

Barriers and Motivators to Gym Attendance by Older Persons

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ABSTRACT

Barriers and Motivators to Gym Attendance by Older Persons

Introduction: The importance of, and awareness towards healthy ageing and active ageing are major points of discussion in view of the increase in average longevity across the globe, and Malta is no exception. Improving physical fitness dimensions may play a role in active ageing. The barriers and motivators to physical activity within the older population have been largely studied, much more than to the specific context of gym attendance. Therefore, the aim of this study was to explore the attitudes of community-dwelling older persons (≥ 65 years) towards gym attendance with the purpose of providing the evidence to support policy makers and entrepreneurs to promote workout spaces that are specifically designed for and intended to the needs of older persons.

Method: A multi-method case study approach was adopted, consisting of data collected via an online survey in a first phase, followed by data collected from interviews in a second phase. Both the survey questionnaire and the interview guide were developed by the research team. Data in Phase 1 was collected through the social media platform Facebook. Participants for Phase 2 – the interview phase, were approached following their self-declared interest to participate in this phase. Analysis was carried out using descriptive and inferential methods for the findings from Phase 1; framework analysis was used to interpret the findings from Phase 2 using the socio-ecological framework and social determinants of health as a basis for discussion and interpretation.

Findings/ results: 177 community-dwelling older persons participated in Phase 1. 12 participants participated in Phase 2. The key findings from the first phase are that the likelihood of attending a gym is greater amongst the young old (65-69 years), those living with a spouse/partner, those living in the Northern Harbour District, as well as those with higher education levels. Conversely, the likelihood of not attending a gym is greater for the older old (≥ 80 years), those living with children, those living in the Southern Harbour district or Gozo and Comino District, and those with lower educational levels. Barriers and motivators were also analysed through a 1-5 Likert scale, with 1 representing the least and 5 representing the greatest. In the order of greatest to lowest barriers to attending a gym, the top five barriers were cost (3.12), lack of age-appropriate programs (3.07), lack of willpower (3.01), poor health (2.98), and lack of positive attitude (2.80). The greatest five motivators were good health (4.18), physical functioning benefits (3.95), physical benefits (3.92), improved well-being (3.89), and health benefits (3.87). A trend was also observed between genders, where females experienced greater barriers when compared to males. Individual factors such as perceived health limitations and perceived negative mental health

were found to be more likely to act as a barrier to gym attendance than social factors, whilst social factors such as economic support and good neighbourhood and built environment were more likely to motivate older persons to attending a gym.

Conclusion: Whilst most older persons understand the benefits of gym attendance, this attendance is dependent on a number of factors that may impact a decision to pursue such goals. For policy makers and entrepreneurs knowing what hinders and/ or motivates older persons to attending a gym may serve to focus on reducing the barriers and promoting motivators amongst older persons in pursuit of national and global goals linked to active and healthy ageing.

Keywords: Ageing, motivators, barriers, gym, gym attendance, older persons

June, 2024

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Dedication

I dedicate this dissertation to my fiancée Joanna and beloved parents, for instilling in me curiosity and love for learning and determination to accomplish my objectives.

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Chapter 1: Introduction

Preamble and focus of the study

As the average longevity across the globe increases, we are constantly reminded on the importance of, and awareness towards healthy ageing and active ageing. In Malta this is no different. The government of Malta between 2021 and 2024 had a Ministry dedicated specifically to Active Ageing and following a cabinet reshuffle in 2024 this ministry was amalgamated with the Ministry of Health and that itself, in a way, promoted the importance of active ageing.

Physiotherapy has always been focused on the health and wellbeing of people from the perspective of human movement and function and structured services exist around a number of pillars, amongst which Older Persons. Physiotherapy has always been present in older persons' health (previously called geriatrics) however the focus has mostly been in secondary and long-term care; a shift towards primary care and prevention also in older person care has been coming for some time and that would in part also explain, for example, the evolution of politics directed towards active ageing. From our perspective, and based on knowledge from overseas especially Asian countries, improving physical fitness dimensions of muscle strength and coordination may play a major role in active ageing; not only in preventing disease but also promoting wellness including strength and balance – two critical parameters necessary to allow freedom of movement. With these thoughts in mind, we wanted to embark on a research journey that explored community-dwelling older person's attitudes towards gym attendance with the purpose of providing the evidence to support policy makers and entrepreneurs to promote workout spaces that are specifically designed for and intended to the needs of older persons. The barriers and motivators to physical activity within the older population have been largely studied, much more than to the specific context of gym attendance and participation. For the purpose of this research, gym is understood to be the place where specific activities that are related to exercises are carried out within a controlled environment and using specific equipment.

For the purpose of this research and reporting here forth, the notion of both attending and participating at a gym shall be described as gym attendance. It may be understood that attending a gym does not necessarily imply doing workouts. In a sense one may be physically present at a gym but not work out. To avoid ambiguity, an assumption will be made, that the attendance to a gym will imply getting physically active at the gym through exercises targeting strength, cardiovascular fitness, stability etc. etc... For us as authors, this issue of gym attendance by older persons presents two key questions that lead to the areas of interest worth investigating. These questions are 1. Do older persons go the gym? and 2. If yes/no then why/why not and what motivates or would motivate them to do so? Such a focus is significant and worthy of a study related to physiotherapy in the area of health and well-being of older persons. There are naturally other questions that lead on from these that are explored within the context of these preliminary questions.

The specific intention of this research was to explore the barriers and motivators to gym attendance by community-dwelling older persons. Community-dwelling older persons are taken to be individuals of a certain age (we stipulate that this age is 65 years and more) who are still capable of living within their own homes, and not within a care home or hospital.

Overview of the chapters

This dissertation comprises of seven chapters. Chapter 1 is the introduction that presents the preamble and focus of the study, background to the study, purpose and research direction and research questions. Chapter 2 is the literature review and presents the search strategy, barriers and motivators to physical activity and strength training in a gym setting among older persons and the impact of COVID-19 pandemic on gym attendance among older people. Chapter 3 is the methodology and gives information about case study research, the research design, the research process, the analytical process, and ethical considerations. Chapter 4 presents the quantitative findings and delves into the patterns of gym attendance according to different independent variables, these being gender, age, living status, district,

and qualification. This chapter also presents the reasons for non-adherence to gym attendance, the barriers and motivators to gym attendance, as well as the association between barriers and different independent variables, and motivators and different independent variables. This chapter also presents a correlation matrix and a regression analysis, used to estimate the probability of who is more likely to attend a gym. Finally, it presents findings about the interest in senior gyms amongst older persons. Chapter 5 presents the qualitative findings by going through the descriptive findings about the participants, the analysis and thematic development, the data charting, and the mapping and interpretation. Chapter 6 is the discussion and presents a discussion on the methods and methodology adopted for the study, a discussion of the findings, the implications for practice, and the strengths and limitations of the study. Chapter 7 is the conclusion and presents the key quantitative and qualitative findings, and the recommendations for future research.

1.1 Background to the study

1.1.1 Older persons and ageing population

Worldwide, people are living longer (World Health Organization, 2018). Since in many countries, the chronological age of 65 is used as a cut-off point to define older persons (United Nations, 2020) the number of older persons has steadily increased in recent years and this rise is faster than in any other age groups. The expectation is that as the years go by this will be greater (United Nations, 2022). The World Population Prospect (2022) published by the United Nations refers that one in six people will be aged over 65 years by 2050, compared to one in eleven recorded in 2019. Likewise, the projected number of older persons above the age of 80 years is expected to triple by the year 2050, implying an increase in the oldest old. This implies that the lifespans are getting longer as estimates confirm a trend for longevity. With increasing age, the incidence of comorbid conditions in the general population is observed to drastically spike up in older age as shown in a study

conducted by Barnett et al. (2012) in Scotland. Here it was shown that when 30.4% of individuals acquired at least two chronic conditions between the ages of 45 and 64 years, this increased to 64.9% amongst those aged between 65 and 84 years, and further increases to 80% in individuals over 85 years of age. This implies that the ageing population is definitely on the rise and it may therefore surely be assumed that the comorbidities and medical issues associated with increasing age will rise as well. Increasing age also results in a degeneration of tissues at cellular level, even in muscles, where cells that are normally responsible for muscle repair become less responsive and thus, muscle growth and hypertrophy is harder (Hyson, 2023). As this observed trend of increasing longevity continues, it creates a greater need to pay more attention to the needs of this population, for them to achieve and/or maintain a healthy well-being, and to benefit from a continued good quality of life while facilitating independent living (Burton et al., 2017a; Burton et al., 2017c). Addressing specific lifestyle changes may result in healthier older persons, decreasing the burden and dependency on health and other related services for older persons such as residential or nursing homes (Burton et al., 2017b). In this light the exploration of gym attendance by older persons was considered timely and appropriate, not to explain physiological benefits of gym activities, but more to understand if, and what would encourage these activities.

