of a workplace intervention on middle-aged women workers, and results included the reduction of headaches, shoulder and low back symptoms, as well as the improvement of subjective well-being, the physical ability and the working ability of the participants.

Suzuki et al. (2004) found a reduction in falls for elderly women following an exercise program compared to the control group, even after an 8-month follow-up period, which stresses the need of exercise within the elderly population. In addition to the improvement of their physical condition, exercise interventions can also achieve increase in approach motivation and lower aging dissatisfaction (Klusmann et al. 2012). Furthermore, Jin et al. (2019), found an improvement of mental health condition following an exercise intervention for older women with depressive symptoms.

A large number of studies involve interventions targeted to populations facing specific health, whether physical or mental, problems. One such population involves women with cancer. Head et al. (2018) explored the effect of 8 cases of exercise interventions in young women with breast cancer. For several of the explored indicators results were not in agreement, however positive effects were found for quality of life, cardiovascular outcomes, and physical activity levels. Seib et al. (2018) reviewed 18 cases of exercise intervention in women with type 2 diabetes. Once again, due to the heterogeneity of the different elements of the trials (study group and intervention characteristics) different studies elicited different results. However, most studies suggest a benefit in terms of glycaemic control and BMI.

The condition of women facing gender-specific health issues can also improve following exercise interventions. Friedenreich et al. (2011) explored the effects of exercise intervention on postmenopausal women and found an improvement in all explored adiposity indicators. Kannan et al. (2019) observed the reduction of pain on women with primary dysmenorrhea, while He et al. (2023) noted a reduction of depression risk and severity on women suffering from perinatal depression.

Participating in exercise programs outside their home, may not be an alternative for specific populations. Web-based or video-based programs comprise a valid alternative, and should be implemented for particular groups, as they can be beneficial. Such groups may involve women who do not have the ability to travel (e.g. with mobility issues), women with limited free time or women living in areas that do not offer such programs (e.g. women living in mountainous areas). Within this framework, Connolly et al. (2020) noted that even an intervention in the form of participating in an audio-visual-directed exercise training group could improve the

well-being of premenopausal women, with the indicators showing improvement being the HDL cholesterol and a mental well-being indicator.

3-5- The impact of "physical activity on prescription" on women The impact of "exercise intervention" on women

In cases, where exercise interventions do not motivate such women to engage in physical exercise, exercise prescription is a tool that can be utilized. Exercise prescription is a written or verbal order from a healthcare provider to a patient describing in detail the exercise type, duration, intensity and frequency that is recommended for the patient to achieve a particular health goal (Senter, Appelle, and Behera 2013).

Results from international studies, usually in the form of randomized controlled trials, demonstrate the benefits and thus importance of prescribing exercise (Elley et al. 2003). The direct and immediate effect of exercise prescription is the observed increase of engaging in PA. The indirect effect is the improvement of the health condition, whether physical or mental, of the patients. Physical exercise on prescription (PAP) usually involves a structured framework within which a particular prescription is provided to the patient, as well, as supporting, usually regular at the beginning, discussion/counselling sessions and follow-up sessions. Results on the effect of (PAP) on the well-being of the general population highlight its importance, and involve as already noted the increase of PA and the improvement of the patients' health condition (Arsenijevic and Groot 2017; Kallings et al. 2008) .

Results on the female population are similar to those of studies analysing the general population. Lawton et al. (2008) explored the effect of exercise prescription on women with a six month follow-up nurse visit and a monthly telephone support over a period of nine months. The effects were recorded at 12 and 24 months, and indicated a substantial increase of PA for both the first and the second year, although a small reduction was noted on the second year compared to the first. Furthermore, an improvement of well-being was also recorded utilizing the SF-36 scale, while on the negative side, the number of falls and injuries increased. Lundqvist (2017) explored the effects of prescribed physical exercise on inactive patients with metabolic risk factors. The PAP involved individual dialogue on PA, prescribed PA and a structured follow-up after 6 months. Results indicated that there was an increase in performing PA following the prescription as well as in the patients' well-being. Besides that, the highest drop-out rate was associated with women who had additional musculoskeletal diagnosis and lower self-reported quality of life.