1.1.2 Physical Activity (PA), exercise and health

PA and exercise may be generally seen to be used interchangeably; however, their definitions vary significantly. Physical activity (PA) is defined as any bodily movement produced by skeletal muscles that require energy expenditure (Caspersen, Powell & Christenson, 1985) and can be performed in the manner of common everyday tasks including occupational, sports, conditioning, household or other activities. Exercise as one form of PA, is defined as a planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness (Caspersen, Powell & Christenson, 1985). Activities that promote exercise are most often found in the form of

aerobic exercises (to promote stamina) and resistance exercises (to promote strength).

Aerobic exercises involve the use of large muscle groups in a repetitive manner for long periods of time and has a vascular health-enhancing influence. In fact, aerobic exercise is the ideal strategy to reduce cardiovascular diseases especially with increasing age, irrespective of gender (Seals, Nagy & Moreau, 2019). Resistance exercises are used to improve upon, or counter any regression, in muscle strength (Liu & Latham, 2011). This method is often referred to as strength training, resistance training or weight training. The resistance necessary to increase strength capacity may be generated by the individual's own body weight, or specific equipment such as elastic bands, free weight and machines that are commonly found in gym settings (Burton et al., 2017a; Liu & Latham, 2009).

Under normal human development conditions, muscle strength increases gradually and peaks in the second and third decade of life, followed by a slow imperceptible decline until the fifth decade (Macaluso & De Vito, 2004). Following this, the rate of decline is faster at approximately 12-15% decline per decade and more rapid losses are observed over 65 years of age (Macaluso & De Vito, 2004), and may be associated with increased comorbidities (Barnett et al., 2012), disease and disuse (Liu & Latham, 2011). Such significant losses in muscle strength in the older persons are also linked to increased physical disabilities (Liu & Latham, 2011; Macaluso & De Vito, 2004) and consequently increased difficulties to perform activities of daily living (ADLs). There is therefore a direct link between strength loss and increased difficulty to perform PA (by its definition) and so this raises an important consideration for older persons to engage in resistance exercise. As it has been shown, resistance training in a gym may offer such an opportunity, as the gym would be the place where one would find the necessary equipment to perform these activities. Getting older persons to the gym (attendance) and staying there (adherence) are importance considerations if this had to happen. This leads to the research question and focus of this study.

Strength training has been amply reported to be beneficial for one's health. Strength training helps to increase muscle strength, therefore prevents or slows down the rate of sarcopenia, improves bone density, hence assists to reduce the complications that osteoporosis brings about, improves the individual's physical function and level of function to execute ADLs, and reduces the symptoms or frequency of symptoms of chronic illness, including depression, arthritis and diabetes (Marzetti et al., 2017; Cruz-Jentoft et al., 2014; Chodzko-Zajko et al., 2009; Liu & Latham, 2009). In addition, strength training is also beneficial in preventing or reducing the rate of falls in older persons both those in care facilities and hospitals (Cameron et al., 2018) and in the community (Gillespie et al., 2012), while improving their quality of life (Yang et al., 2020). In the study by Clemson et al. (2012), it was found that older persons, who engage in strength training, together with balance training tend to be healthier and functionally more capable, when compared to those who do not participate. In fact, older persons who are classified as suffering from advanced sarcopenia report greater difficulty in several simple everyday tasks such as: walking, standing up, climbing, lifting and kneeling amongst others (Janssen, Heymsfield & Ross, 2002). A commonly researched topic surrounding strength training in recent years is Progressive Resistance Training (PRT). Research shows that a single PRT programme can reduce the physical disability of older persons and is associated with better physical functioning, also leading to higher independence levels (Liu & Latham, 2011). Despite all this, several misconceptions are common regarding strength training, especially amongst older persons (Burton et al., 2017a) and these include the concern of feeling or looking too muscular as much as perceived risks that this may lead to conditions such as myocardial infarctions, cerebrovascular accidents or death. These might be the cause for low participation rates reported in the United States. The National Center for Health Statistics (2015) reported that 13.5% of individuals aged 55 and over and 7.6% of individuals over 76 years engaged in strength training. But, could misconceptions be the only cause? Is it possible that there exist other factors that preclude older persons from strength training?

Despite the known benefits, seniors tend to withdraw from strength training, mainly due to injury or illness or when they are not provided with adequate feedback and support. Proper strategies to support on-going participation amongst individuals who engage in strength training programs need to be implemented to encourage long-term participation (Burton et al., 2017b), given that walking is the mode of exercise preferred over strength training within the majority of the older population (Australian Bureau of Statistics, 2013).

These types of exercises can be easily carried out within a gym setting and known benefits are associated with both indoor and outdoor gyms. Both types of gyms have advantages and disadvantages. Indoor gyms are considered as environments where PA, and strength training can be carried out, using the equipment found in this indoor space (Noseworthy et al., 2023). Outdoor gyms may be considered as an acceptable form of PA for older persons (Stride et al., 2017), facilitating individuals to improve their strength, reduce body weight and fat percentage (Johnson et al., 2019). Provided that outdoor gyms should ideally offer different types of equipment, and adequate shade protection (Stride et al., 2017), such services can motivate older persons to engage in PA in an affordable, well-designed environment, while ameliorating their health and social connectedness (Lee et al., 2018).

Motivating the different population groups to engage with PA is critical for good public health. This would include improved well-being, especially as one ages (Costello et al., 2011). Beyond the health benefits, having a physically active older population also reduces the ever-increasing healthcare expenditure associated with NCDs (Bethancourt et al., 2014; Colditz, 1999). It would appear that starting to be more physically active at a later stage in life also serves to be a safe countermeasure to age-related physiological changes (Liu & Latham, 2009). Maintenance and improvement of physical function in older life is significantly affected by PA (Mjøsumund et al., 2020; WHO, 2010). In fact, PA is described to be an important, safe and reliable strategy to minimise the risk of non-communicable diseases (NCDs), whilst decreasing the risk of morbid conditions (Blankley et al., 2020; Mjøsumund et al., 2020; Sharp et al., 2020). While it is well established that NCDs such as

cardiovascular diseases (CVD), stroke, hypertension, osteoporosis, diabetes, obesity, depression, anxiety and cognitive impairments (Chodzko-Zajko et al., 2009) will affect both genders, the literature shows that men experience a higher rate of mortality as a consequence of several conditions including cardiovascular diseases, respiratory conditions, cancers and diabetes (Sharp et al., 2020; NIH, n.d.). This emphasizes the importance of engagement in PA as proposed by the guidelines presented by WHO (2020). The guidelines also highlight the importance of engaging in strengthening exercises as well as balance training to minimise the risk of falls. Men that engaged in less than 120 minutes of PA per week at age 50, had a three-time higher incidence to be frail at age 75 when compared to those who engaged in more than 360 minutes per week (Gammack, 2017). Such findings reinforce the importance of participating in PA and the necessity for further education directed towards the general public to identify and understand the need.