Results indicate that the adherence to the prescribed PA depends on the program characteristics (e.g. type of exercise prescribed, framework of the program, follow-up sessions and so on), as well as, the patients' characteristics especially considering the type of disease. PAP design catering for the specificities of each individual has higher probabilities to be successful.

4- Perspectives from the Balkans

Balkans, also known as the Balkan Peninsula (the easternmost of the three large southern peninsulas of Europe), is a geographical area in south-eastern Europe with various geographical

and historical characterizations Balkans, located between the Adriatic Sea, the Mediterranean Sea, and the Aegean and Black seas, are inhabited by various linguistic, religious, ethnic, and national groups (Allcock et al., 2022; Gray & Sloan, 2014; Walia, 2022).

In general, the Balkans is bordered by Italy from the northwest, Hungary from the north, Moldova and Ukraine from the north and northeast, and Greece and Turkey or the Aegean Sea from the south. The Balkan Mountains have a significant effect on the environment of the Balkan Peninsula. Balkans' North and central parts are characterized by cold winters, hot summers, and good rainfall. However, the coastal and southern areas of the Balkans have Mediterranean weather, with hot, dry, and mild summers and relatively rainy winters (Allcock et al., 2022).

The Balkan name is Turkish and means "mountain," The peninsula is undoubtedly dominated by this kind of landform, especially in the west (Daskalov et al., 2017). From 168 BC to 107 AD, part of the area was incorporated into Roman regions, including Dacia, Epirus, Moesia, Pannonia, and Thrace. It was subsequently settled by invaders of Croats, Serbs, Slavic, Slavonized Bulgars, and Slovenes, the last of whom were pushed into the Balkan area in the 6th century. It was gradually organized into kingdoms, and the Ottoman Empire overran numerous in the 14th–15th century. The factional strife throughout the 20th century, provoking the continual breakups and regroupings of different states, introduced the word balkanize into English (Allcock et al., 2022).

4-1- Country-by-country in the Balkans

There has yet to be a universal agreement on what constitutes the Balkans. The Balkans' areas have some European countries, including Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Kosovo, Montenegro, North Macedonia, Romania, Serbia, and Slovenia. Also, parts of Greece and Turkey are within the Balkan Peninsula[2], see Figure 2 (Allcock et al., 2022).

Figure 2: Location of Balkan countries. Source: (Imamovic, 2018). Modified by author.

[2] Although a small part of Italy is on the Balkan Peninsula, it is not included in the term "Balkans" (Allcock et al., 2022).

Albania is in the western part of the Balkan peninsula, with a long coastline facing the Adriatic Sea. Tirana is its capital, and its official language is Albanian. ***Bosnia and Herzegovina*** is located east of Albania, and Sarajevo is its capital. Bosnia and Herzegovina is ethnically diverse and includes three ethnic groups: Bosniaks, Serbs, and Croats. ***Bulgaria*** is the eastern part of the Balkan Peninsula in the south-eastern. It is one of the oldest states on the European continent. ***Croatia is*** located on the western border of the Balkan peninsula along the Adriatic Sea. ***Kosovo*** is the smallest country in the Balkans, about the same size as Jamaica or Lebanon. The landlocked country is bordered by Serbia, North Macedonia, Albania, and Montenegro. ***Montenegro is*** located in the central and west of the Balkans at the southern end of the Dinaric Alps. The Adriatic Sea, Croatia, Bosnia and Herzegovina, Serbia, Kosovo, and Albania border the country. ***North Macedonia*** is located in the south-central of the Balkans. It has a border with Kosovo, Serbia, Bulgaria, Greece, and Albania. ***Romania*** makes up the most significant piece of the Balkan peninsula, and its capital city is Bucharest. ***Serbia*** is located in central Europe and was part of Yugoslavia in the 20th century. This country has a border with Bosnia and Herzegovina, Croatia, Hungary, Romania, Bulgaria, North Macedonia, Montenegro, and Kosovo. ***Slovenia*** is located in central Europe, and in the 20th century, it was part of Yugoslavia. Although Slovenia is a small country, it is topographically diverse, forming parts of the main geography of Europe. Parts of ***Greece*** and ***Turkey*** are located within the Balkan geography and are typically defined as the Balkan Peninsula, and many characterizations of the Balkans include those countries (Allcock et al., 2022; Rosenberg, 2021). The general information about the Balkans countries is categorized in Table 3.

Table 3: The general information of the Balkans countries. Source: *britannica.com*; Categorized by author.

Blakans country	Countries within the Balkan	Flag	Capital	Areas (km2)	Language
Albania	100%		Tirana	28,749	Albanian
Bosnia and Herzegovina			Sarajevo	51,197	Bosnian
Bulgaria			Sofia	111,900	Bulgarian
Croatia	42.4%		Zagreb	24,013	Croatian
Greece	83.7%		Athens	110,496	Greek
Kosovo	100%		Pristina	10,908	Albanian
Montenegro	100%		Podgorica	13,812	Serbian
North Macedonia			Skopje	25,713	Macedonian
Romania	4.6%		Bucharest	11,000	Romanian
Serbia	65.8%		Belgrade	51,000	Serbian
Slovenia	24.7%		Ljubljana	5,000	Slovene
Turkey	3%		Ankara	23,764	Turkish

4-2- The demographic pattern in Balkans/Gender statistic

The Balkans comprise many countries with a population of around 60 million. Over the last three decades, in all Balkan countries (except Turkey), there was a significant increase in the proportion of older people, with the highest rate of change in Bulgaria (67% as compared to 1970), followed by Greece and Romania (Aleksandrova-Yankulovska & Velkova, 2003).
In Table 4 Balkan population, country to country, is shown.

Table 4:The total and gender population of Balkans countries and Source: The World Bank, 2002; Categorised by author.

Countries	Population	Female	Male
Albania	2,811.67	1,380.83	1,430,832
Bosnia and Herzegovina	3,263,459	1,665,632	1,597,827
Bulgaria	6,899.13	3,549.56	3,349.56
Croatia	3,899.00	2,017.98	1,881.02
Greece	10,664.57	5,429.87	5,234.70
Kosovo	1,768,942	857,877	911,065
Montenegro	620.17	313.48	306.69
North Macedonia	2,065.09	1,032.25	1,032.84
Romania	19,115.15	9,822.10	9,293.04
Serbia	6,844.08	3,492.31	3,351.77
Slovenia	2,107.01	1,057.43	1,049.58
Turkey	85,042.74	43,058.24	41,984.50

Romania is the most populous country in the Balkans, with more than 19 million people, and the smallest country by population is Montenegro, which has just over 620,000 people (Rosenberg, 2021).
As shown in Table 4, the population of women in the countries of Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Montenegro, Romania, Serbia, Slovenia, and Turkey is More than the Balkans countries, and vice versa, the Male population of Albania and Kosovo is more than other countries. Furthermore, North Macedonia has almost the same gender in its population.
According to the CIA data, the median age years of the Balkans countries is approximately between 30-45 years. In the meantime, Slovenia has the highest with 44.9 years, and Kosovo is the lowest with 30.5 years median age. Table 5 categorized the age structure of the Balkan countries in various age ranges and the median age years by gender (Central Intelligence Agency, 2020).

Table 5: Age structure of the Balkans countries. Source: Central Intelligence Agency, 2020.

Countries	Range of age in percent					Median age years	
	0-14	15-24	25-54	55-64	65 and over		
Albania	17.6%	15.39%	42.04%	11.94%	13.03%	34.3	Female: 35.7 Male: 32.9
Bosnia and Herzegovina	13.18%	10.83%	44.52%	15.24%	16.22%	43.3	Female: 44.8 Male: 41.6
Bulgaria	14.52%	9.4%	42.87%	13.15%	20.06%	43.7	Female: 45.6 Male: 41.9
Croatia	14.16%	10.76%	39.77%	14.24%	21.06%	43.9	Female: 42 Male: 45.9
Greece	14.53%	10.34%	39.6%	13.1%	22.43%	45.3	Female: 46.8 Male: 43.7
Kosovo	24.07%	16.95%	42.56%	8.67%	7.75%	30.5	Female: 30.8 Male: 30.2
Montenegro	18.14%	12.78%	39.65%	13.41%	16.02%	39.6	Female: 41.1 Male: 38.1
North Macedonia	16.16%	12.65%	44.47%	12.55%	14.17%	39	Female: 40 Male: 38
Romania	14.12%	10.31%	46.26%	11.73%	17.58%	42.5	Female: 44 Male: 41
Serbia	14.07%	11.04%	41.19%	13.7%	20%	43.4	Female: 45 Male: 41.7
Slovenia	14.84%	9.01%	40.73%	14.19%	21.23%	44.9	Female: 46.6 Male: 43.4
Turkey	23.41%	15.67%	43.31%	9.25%	8.35%	32.2	Female: 32.8 Male: 31.7