In recent years there has been a drive to shift the paradigm of the caring for older persons by continuously increasing services targeting on-going functional decline towards a focus on improving functionality through the integration of PA in reablement (Mjø Sund et al. 2020) that aims to regain independence and function. This approach would integrate PA into functional everyday activities and tasks, it would be person-centred, with special attention to working specifically towards the individuals' prioritised needs or goals (Cochrane et al., 2016). In addition to the known benefits of PA on physical health, PA also facilitates the cognitive function of older persons (Özkaya et al., 2005). And yet, despite these known benefits, PA and exercise remains unpopular among the older population, with 26% of those aged between 65 and 74 years and 10% aged 85 years and older engaging in PA that meets the recommendations (White, Wójcicki & McAuley, 2009). Similarly, Hyson (2023) reported that only 9% of people aged over 75 years perform strength training (ST) regularly. Therefore, this poses the question WHY? Why is it that despite the overwhelming body of evidence in favour of PA and strength training, the participation levels by older persons are low?

Many papers delve into the barriers and motivators to PA specifically, however, as for the purpose of this research, special attention is directed towards the motivation towards PA and exercise within a gym. More research is required to understand the reasons that hold back older persons from PA. In this light as well, the exploration of gym attendance by older persons was considered timely and appropriate to understand what would or would not motivate older persons to attend a gym to do exercises.

1.1.3 Gym attendance

The most common understanding of a gym for many individuals is training by the use of weights for resistance (Janson et al., 2017). Despite this, strength training is not the only form of exercise that can be carried out in a gym setting. Strain et al. (2016) highlighted the significance of aerobic training and stretching in addition to strength training, which were described to be just as crucial. The WHO on their official online portal (<https://www.who.int/news-room/fact-sheets/detail/physical-activity>) on physical activity reported that strength and aerobic training intensity levels were less likely to be met by the older age groups when compared to the younger counterparts. There exists a difference in meeting the recommendations for strength training between genders, with men reporting that they meet these recommendations more, when compared to females. These findings however reflect upon the adherence to guidelines, meaning how committed those persons who actually did participate were to strength and aerobic training, but do not reflect the participation numbers of persons in a population. Fewer than 25% of older adults engage in regular PA (CDC, 2012) that meets the recommendations set by the WHO. The term 'active couch potato' describes an individual that meets these guidelines by carrying out sufficient physical activity, but yet spends a good deal of the day being sedentary. It is worth pointing out that reaching these guidelines alone is not sufficient, and may not be limiting the risks of non-communicable diseases as one would be wishing for.

The literature reviewed is quite dense on participation and adherence to physical activity, and even though it has been shown that more educated individuals lead a more physically active lifestyle (Kari et al., 2020), little to no research was found as to whether there is an association between education levels and gym attendance. Similarly, Puciato & Rozpara (2021) noted that people who are single tend to look out for a more physically active lifestyle, including exercises like weightlifting, sports and running, when compared to other individuals. Despite this, no data was found regarding gym attendance patterns according to living status, that being if the person lives alone, with spouse/partner, with children or with others.

1.1.4 Ageism

The actual process of ‘growing old’ carries with it the understanding that a person becomes a more responsible, mature and respectful adult (Kang & Kim, 2022). Yet, notwithstanding these values, some individuals may reflect a particular stereotype, prejudice and/or discrimination towards themselves or others in view of age, something referred to as ageism (WHO, 2021b). With ageism individuals who fall within the ageing bracket will often view the process of ageing as unfavourable, perceiving it as a negative attribute, leading to loss of confidence as well as a loss of productivity (Kang & Kim, 2022). This is often referred to as internalized ageism as may happen in the context of gym attendance by older persons, as described by Burton et al. (2017c) who would describe themselves as ‘being too old’ to go to the gym.

1.2 Purpose and direction of the study

This study was designed to explore the barriers and motivators to gym attendance among older persons. It was felt important to start off such an investigation by understanding which factors, if any, contribute as barrier and/or motivator to gym attendance and to cross match any findings to different demographic categories for older persons, as the ultimate

direction was to identify the likelihood of older persons engaging in gym use with and to advocate this through policies with the central and regional relevant authorities.

1.3 Research questions

This study addresses barriers and motivators to gym attendance in older persons, through the following research questions:

1. What are the barriers to gym attendance in community-dwelling older persons?
2. What are the motivators to gym attendance in community-dwelling older persons?
3. How likely are community-dwelling older persons to attend gyms?

By addressing these questions, it shall be possible to: identify the barriers to gym attendance in community-dwelling older persons, identify the motivators to gym attendance in community-dwelling older persons, and understand the likelihood of community-dwelling older persons to attend gyms.

Chapter 2: Literature Review

2.1 Introduction

This chapter explores the literature to provide a current insight on the gym attendance patterns and the barriers and motivators towards gym attendance, with a specific focus on older persons. As a result of this literature review, a classification of barriers and motivators is presented that will serve as the basis for the research design of this study that shall be covered in the next chapter.

2.2 Search strategy

For the purpose of this literature review, the method utilised to create a search strategy for finding research to answer the research questions was through the PEO method. This is a method that focuses on non-numerical data or qualitative research, through which relationships are investigated. PEO stands for population, exposure, outcome. In this case, the population refers to the community-dwelling older persons, exposure refers to gym attendance and outcome refers for the barriers and motivators.

Table 1: Definition of PEO in the case of this study

Population	Community-dwelling older persons
Exposure	Gym attendance
Outcome	Barriers and motivators

Ageing, an inevitable process, is often measured by chronological age. At the age of 65 years or more, people are often referred to as older persons (Orimo et al., 2006). Needless to say, such ageing process is not identical across borders, mainly due to differences in genetics, overall health status and lifestyle.

When a desired goal is set, motivation is the reason for engagement in a particular behaviour, to reach this said goal. This can be intrinsic or extrinsic. Intrinsic refers to the pull towards something, derived from an internal interest and personal enjoyment in a task.

On the other hand, extrinsic motivation is derived from aspects outside of the person. Some examples include money, punishment and threat (Deci & Ryan, 2008). Essentially, motivators were described as factors that promote a behaviour change (Mather, Pettigrew & Navaratnam, 2022). Similar to the aims of this study, these intrinsic and extrinsic factors can be identified as the reasons to which older adults attend gyms or would be interested in commencing their attendance.

Barriers were described as factors that impede or prevent behaviour change (Mather, Pettigrew & Navaratnam, 2022). Similarly, Enjezab et al. (2012) refer to internal barriers as the opinion and feelings that an individual has and would be the reason for complication of change of behaviour. Almathami, Win & Vlahu-Gjorgievska (2020) refer to external barriers as negative factors about the environment that hinder change.

The search strategy included the keywords: ageing, motivators, barriers, gym, gym attendance, older persons. The mesh terms utilised in this search were: ageing AND gym attendance, barriers AND motivators, gym AND gym attendance, gym AND gym attendance AND older persons, barriers AND gym attendance AND older persons, motivators AND gym attendance AND older persons, barriers AND motivators AND gym attendance AND older persons.

Data was searched through the University of Malta online search gateway HyDi for articles, as well as through databases including: PubMed, Cochrane library, CINAHL, Medline, ResearchGate and ProQuest. The literature search was carried out between August 2021 and July 2022. A search for grey literature was carried out through using the Internet search engines Google and Google Scholar.

For a study to be included in this literature review, it had to fit a set of inclusion criteria. These were: peer reviewed articles, articles published between 2011 and 2021, articles published in English, articles with relevant titles and abstracts and articles which were directly related to the study's aims.

The PRISMA state for reporting was used to ensure proper reporting of the process. Figure 1 presents the study selection process. All titles and abstracts were screened by the principal investigator to exclude any that did not meet the inclusion criteria. When unsure the full text was reviewed together with the principal supervisor and a decision was agreed upon after discussion. Six articles met the criteria for review and these were assessed for quality following the Critical Appraisal Skills Programme (CASP) checklists and Centre for Evidence-Based Management (CEBM) Critical Appraisal tool, as in table 2. This table presents the answers to each question with green representing 'yes', yellow representing 'cannot tell', red representing 'no' and grey representing 'not applicable', given that the CASP checklists have a total of ten questions, while the CEBM tool consists of 12 questions. A cut-off point of 9/10 was chosen for the CASP checklists, while a cut-off point of 11/12 was chosen for the CEMB tool. Tables 3-8 provide a summary of the six main articles that served the purpose to understand the existing literature relevant to the focus of this study being the motivators and barriers to gym attendance by older persons.