4-3- Overview on health and well-being status in Balkan

Health and wellness are significant policy issues for most countries in the world. The Global Age Watch Index (2014) measured well-being in four key areas: health, income security, personal capability, and enabling environment. The World Happiness Index (2015) includes six factors: GDP per capita, healthy life expectancy, social support, freedom, generosity, and the absence of corruption. It also shows how measures of experienced well-being, mainly positive and negative emotions and judgments about life purpose, can combine with life circumstances to support higher life evaluations.

In Central and Eastern Europe, services connected to health focus on physical and medical treatments (Smith & Puczko, 2008). In The Balkan countries, Greek has the most doctors, with 6 per 1000 population- but the worst is Albania, with 1.15 doctors per 1000 population (Becic, 2013). Ginter and Simko (2011) summarised some of the health data in the Balkan countries. For example, Cardio-Vascular Diseases (CVD) are the leading cause of premature and general

mortality in several Balkan countries[3]. So, the mortality because of CVD after age 65 is high among Bulgarian and Romanian men. Contrary, Greece has lower CVD, maybe because of its Mediterranean diet. Although Greeks and Slovenians have the highest levels of obesity in the Balkans (Becic, 2013). Balkan countries' most fatal oncologic disorder is cancer of the respiratory tract, larynx, trachea, bronchi, and lungs, possibly linked to smoking. Romania has the highest oncologic mortality, and Greece has the lowest (Ginter & Simko,2011). Moreover, in Ukraine, a tendency to worsen the health of the young and adult population has been observed (Masliak, 2015).

In most studies, the Balkan countries' quality of life, life satisfaction, and well-being is lower than the average compared to the European Union or OECD countries (Smith et al., 2013). highest life expectancy. According to the Human Develop Reports (UNDP, 2021) data, Slovenia has the highest rank, and Bosnia and Herzegovina has the lowest rank among Balkan countries (Except Kosovo) see Table 6.

Following the data from UNDP "United Nations Development Programme" (2021), which is shown in Table 7, the life expectancy at birth of females in the Balkan countries (except Kosovo) is more than males. The OECD (2018) defines life expectancy at birth *"as how long, on average, an infant can expect to live if current death rates do not change. Life expectancy at birth is one of the most frequently used health status indicators. Gains in life expectancy at birth can be attributed to several factors, including rising living standards, improved lifestyle, and better education, as well as greater access to quality health services. This indicator is presented as a total and per gender and is measured in years."*

Table 6: Human Development Index (HDI) and its components of the Balkan countries. Source: UNDP, 2021. Categorized by Author.

Countries	Human Development 2021	HDI 2021	HDI rank 2020
Albania	High	0.796	67
Bosnia and Herzegovina		0.780	74
Bulgaria		0.795	68
Croatia	Very high	0.858	40
Greece		0.887	33
Kosovo	-	0.750	-
Montenegro	Very high	0.832	49
North Macedonia	High	0.770	78
Romania	Very high	0.821	53
Serbia		0.802	63
Slovenia		0.918	32
Turkey		0.838	48

[3] In the Balkans CVD increased under Communist rule (Ginter & Simko, 2011).

Table 7: Gender Development Index in 2021 and its components of the Balkan countries. Source: UNDP, 2021. Categorized by Author.

Countries	GDI		HDI		Life expectancy at birth	
	Value	Group[4]	Female	Male	Female	Male
Albania	1.007	1	0.799	0.794	79.2	74.1
Bosnia and Herzegovina	0.940	3	0.753	0.802	77.5	73.1
Bulgaria	0.995	1	0.792	0.796	75.5	68.4
Croatia	0.995	1	0.855	0.859	81.1	74.2
Greece	0.969	2	0.872	0.900	82.9	77.5
Kosovo	-	-	-	-	-	-
Montenegro	0.981	1	0.823	0.840	79.8	73
North Macedonia	0.945	3	0.746	0.789	76.2	71.7
Romania	0.994	1	0.819	0.823	77.9	70.6
Serbia	0.982	1	0.794	0.808	77.2	71.2
Slovenia	0.999	1	0.915	0.916	83.8	77.6

5- Well-being and physical activity of women in the Balkans

The majority of the Balkan countries are characterized as developed with high ranking in United Nations Human Development Index. However, this is not fully reflected in the status of women living in this European region, in terms of social rights and economic rights. The levels of physical activity are approximately at the European average. Gender is one of the main factors affecting the levels of physical activity, but there are additional ones observed and influence in a different way women and men.

5-1- Women's Status in the Balkans

Equity

Balkan societies are traditional, with intertwined norms for women and their roles. This can pose difficulties for women at different levels. However, the results in terms of gender equality are improving, according to United Nations Human Development Reports. Table 8 shows the gender equality index for all Balkan Countries in 2021. It is clear from the results that all countries have implemented effective legislation towards gender equality and have high rankings among the UN countries. It is noted that Bulgaria and Romania have significantly higher inequality index compared to the rest of the countries, while Slovenia has the lowest among all Balkan countries.

[4] Countries are divided into five groups by absolute deviation from gender parity in HDI values. Group 1 comprises countries with high equality in HDI achievements between women and men, group 2 comprises countries with medium to high equality in HDI achievements between women and men, group 3 comprises countries with medium equality in HDI achievements between women and men, group 4 comprises countries with medium to low equality in HDI achievements between women and men, and group 5 comprises countries with low equality in HDI achievements between women and men (ESCWA, 2021).

Table 8: Gender Inequality Index. Source: United Nations, 2021.

Country	Gender Inequality Index		HDI
	Value 2021	Rank 2021	
Albania	0.144	39	67
Bosnia	0.136	38	74
Bulgaria	0.210	52	68
Croatia	0.093	26	40
Greece	0.119	32	33
Montenegro	0.119	32	49
N. Macedonia	0.134	37	78
Romania	0.282	67	53
Serbia	0.131	36	63
Slovenia	0.071	18	23

Social Rights

Women in Balkan countries can participate and be elected in local and general (Parliamentary) elections. Although the number of women increases in parliaments and decision-making positions, women seem to be underrepresented in their countries' parliaments. Table 9 shows the share of female members of parliament in each Balkan country. It is clear from the figures that on average women constitute 28% of the members of the Balkan parliament members. According to the report of Kvinna Kvinna for Women's Rights in Western Balkans, there are positive developments with countries adopting gender quotas for participation in political parties and elections but there are not always implemented and this is reflected in the number of cabinet members, ministries, parliament and local/municipal councils ("Women's Rights in Western Balkans, 2020). The figures for minority groups are even lower.

Table 9: Share of seats in parliament. Source United Nation, 2021.

Country	Share of seats in parliament (%)
	35.7
Bosnia	24.6
Bulgaria	23.8
Croatia	31.1
Greece	21.7
Montenegro	24.7
N. Macedonia	41.7
Romania	18.5
Serbia	39.2
Slovenia	21.5

In terms of education, women in the Balkans have relatively equal access to education with men with only a few exceptions. Table 10 shows the share of population with at least secondary education. Albania is the only country where more women have completed secondary education

than men. The differences between men are women are minor apart from Bosnia and Herzegovina and North Macedonia, where differences are 11.3% and 13.2% respectively. Specifically, North Macedonia shows the lowest shares of population with secondary education for both genders among all Balkan countries.

Table 10: Population with at least secondary education. Source: United Nations, 2021.

Country	Population with at least secondary education	
	Female	Male
Albania	95.4	93
Bosnia	82.7	94
Bulgaria	94.9	96.5
Croatia	97	100
Greece	69.9	77.8
Montenegro	92.3	99.2
N. Macedonia	61.9	75.1
Romania	88.8	93.7
Serbia	88.6	95.3
Slovenia	97.6	98.7

Economic Rights

Table 11 shows the labor force participation rate for men and women in the Balkans. There are sharp differences between men and women in the Balkan countries with women showing significantly lower employment rates. The differences between men and women range between 13.0% and 20.1%, with the highest difference reported in Bosnia and Herzegovina. In line with the figures shown in the previous sections, τhe only exception among the Balkan countries is Slovenia. Slovenia not only has the lowest difference between men and women (8.4%), but also the highest employment in women with 53.8%.