At the end of the study, in February 2024, this process was repeated to see if there were any additional articles published following this search, after July 2022. New articles following this date were found, but most were related to organised exercise programs, or specific to physical activity. No new studies were found directly related to the barriers and motivators to gym attendance or strength training within a gym setting among older persons.

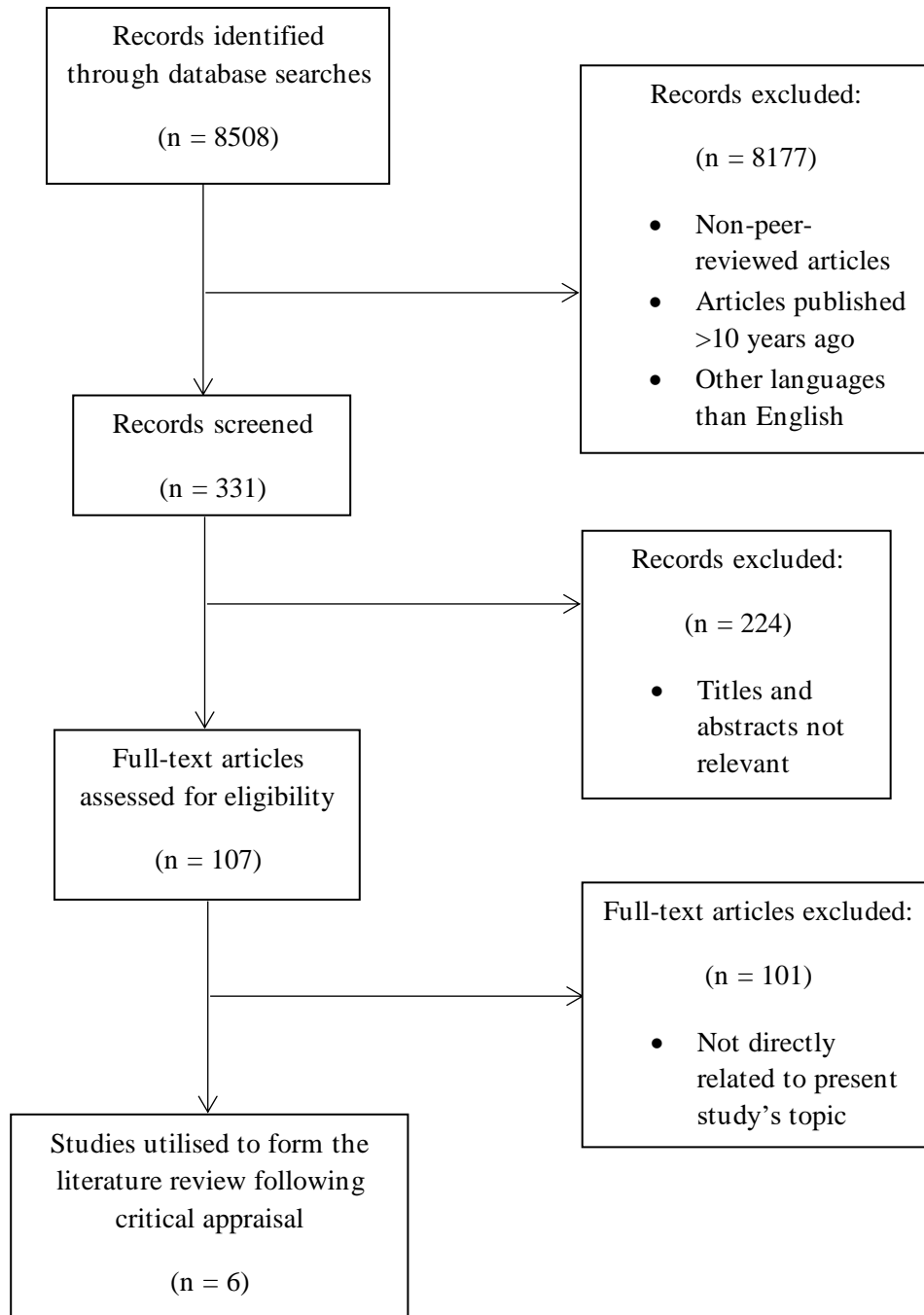


Figure 1: PRISMA flow diagram for the literature review

Six articles were assessed following the Critical Appraisal Skills Programme (CASP) checklists and Centre for Evidence-Based Management (CEBM) Critical Appraisal tool. These were directly related to the focus of this study; the motivators and barriers to gym attendance by older persons. Most articles considered physical activity and resistance training (Burton et al., 2017a; Burton et al., 2017c; Bethancourt et al., 2014; Henwood et al., 2011), with only two studies delving into gym attendance (Pettigrew et al., 2018; Lübcke, Martin & Hellström, 2012).

Bethancourt et al. (2014) found that the main barriers to physical activity programs were related to lack of professional guidance, provision of inadequate information and physical problems due to poor health or ageing, while the main motivators were related to maintaining good physical and mental health statuses, and having affordable access to physical activity options. Burton et al. (2017a) listed numerous barriers and motivators to strength training among older persons through the use of the socioecological framework. Burton et al. (2017c) similarly listed the main motivators to participate in resistance training such as to feel good physically and mentally and for falls prevention, and the main barriers such as: pain, injury and illness. Henwood et al. (2011) investigated motivators to resistance training. The main motivators identified were program structure, environment, body image, mental and social health and effect on ageing.

More specific to gym attendance, Pettigrew et al. (2018) identified a number of barriers and motivators to strength training at a gym by older persons, through which gyms and fitness centres can adapt and ameliorate their services to better serve the needs of older persons. Lübcke, Martin & Hellström (2012) identified the commonest motivators to gym attendance by older persons: exercising at own pace, finding peers, having competent staff, and having accessible machines. This information leads to the narrative in the next sections.

Having found only two articles that look into some form of gym attendance, amongst the large number of articles dealing with barriers and motivators to physical activity in older

persons, specifically, this proves that there is a gap in the literature, thus this has led the researcher to expose the gap through the focus of this current research.

The strengths and limitations of the main six articles were taken into consideration to help design the study. The study by Bethancourt et al. (2014) only had people who were well-educated, thus this hampered the possibility of generalizing the results. In the current study, it was made sure that people with different qualification levels were reached equally. The systematic review by Burton et al. (2017a) included fourteen studies, all of which had different research designs and data collection instruments. This motivated the current study's research design, to carry out a case study research approach, by collecting data via the use of multiple sources of evidence. The study by Burton et al. (2017c) included a large sample size, which allowed for good generalization of results. This motivated the attempt to reach as many participants as possible in both phases of data collection. Pettigrew et al. (2018) explored the factors that influence older persons' participation in strength training in gyms and fitness centres, however demographic data of the participants were not taken into consideration. This made the researcher more aware of the need to look further into the identification of such factors, based on the participants' demographic data, and implement this in the data analysis section. Similarly, Henwood et al. (2011) explored the perspective about resistance training among older persons, but did not take into consideration qualification levels, thus it was made sure to include qualification levels in the analysis of the results of this present study. The study by Lübcke, Martin & Hellström (2012) gathered in-depth information, thus the research design was taken into consideration when designing this present study.