Table 11: Labour force participation rate. Source: : United Nations, 2021 HDR21-22.

Country	Labor force participation rate	
	Female	Male
Albania	50.7	66.2
Bosnia	32.3	52.4
Bulgaria	49.1	62.6
Croatia	45.9	58.8
Greece	43.3	58.1
Montenegro	47.8	62
N. Macedonia	42.4	63.4
Romania	42.8	62.3
Serbia	46.6	62.3
Slovenia	53.8	62.2

5-2- Physical Activity in the Balkans

Table 12 summarizes the level of inactivity per age group for the Balkan countries. It can be observed that women show higher levels of inactivity compared to men in every age group examined. The higher levels of inactivity are observed among adolescents with 8 out of 10 women being inactive. The highest levels of woman inactivity in this age group are observed in Greece. The second age group (between 18 and 70) is the most active, with highest level of activity reported in Bosnia. Serbian women are the most physically inactive with a significant difference compared to Serbian men. The same trend continues to the last age group with 60% of Serbian women to be inactive. For the age group of over 70 all countries physical inactivity ranges around 50%. The only exception is Bosnia and Herzegovina, which again has the lowest share of inactive women. It is worth noting that there are different patterns in reporting physical activity or lack of data like for Montenegro.

Table 12: Physical Activity per age group. Source: Eurobarometer on Physical Activity, 2022.

Country	Age Groups					
	Adolescents		Adults 18+		Adults 70+	
	Male	Female	Male	Female	Male	Female
Albania	76%	86%	N/A	N/A	N/A	N/A
Bosnia	N/A	N/A	23%	28%	35%	43%
Bulgaria	67%	80%	36%	41%	51%	58%
Croatia	70%	84%	26%	36%	40%	52%
Greece	80%	89%	34%	41%	48%	57%
Montenegro	N/A	N/A	N/A	N/A	N/A	N/A
N. Macedonia	74%	84%	N/A	N/A	N/A	N/A
Romania	73%	87%	32%	38%	47%	54%
Serbia	N/A	N/A	35%	44%	50%	60%
Slovenia	75%	86%	28%	37%	42%	53%

Half of the Balkan counties are members of the European Union. Therefore, the countries publish additional data and figures for sports and recreation via the EU institutions.
Table 13 shows the frequency of women engaging in physical activities in the Balkan countries of the EU. Overall, the countries show higher frequencies compared to the European average. Among the countries, Slovenia has the lowest frequency, and in three out of four age groups the share is lower than the EU average. Young women in Bulgaria engage in physical activities the most among the examined countries. For women between 25 and 54 years old Romanian women have the highest frequency.

Table 13: Frequency of engaging in physical activity. Source: Eurobarometer on Physical Activity, 2022.

Frequency of engaging in physical activity				
Age	**15-24**	**25-39**	**40-54**	**55+**
EU	42%	52%	52%	57%
Bulgaria	70%	66%	75%	69%
Croatia	54%	56%	74%	90%
Greece	62%	69%	65%	76%
Romania	53%	71%	76%	85%
Slovenia	46%	40%	34%	34%

Table 14 summarizes the reasons for not participating in physical activities per country. All countries showcase as main reason the lack of time, with all countries being approximately at the European average. Lack of time is the most important showing the highest share among the barriers presented. Lack of motivation is the second most important reason with almost one out of three respondents in Bulgaria, Croatia and Greece. In Bulgaria, a significant share of responses focuses on disabilities or risk of illness, while Greeks find physical activities expensive. The risk of injuries concerns mostly Greeks and Slovenians.

Table 14: Barriers for PA in Balkan Countries. Source: Eurobarometer on Physical Activity, 2022.