Table 2: Outcomes of critical appraisal tools

Question number	CASP critical appraisal					CEBM critical appraisal
	Bethancourt et al. (2014)	Burton et al. (2017a)	Pettigrew et al. (2018)	Henwood et al. (2011)	Lübcke, Martin, & Hellström,	Burton et al. (2017c)
1	Green	Green	Green	Green	Green	Green
2	Green	Green	Green	Green	Green	Green
3	Green	Green	Green	Green	Green	Green
4	Green	Green	Green	Green	Green	Green
5	Green	Green	Green	Green	Green	Green
6	Green	Green	Green	Green	Green	Yellow
7	Green	Green	Green	Green	Yellow	Green
8	Green	Green	Green	Green	Green	Green
9	Green	Green	Green	Green	Green	Green
10	Green	Yellow	Green	Green	Green	Green
11	Grey	Grey	Grey	Grey	Grey	Green
12	Grey	Grey	Grey	Grey	Grey	Green
Total score	10/10	9/10	10/10	10/10	9/10	11/12

Key:

Green	Yes
Yellow	Can't tell
Red	No
Grey	N/A

Table 3: Summary of Bethancourt et al. (2014)

Title of article	Authors, year published	Research Design/ data collection instrument	Sample size	Reported key findings	Reported strengths and limitations
Barriers to and facilitators of physical activity program use among older adults	<p>Authors: Bethancourt, H.J., Rosenberg, D.E., Beatty, T., & Arterburn, D.E</p> <p>Year: 2014</p>	<p>Design: Qualitative</p> <p>Data collection instruments:</p> <ul style="list-style-type: none"> • Focus group interviews 	<p>415 participants between the ages of 66 and 78 were mailed a letter, of which 52 participated.</p>	<ul style="list-style-type: none"> • Main barriers to physical activity programs were: <ul style="list-style-type: none"> - Lack of professional guidance - Physical problems due to poor health or ageing - Provision of inadequate information. • Main motivators were to: <ul style="list-style-type: none"> - Maintain good physical and mental health statuses - Have affordable access to various physical activity options. 	<p>Strengths:</p> <ul style="list-style-type: none"> • A survey was administered prior to the focus group interviews to determine the level of physical activity, ensuring allocation to the correct group. • Participant recruitment was thoroughly explained. • Rigorous data analysis procedure. <p>Limitations:</p> <ul style="list-style-type: none"> • Study participants were well-educated. Higher education levels tend to be related with higher physical activity levels, thus hampering the possibility of generalizing results.

Table 4: Summary of Burton et al. (2017)

Title of article	Authors, year published	Research Design/ data collection instrument	Sample size	Reported key findings	Reported strengths and limitations
<p>Motivators and barriers for older people participating in resistance training: A systematic review</p>	<p>Authors: Burton, E., Farrier, K., Lewin, G., Pettigrew, S., Hill, A.M., Airey, P., Bainbridge, L., & Hill, K.D</p> <p>Year: 2017a</p>	<p>Design: Systematic review</p>	<p>14 studies (n=1,937 participants) from 6 databases.</p>	<p>92 motivators and 24 barriers to resistance training among older people. Analysed using the socioecological framework as a guide.</p>	<p>Strengths:</p> <ul style="list-style-type: none"> • Used different tools to assess the quality of the various methods utilized. <p>Limitations:</p> <ul style="list-style-type: none"> • Participants of most studies included lived in a limited range of locations. • Generalizability of the findings of the studies included to older people who live in different countries is difficult. Different barriers and motivators could be identified by the older population living in different countries, (social and cultural differences).

Table 5: Summary of Burton et al. (2017)

Title of article	Authors, year published	Research Design/ data collection instrument	Sample size	Reported key findings	Reported strengths and limitations
<p>Identifying motivators and barriers to older community-dwelling people participating in resistance training: a cross-sectional study</p>	<p>Authors: Burton, E., Lewin, G., Pettigrew, S., Hill, A.M., Bainbridge, L., Farrier, K., Langdon, T., Airey, P., & Hill, K.D</p> <p>Year: 2017c</p>	<p>Design: Cross-sectional study</p> <p>Data collection instruments:</p> <ul style="list-style-type: none"> • Questionnaire developed by the researchers 	<p>3119 questionnaires were disseminated, of which 1327 were returned.</p>	<ul style="list-style-type: none"> • The main motivators to participate in resistance training were to: <ul style="list-style-type: none"> - Feel good physically and mentally - Falls prevention. • Main barriers to participating or continuing to participate: <ul style="list-style-type: none"> - Pain - Injury - Illness • Study's suggestion to increase the number of older people that initiate or continue to participate in resistance training: <ul style="list-style-type: none"> - Organisations should modify the promotion and delivery of programmes to tackle key motivators and barriers, specific to each group. 	<p>Strengths:</p> <ul style="list-style-type: none"> • Large sample (including both sexes). • Generalization of the results obtained can be done to the general older population. <p>Limitations:</p> <ul style="list-style-type: none"> • Respondents were provided with a list of barriers and motivators; thus, this might have resulted in respondents identifying them, despite not thinking about them themselves. • 57% non-response rate.

Table 6: Summary of Pettigrew et al. (2018)

Title of article	Authors, year published	Research Design/ data collection instrument	Sample size	Reported key findings	Reported strengths and limitations
A typology of factors influencing seniors' participation in strength training in gyms and fitness centres	<p>Authors: Pettigrew, S., Burton, E., Farrier, K., Hill, A-M., Bainbridge, L., Lewin, G., Airey, P., & Hill, K</p> <p>Year: 2018</p>	<p>Design: Exploratory qualitative study</p> <p>Data collection instruments:</p> <ul style="list-style-type: none"> • Interviews 	79 individuals from four stakeholder groups (seniors, fitness centre instructors, health practitioners and individuals involved in policy).	<ul style="list-style-type: none"> • A number of barriers and motivators to strength training at a gym by older individuals were identified, based on the socio-ecological framework. • Through these, gyms and fitness centres can modify their services to accommodate better the specific needs of the older clients' group. 	<p>Strengths:</p> <ul style="list-style-type: none"> • Inclusion of various stakeholder groups. • Consistency in the details provided by different participants from the various stakeholder groups. • Combination of two frameworks in the analysis of data: ecological and self-determination frameworks. • Data was collected from various stakeholders, gaining detailed information. <p>Limitations:</p> <ul style="list-style-type: none"> • Large gender skew in favour of females. • Demographic data of participants were not taken into consideration.

Table 7: Summary of Henwood et al. (2011)

Title of article	Authors, year published	Research Design/ data collection instrument	Sample size	Reported key findings	Reported strengths and limitations
Exercise in later life: the older adults' perspective about resistance training	<p>Authors: Henwood, T., Tuckett, A., Edelstein, O., & Bartlett, H</p> <p>Year: 2011</p>	<p>Design: Qualitative</p> <p>Data collection instruments:</p> <ul style="list-style-type: none"> • Focus group discussions 	18 older adults who were 65 years or older.	<ul style="list-style-type: none"> • Participants were knowledgeable about the benefits of resistance training on health, thus, were used as motivators to participate. • More motivators to participate, among individuals who presently or previously trained included: <ul style="list-style-type: none"> - Programme structure, - Environment, - Body image, - Mental and social health, - Effect on ageing. • Despite all this, the general public still lacks information about specific benefits of resistance training. 	<p>Strengths:</p> <ul style="list-style-type: none"> • This study investigated the perspectives of older adults in relation to a less explored topic. • Used an appropriate research design. <p>Limitations:</p> <ul style="list-style-type: none"> • Perceptions of interviewed participants (previously or currently active) may vary from those who have no drive to involve themselves in resistance training. • Level of education was not taken into consideration. This is known to be a significant motivator, in view of better understanding of benefits.

Table 8: Summary of Lübcke, Martin & Hellström (2012)

Title of article	Authors, year published	Research Design/ data collection instrument	Sample size	Reported key findings	Reported strengths and limitations
Older adults' perceptions of exercising in a senior gym	Authors: Lübcke, A., Martin, C., & Hellström, K Year: 2012	Design: Qualitative Data collection instruments: <ul style="list-style-type: none"> • Semi-structured, open-ended interview 	8 individuals, aged 65-81.	<ul style="list-style-type: none"> • Among the commonest motivators to initiate or continue participation in a senior gym were: <ul style="list-style-type: none"> - exercising at own pace; - finding peers; - competent staff; - accessible machines. • Training was initially perceived as a tool to take control of one's own life, but was later described to become a health investment. • This study suggests that the factors found from this study can be utilised as strategies to improve behaviour towards physical activity among older persons. 	Strengths: <ul style="list-style-type: none"> • In-depth information was gathered due to the nature of the study's qualitative design. Limitations: <ul style="list-style-type: none"> • Possible subconscious influence of interviewer on responders' answers. • Participants were recommended by co-workers. Individuals that were not recommended could possibly had different views on exercise experiences.

Out of the fourteen articles that met the criteria for review, six were main, while eight were articles secondary to the focus of the study. The following table provides the title of the article, the authors and the year of publication.

Table 9: Articles secondary to the focus of the study

Title of article	Authors, year published
Motivators, barriers, and beliefs regarding physical activity in an older adult population	Costello, E., Kafchinski, M., Vrazel, J., & Sullivan, P. 2011
Motivators and barriers for physical activity in the oldest old: a systematic review	Baert, V., Gorus, E., Mets, T., Geerts, C., & Bautmans, I. 2011
What do men want? A review of the barriers and motivators that engage older men in physical activity	Blankley, J., Ferreira Martins Garcia, V., Mccurran, P., San Luis, E., Wang, C.Y., Calder, A., & Baxter, G.D. 2020
Older peoples' adherence to community-based group exercise programmes: a multiple-case study	Killingback, C., Tsofliou, F., & Clark, C. 2017
Study of the older adults' motivators and barriers engaging in a nutrition and resistance exercise intervention for sarcopenia: An embedded qualitative project in the MilkMAN pilot study	Dismore, L., Hurst, C., Sayer, A.A., Stevenson, E., Aspray, T., & Granic, A. 2020
Why do seniors leave resistance training programs?	Burton, E., Hill, A.M., Pettigrew, S., Lewin, G., Bainbridge, L., Farrier, K., Airey, P., & Hill, K.D. 2017
Encouraging older people to engage in resistance training: a multi-stakeholder perspective	Pettigrew, S., Burton, E., Farrier, K., Hill, A.-M., Bainbridge, L., Airey, P., Lewin, G., & Hill, K. D. 2019
Barriers and Motivators of Physical Activity Participation in Middle-Aged and Older Adults- A Systematic Review	Spiteri, K., Broom, D., Bekhet, A.H., Xerri de Caro, J., Laventure, B. & Grafton, K. 2019

2.3 Barriers and motivators to PA and strength training in a gym setting among older persons

Barriers and motivators to PA (Molanorouzi, Khoo & Morris, 2015; Baert et al., 2011; Allender, Cowburn & Foster, 2006) and to PA (Killingback, Tsofliou & Clark, 2017; Bethancourt et al., 2014; Costello et al., 2011) or strength training (Dismore et al., 2020; Pettigrew et al., 2019; Pettigrew et al., 2018; Burton et al., 2017a; Burton et al., 2017b; Burton et al., 2017c; Henwood et al., 2011) in a gym setting have been investigated, however, no studies have specifically investigated the barriers and motivators to gym attendance amongst the older population, irrespective of the activities carried out within the gym setting.

Barriers and motivators to PA among older persons are well-known for all age groups (Molanorouzi, Khoo & Morris, 2015; Biedenweg et al., 2014; Baert et al., 2011; Allender, Cowburn & Foster, 2006). Motivators were based around social and health benefits, weight loss or maintenance, skills development, enjoyment and achievement (Molanorouzi, Khoo & Morris, 2015; Baert et al., 2011; Allender, Cowburn & Foster, 2006). Personal motivators for older persons to engage in PA also play an important part (Biedenweg et al., 2014) and include the positive effect of being with others, the desire for a routine, the need to learn something new and even to wish to simply get out of the house. In the review conducted by Blankley et al. (2020) regarding PA participation, specifically among older men, the matter to preserve meaningfulness in their lives, to maintain mental and physical health and for the feeling of accomplishment were considered as the main motivators to engage in PA. Environmental motivators included lack of fees and the type of exercise carried out (Biedenweg et al., 2014). The commonest barriers on the other hand included lack of time, bad weather, poor health, pain, fear and lack of energy (Molanorouzi, Khoo & Morris, 2015; Biedenweg et al., 2014; Baert et al., 2011; Allender, Cowburn & Foster, 2006). These barriers and motivators can however vary according to the type of exercise being carried out (Burton et al., 2017a).

Numerous concerns and realities were perceived as barriers to PA and strength training in a gym among people of all ages, including older persons, both in active and inactive individuals. These included barriers at a physical level such as pain, decreased balance and increased recovery time from injury (Bethancourt et al., 2014), on-going injuries or illness, specific health issues (Pettigrew et al., 2018; Burton et al., 2017c) and fear of being injured (Pettigrew et al., 2019; Bethancourt et al., 2014; Costello et al., 2011). Apart from such physical limitations, older persons also perceive the fear of falling among the commonest barriers. Factors such as lack of discipline towards exercise (Killingback, Tsofliou & Clark, 2017; Costello et al., 2011) were associated with lack of guidance, motivation or provision of information from professionals (Bethancourt et al., 2014) or lack of time (Costello et al., 2011). Boredom was a commonly quoted barrier to PA in a gym setting (Costello et al., 2011), which was attributed to older persons not being accustomed to doing PA or strength training (Bethancourt et al., 2014), perception of isolation (Killingback, Tsofliou & Clark, 2017) and intimidation or embarrassment in the presence of others (Bethancourt et al., 2014; Costello et al., 2011). This emphasises how conscious some older persons would be when faced with such situation, in view of their decreased physical functionality.

Socioeconomic factors such as time constraints (Pettigrew et al., 2018) and cost of participation/ affordability (Dismore et al., 2020; Pettigrew et al., 2019; Burton et al., 2017c) were also barriers to PA and strength training in a gym setting. At a structural and environmental level, bad weather and internal gym environment that is not aesthetically pleasing were described as barriers to gym attendance (Bethancourt et al., 2014).

Additionally, the gym was often perceived as a “daunting” environment (Dismore et al., 2020, p.7) and many others expressed their dislike of large centres, also described as “unattractive to seniors who can be alienated by other patrons and find the noise levels uncomfortable” (Pettigrew et al., 2019, p. 1815). Noise levels, odours, poor hygiene and limited equipment availability, lack of prior experience and decreased attendance flexibility were amongst the commonest barriers to PA and strength training in a gym among older persons (Pettigrew et al., 2019; Pettigrew et al., 2018).

Barriers that were identified by participants which were specific to strength training within gyms were associated with misconceptions that strength training was too hard (Burton et al., 2017a; Burton et al., 2017c).

The commonest motivators to gym attendance among older persons were related to health benefit, especially if encouraged by one's physician or physiotherapist and to remain active. These included prevention of health issues, management of any presenting conditions, weight loss or maintenance and improvement in physical factors such as strength, balance and cardiovascular fitness (Killingback, Tsofliou & Clark, 2017; Bethancourt et al., 2014; Costello et al., 2011). These are all a combination of motivators and an outcome of motivation, leading to positive attitude and attendance, which in turn lead to remaining independent and healthy as one gets older (Killingback, Tsofliou & Clark, 2017). Pettigrew et al. (2018) and Henwood et al. (2011) identified body image as motivators to strength training participation in gyms, while Pettigrew et al. (2018) identified the recognition that strength training can aid in ameliorating age-related decline as a motivator.

The literature reports that social benefits were a major determinant to gym attendance among older persons, and companionship, social contact and encouragement of others to be great assets to attending a gym (Bethancourt et al., 2014; Costello et al., 2011). While socialisation with likeminded persons is a key concept in improving attendance within gyms, instructor personality, high quality service, knowledge and education and programs that are appropriate for individuals with different physical limitations or fitness levels were identified by most participants to also be strong motivators (Killingback, Tsofliou & Clark, 2017; Bethancourt et al., 2014; Costello et al., 2011).

Environmental motivators were also a major determinant to attendance in a gym. It was considered to be a good option when it can be carried out at a convenient location with good, safe and accessible facilities and is free or low-cost (Killingback, Tsofliou & Clark, 2017; Bethancourt et al., 2014; Costello et al., 2011).

Barriers and motivators towards gym attendance among older persons are influenced by their gym attendance patterns, as well as the type of PA carried out. Benefits such as to feel good physically and mentally, to feel fit, to prevent falls and to prevent injuries were also known benefits to attendance in both active and inactive older persons, hence considered as motivators that would encourage inactive older persons to initiate participation and active older persons to continue participating (Burton et al., 2017c). Inactive participants in the study conducted by Costello et al. (2011) emphasised that PA has to be purposeful, fun and social in order for them to consider engaging in PA, while active participants identified health concerns, socialisation and accessibility of facilities (convenience, cost and safety) as the main motivators. While there were considerably few differences in the motivators to strength training among the active and inactive groups of older persons, perceived enjoyment was one where a significant difference was noted. In fact, 50% of active strength training participants nominated enjoyment as a reason to participate, while only 19.3% of inactive strength training participants reported enjoyment as a possible reason to start engaging in strength training (Burton et al. 2017c).