Barriers	**Country**					
	EU	**Bulgaria**	**Croatia**	**Greece**	**Romania**	**Slovenia**
Lack of time	41%	44%	42%	46%	38%	41%
Lack of motivation	25%	28%	28%	29%	22%	22%
Disability or illness	14%	20%	13%	12%	17%	13%
Too expensive	10%	8%	9%	11%	8%	9%
Lack of interest in competitive activities	9%	9%	9%	6%	10%	10%
Afraid of risk of injuries	8%	7%	10%	11%	7%	11%
Doing sport regularly	10%	5%	4%	9%	3%	9%

5-3- Factors Affecting Physical Activity of Women

The socio-economic factors affecting physical activity have been thoroughly investigated in the literature. Table 15 summarizes relevant work and the factors found to have the greatest impact on physical activity. The majority of studies that monitor the levels of physical activity and understand the factors that affect it stratify their study based on gender. In general, it is observed that women are less likely to engage in physical activities compared to men (Eberth and Smith

2010; García, Lera-López, and Suárez 2011; Yong Kang Cheah and Tan 2014). However, there are studies that contradict the aforementioned result finding that women are more likely to engage in different physical activities and sports compared to men (Humphreys and Ruseski 2010; 2011; Maruyama and Yin 2012). The results may vary in conjunction with other socioeconomic factors (Maruyama and Yin 2012). Apart from gender, in the literature, the most important factors affecting the levels of physical activity are:

- Income and employment status
- Age
- Ethnicity and Religion
- Education
- Marital status and family size

Table 15: Factors affecting physical activity. Source: Author.

Author	Year		Factors				
		Gender	Income	Age	Ethnicity and Religion	Education	Marital Status & Family size
Uijtdewilligen et al.	2015		✓			✓	✓
Meltzer and Jena	2010	✓		✓		✓	
Humphreys and Ruseski	2010	✓				✓	
(Humphreys and Ruseski 2011)	2011	✓		✓		✓	
Downward	2007	✓				✓	✓
Eberth and Smith	2010	✓		✓		✓	
García, Lera-López, and Suárez	2011		✓		✓	✓	✓
Anokye et al.	2013			✓		✓	
Cheah and Tan	2014	✓				✓	
Dorner et al.	2013		✓	✓	✓	✓	
Maruyama and Yin	2012	✓	✓				
Cheah et al.	2017	✓		✓			
Brown and Roberts	2011	✓					✓
Bernardelli, Pereira, and Kortt	2020		✓	✓			✓
Cheah et al.	2017			✓			

Income and Employment status

The results on the correlation between the income and employment and the levels of physical activity are mixed. SFM et al. (2020) concluded that economic inequalities observed in high and mid-income countries might contribute to physical activity. There are studies that connect higher income with higher level of physical activity in terms of participation in sports (Eberth

and Smith 2010; Meltzer and Jena 2010; Humphreys and Ruseski 2010; 2011; Bernardelli, Pereira, and Kortt 2020) and frequency of engaging to an activity (Maruyama and Yin 2012). According to Humphreys and Ruseski (2010; 2011), higher income allows access to a wider range of sports and activities and it doesn't affect activities such as walking and cycling. Additionally, the authors found a negative correlation between income and time spent in physical activities. García and Suárez (2011) investigated the factors that affect physical activity in Spain. Regarding income the authors found a positive correlation with physical activity. However, they note that this applies for women with non-labor income. Bernardelli, Pereira, and Kortt (2020) found positive association between household income and frequency of participation in physical activities for Brazil. Maruyama and Yin (2012) drew the same conclusions for Australia as the levels of physical activity increase with income. Moreover, people with higher income shown increased activity duration as well as intensity of exercise.
On the other hand there are studies concluded that income is negatively correlated with physical activity. Çule and Guliani (2022) on their research for the factors affecting physical activity in Albania found that higher income is negatively correlated with physical activity. The same applies for women in Malaysia as found by Cheah et al (2015). Specifically, women with higher salaries spend 43 minutes less exercising than women of low income. Alexandris and Carroll (1999) explained the low levels of physical activity due to the time constraints imposed by employment. In Australia it was found that women with less qualification are less active but this is related with them having more physically demand jobs (Uijtdewilligen et al. 2015).