Burton et al. (2017c) reported that the commonest barrier to strength training among inactive older persons was pain, together with on-going injury or illness and feeling too old, specific health issues, fear of injury, inconvenient locations and being too busy, when compared to active older persons. Similarly, Costello et al. (2011) stated that the commonest barriers among both active and inactive older persons in view of PA participation in gyms were potential for injury and lack of time (mainly due to multiple volunteer responsibilities with heavy time commitments, and also included issues with prioritising) and lack of self-discipline. More specific barriers to inactive participants were boredom and intimidation due to the gym environment. Most inactive persons would be more likely to engage in gym use, had the facilities been closer, if their friends participated too, or if a health professional or doctor suggested commencement (Burton et al., 2017c).

Burton et al. (2017c) discussed the barriers and motivators to gym attendance among older persons according to age and gender. Older inactive respondents reported that they were too old, whereas younger inactive older persons stated that on-going injury or illness, pain, and not knowing how, were barriers to participation. In both active and inactive older persons, weight loss and feeling strong were two commonly identified motivators in the younger age groups. While younger inactive older persons nominated health professional advice as a motivator, younger active older persons reported feeling fit, feeling physically and mentally good and being social as motivators. This emphasises the difference in mentality between the active and inactive participants in view of gym participation (Burton et al., 2017c).

Spiteri et al. (2019) found that the commonest barriers to PA were environmental factors and resources which were significantly comparable between middle-aged individuals (50-64 years) and older adults (65-70 years), indicating minimal differences. However, on the other hand, older individuals considered reinforcement, social interaction and help with management of change as the main motivators, whereas middle-aged individuals considered the belief that PA will be beneficial for them, social interaction and goals setting as the most important motivators (Spiteri et al., 2019).

Inactive male older persons in the study by Burton et al. (2017c) reported on-going injury or illness, pain, not being interested and feeling too old as barriers to strength training within a gym setting. Conversely, inactive females reported pain, the cost and nobody to do it with, as barriers. Barriers to strength training in gyms among active older persons were not discussed. Both male and female respondents listed: to feel good physically and mentally and to feel fit, as motivators, irrespective of whether they were active or inactive. Falls prevention, to feel strong, to be social and for enjoyment; were motivators to strength training in gyms that were more attributed to the female gender (active and inactive) (Burton et al., 2017c).

Another factor that might create limitations for some individuals is the financial situation. Withall, Jago & Fox (2011) delve into the barriers of low-income groups to engage in PA

programmes. In fact, amongst the barriers that this group encounters were poor awareness of importance of PA and gym attendance, childcare, cost of memberships and lack of time, thus tackling these by being offered support and knowledge can improve interest in attendance, noted to be higher among women. It is also important to note how once people become active; adherence rates are high due to improved social influence and enjoyment.

2.4 Impact of COVID-19 pandemic on gym attendance among older people

Significant changes have been seen over the world in all aspects of life in recent years due to the COVID-19 pandemic, and Malta was no exception. The pandemic was and still is not only a health crisis, but has also left an impact on the socio-economic aspects, "... increasing poverty and inequalities at a global scale..." (United Nations Development Programme, 2022). Another area that the pandemic has left a significant impact on, was people's lifestyle and health (Liu & Liu., 2020; Liu et al., 2020; Wu & McGoogan., 2020; Zhang et al., 2020). PA frequency levels and patterns have been affected as the pandemic posed a challenge to exercise (Letieri & Furtado., 2020; Constandt et al., 2020). One of the main reasons for this was the closure of gyms and fitness centres. This, however, came at a cost as the United Nations (2020) suggested that such changes caused individuals to engage in less PA and consume food that is not healthy, thus negatively affecting one's lifestyle.

Christensen, Bond & Mckenna (2022), noted that there was a decrease in PA engagement for both males and females, when comparing the times before and during COVID-19. Prior to the pandemic, the younger population was more active, however, despite this, a decrease was noted in the activity of people of all ages (Bourdass and Zacharakis, 2020; Malta et al., 2020; Zaworski et al., 2020). A more pronounced decrease in PA due to the pandemic was noted among the 70+ year olds (Bourdass and Zacharakis, 2020). Contrastingly, Amini et al. (2020) reported an increase in the number of individuals between the ages of 18-34, carrying out low level activity, and an increase in the number of individuals between the ages of 35-64, carrying out low and moderate level activity.

Constandt et al. (2020) found half the people exhibited a higher rate of exercise, whereas the other half had a more sedentary behaviour, possibly caused by the change in their usual ways of exercising and working from home. These mentioned long home stays might also lead to other problems such as anxiety and depression, which in turn can also lead to chronic health problems, namely cardiovascular problems, diabetes and autoimmune diseases (Chen et al., 2020). Decreased mobility can lead to functional deterioration which would influence the quality of life of the individual, possibly also implying a shorter life expectancy. It can also lead to obesity and all the problems that this brings with it (Ravalli & Musumeci, 2020). Among the commonest risk factors for hospitalisation with COVID-19 were older age, history of organ transplant, pregnancy and consistent inactivity (Sallis et al., 2021). This goes to show why the WHO (n.d.) stressed the critical role of PA during such a situation across people of all ages. Exercise and PA are beneficial in various aspects: physically, mentally and socially (CDC, 2022). The WHO (2021a) on the Malta Physical Activity Factsheet showed that the rates of participation in PA were insufficient. These were 33.9% among 65–74-year-olds and 18.6% among individuals who are 75 years old and older.

Cassar et al. (2021) showed how the pandemic has created a behavioural change in Maltese individuals in terms of the intensity and frequency of participation in exercise. There were higher numbers in terms of exercise frequency during the pandemic when compared to before, similar to what was found by Constandt et al. (2020) in Belgium. This can be related to the longer time indoors, and more free time due to the campaigns to stay indoors and less errands to carry out. On the other hand, there was a decrease in exercise intensity during the pandemic, when compared to those before (Cassar et al., 2021), which can be attributed to the closure of fitness centres and gyms, as well as the lack of heavy weight equipment at own homes, while more people were choosing to walk, thus varying the intensity.

2.5 Conclusion

Within the context of the available studies and relevant literature, this chapter has explored the patterns for gym attendance among older persons and the factors that motivate or limit gym attendance. These barriers and motivators were utilised as the basis for the researcher-created survey to analyse the research questions.

Chapter 3: Methodology

Introduction to the chapter

This is the Methodology chapter. It describes how the research design derives in a logical manner that leads from the problem statement to the qualitative and quantitative nature of the research. In this chapter the rationale behind the research design is given together with the process by which data was generated, gathered and recorded including a justification for the data analysis and ethical issues.

3.1 A case for CASE STUDY research

People are living longer (World Health Organization, 2018), thus implying that the ageing population is on the rise, accompanied with an increase in comorbidities and medical issues, related to increasing age. Active ageing is highly affected by improving physical fitness and promoting wellness. The barriers and motivators to physical activity within the older population have been studied to a large extent, contrary to the specific context of gym attendance. With these thoughts in mind, a research journey that explored older person's attitudes towards gym attendance was embarked on. To investigate this topic and gather information-rich data, multi-method data collection method was opted for, as it allowed for generation of both quantitative and qualitative results. This way, generation of quantitative data could explore the barriers and motivators within a larger sample, thus allowing for generalization of data, while on the other hand, qualitative data could dive deeper into the rationale for participants' attendance to gyms.

A Case Study research approach was considered appropriate as it allowed this kind of approach; collecting data via the multiple sources of evidence, being quantitative and qualitative in nature, combined (Crowe et al., 2011; Eisenhardt, 1989). Case study methodology was deemed appropriate as its principles align with this study and because of its assistance towards gathering of information-rich data from multiple sources, thus engaging a multi-method case study approach.