Age

A general conclusion in the literature is that physical activity declines with age (Eberth and Smith 2010; Çule and Guliani 2022). One of the reasons for that is the medical issues occurring with ageing. Cheah at al (2017) concluded that older individuals in Malaysia are less likely to engage in any physical activity. Interestingly in Albania it was found that older females (over 40 years old) are more likely to participate to activities compared to younger women (Çule and Guliani 2022). The activities chosen change with age depending on how demanding it is. For instance, walking is positively correlated with age, which was observed both in Spain (García, Lera-López, and Suárez 2011) and Canada (Humphreys and Ruseski 2010). Furthermore, Garcia and Suarez (2011) estimated that the average age for Spanish women engaging in physical activities is 33. Dorner et al. (2013) concluded that age negatively influences physical activity in Austria.

Ethnicity and Religion

According to Dorner et al. (2013), having a migration background is a clear predictor for physical inactivity. Cultural differences usually pose a socio-economic disadvantage and this is reflected to the levels of physical activity in minority groups (Hayes et al. 2002). In the United Kingdom, it is observed that South Asians show lower physical activity levels compared to the rest of British population (Fischbacher, Hunt, and Alexander 2004). Similar results apply for the United States. Kandula and Lauderdale (2005) found that Americans of Asian descent show lower levels of physical activity. The same conclusions were drawn for the minorities in Australia by Uijtdewilligen et al. (2015). Given the effect of ethnicity on physical activity, Liu

et al. (2012) suggested to introduce cultural adapted policies to encourage people towards a more active lifestyle.

While religion plays an important role in various aspects of lifestyle, its correlation with physical activity is rarely examined. Kim and Sobal (2004) examined how religion is related to the level of physical activity. Although they concluded that there is no statistical significance between most of the religions and physical activity, they observed that women with higher religious commitment tend to have higher levels of physical activity. This result is in line with the conclusions of Merrill and Thygerson (2001), who found that higher levels of physical activity are connected to regular attendance to church. In addition, a higher fat intake is observed for conservative protestant women compared to Catholic. Chliaoutakis et al. (2002) investigated the connection of the Greek Orthodox Church lifestyle and healthy lifestyle. Greek Orthodoxy is found to be connected to better nutrition but there is no clear connection to physical activity. A main aspect of the different studies regarding the connection between religion and physical activity is that the results depend on the socio-demographic characteristics of the sample of each study. Finally, Kahan (2015) conducted an analysis for the physical activity prevalence in the Muslim world. Muslim women are less physically active than men and in general Arab women are the most physically inactive population among all subpopulations examined in 38 countries.

Education

Higher education is usually positively correlated with higher activity levels. When combined with high income the effect on physical activity is even higher (Humphreys and Ruseski 2011). However, the results of Cheah et al. (2017) for Malaysia shown that well educated individuals spend less time on physical activities. For Brown and Roberts (2011), education is one of the two factor together with marital status that are less significant for woman physical activity. The positive impact of higher educational level is also found by Bernardelli, Pereira, and Kortt (2020) for Brazil and for Albania Çule and Guliani (2022). In the latter work, the authors also note that women which attend only primary school are less likely to participate to any physical activity. From their study in the UK, Anokye et al. (2013) suggested that policies should target older and less educated people.

Marital status

Due to their role in childcare and the household responsibilities, women tend to be physically inactive or spend less time on sport (Humphreys and Ruseski 2010; 2011; Yong Kang Cheah et al. 2017). In Albania, married women are less likely to participate to physical activities, with the figures to be even lower for women with school aged children (Çule and Guliani 2022). The same applies for Australia, where physically inactivity is observed more to married than single women and associates to the number of children (Uijtdewilligen et al. 2015). The number of dependent children has a larger negative effect on women than on men (H. Brown and Roberts 2011). The negative impact of childcare implies trade-off between family responsibilities and physical activities. The presence of infants and marital status significantly influences the level of physical activity (Eberth and Smith 2010).

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Glossary

Abbreviation	Description
AD	Anno Domini (After Christ)
BC	Before Christ
CDC	Centers for Disease Control and Prevention
CIA	Central Intelligence Agency
CVD	Cardio-Vascular Diseases
GDI	Gender Development Index
GDP	Gross Domestic Product
HDI	Human Development Index
HHS	Health and Human Service
ISPAH	International Society for Physical Activity and Health
MZ	Monozygotic
NCD	Non-Communicable Diseases
OECD	Organisation for Economic Co-operation and Development
PA	Physical Activity
ESCWA	Economic and Social Commission for Western Asia
UNDP	United Nations Development Programme
WHO	World Health Organization

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