3.2 Research design

3.2.1 Epistemological foundations and Philosophical considerations

This investigation into the barriers and motivators to gym attendance was not intended to prove causation. It was not the intention to determine specifically if, and why, older persons attended a gym or not, but to understand the unique experiences of older persons towards gym attendance, with a specific view of those factors that were motivators or barriers.

Case study methodology finds its foundation on an interpretivist approach, where theories are generated and constructed through the perspectives of the participants, throughout the research process, rather than starting with one (Crotty, 2003; Creswell, 2003). Given the current research questions, this required a detailed understanding of the participants' perspectives and experiences, thus a constructionist approach was more likely to provide the answers, and was therefore opted for (Mackenzie & Knipe, 2006).

The generation of data from both qualitative and quantitative approaches that complemented each other would allow for data collection via interviews, as well as surveys with each analysed in their respective analytical methods.

3.2.2 Nature of the Inquiry

The nature of inquiry and research involved detailed investigation to generate new understanding and knowledge, through a process of relevant data collection and application of qualitative and quantitative methods to construct theories (Dzurec & Abraham, 1993).

3.2.3 Research strategy

Case study methodology is described as an analysis of a person or community, stressing factors about development, in relation to the environment (Paparini et al., 2020). According to this, the factor which is decisive when defining a study as a case study, is the selection of the individual unit of study, in this case being the determinants of gym attendance (barriers

and motivators) and the setting of its boundaries, known better as the ‘case’. The context refers to older persons.

Table 10: Description of the case, context, and boundaries

Case	The determinants of gym attendance (barriers and motivators)
Context	Older persons
Boundaries	Community-dwelling older persons

3.2.4 Data collection methods

This study lends itself towards a multi-method case study design that includes a descriptive approach at its heart in order to address the research questions. In this manner it addresses the exploratory nature of this research. The exploratory nature allows for the conduct of a detailed investigation into the barriers and motivators to gym attendance by older persons specifically to explore their own experiences (perceived or otherwise) and thus generate insights that will help to understand a bit more what factors would persuade or dissuade older persons going to the gym. A design consisting of a web survey and in-depth qualitative semi-structured interviews, both of which were developed by the research team, was employed within the implemented methodology.

3.3 Research Process

3.3.1 Data collection Phases

Data collection was divided into two Phases which allowed for a better understanding of the situation and yielded more concrete evidence, obtaining both depth and breadth of what is being investigated, to help capture the views and experiences of the participants, as well as the subjective factors, required to clarify compound social situations (Jogulu & Pansiri, 2011). Phase 1 consisted of an online survey questionnaire, while Phase 2 consisted of a semi-structured face-to-face interview.

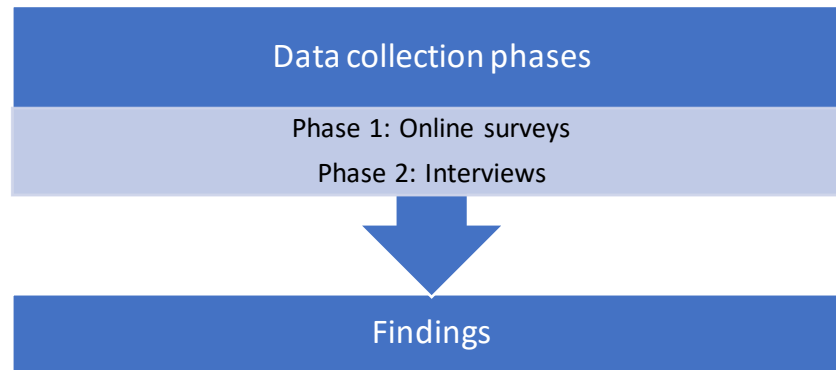


Figure 2: Visual representation of the two data collection phases

3.3.2 Population and sampling (incl. inclusion / exclusion criteria)

The National Statistics for number of community-dwelling persons aged 65 years and over in Malta in 2020 was 95 000 (National Statistics Office, 2020). Setting a confidence level at 95% and a confidence interval at 5 meant that 350 – 400 individuals were necessitated to participate in this study. This was decided to ensure validity that the study sample represented the population (Martinez Mesa et al. 2016). To reach this target a snowball sampling technique was adopted. This is a non-probability sampling method which comprises of purposeful sampling initiated with a small group of identified individuals and expanded by having previously identified participants suggest others that should also be a part of the study, thus gaining easier access to the target population (Naderifar, Goli & Ghaljaie, 2017). This sampling technique can be described as a way of recruiting participants based on accessibility and convenience as it allows simpler sample recruitment (Explorable, 2009).

As for the interviews, 20 interviews were necessitated to participate. To reach the target, voluntary response sampling was used. This sampling technique allowed for participants who previously participated in the survey to make themselves available to participate voluntarily in these interviews.

It was crucial for this study, that the sample population reflects the entire community-dwelling older population in Malta. Eligible participants had to fit a set of inclusion criteria:

- People aged 65 years or older,
- Community-dwelling older persons,
- Residents in Malta.

On the other hand, the exclusion criteria included:

- People who were 64 years or younger,
- Older persons living in community residential homes,
- Maltese citizens living abroad.

3.3.3 Instrument design (survey questionnaire)

The survey questionnaire was designed to purposefully meet the objectives of this study and was developed by the research team by investigating previous literature and their results (Pettigrew et al., 2018; Burton et al., 2017a; Burton et al., 2017c; Bethancourt et al., 2014; Lübcke, Martin & Hellström, 2012; Henwood et al., 2011). Validated scales could not be used in the data collection due to the lack of research in this area. The questionnaire was translated into the Maltese language with the expert assistance of an academic in Maltese language. Although the translated version was not passed through a test of validity and reliability, this was done to accommodate participants' preferences when answering the questions. In fact, participants were given the option to respond to the questionnaire either in English or in Maltese. Information letters, explaining to the participants what the study entails, were prepared in both English and Maltese.

The questionnaire was validated through a pilot study within the first three months of the study. In the pilot study, participants were asked to report on:

- Clarity of survey questions and ease to understand,
- Ease to answer questions,
- Time taken to complete survey,
- Congruence between the two versions (English and Maltese).

The necessary adjustments were made until the final versions of the survey (English and Maltese) were complete.

The survey questionnaire was designed in a number of sequential sections. In the first section, demographic information was sought that included information on: gender, age range, living status, district and qualification. This was done so that the demographic data of the participants could be recorded and their results could be compared, depending on their group. The next sections sought to identify whether the respondent attended to gyms, and if yes, the frequency, duration, type of exercise, guidance, and program preparation. It also included information regarding the reasons behind anyone stopping gym attendance. This was done so that the gym attendance patterns could be investigated. In the subsequent sections the barriers and motivators were explored using a 1 to 5 Likert scale. For the motivators, a 1 indicated that the specific factor was the least motivator while 5 indicated the greatest motivator. The motivators section was split into ‘Individual level: Physical Factors’, ‘Individual level: Psychological Factors’, ‘Individual level: Other Factors’, ‘Social level Factors’, and ‘Environmental level Factors’. For the barriers, a 1 indicated that the specific factor was the least barrier while 5 indicated the greatest barrier. Similar to the motivators section, the barriers section was split into ‘Individual level: Physical Factors’, ‘Individual level: Psychological Factors’, ‘Individual level: Other Factors’, ‘Social level Factors’, and ‘Environmental level Factors’. A set of common barriers and motivators were identified a priori from the study by Burton et al. (2017a) and Burton et al. (2017c). This was done so that participants could score the significance of a specific barrier or motivator to their gym attendance patterns. In the next (final) section respondents were asked whether a gym exclusively dedicated to persons over 65 years of age would encourage their attendance.

The questions were mostly close-ended questions. This was decided so that the participants are encouraged to complete the questionnaire and avoid premature discontinuation of the survey. A comment box was enabled for respondents to indicate any other barriers and / or

motivators to gym attendance that were not previously mentioned in the closed responses. This was done to allow respondents the opportunity to address any issues that they felt were important for them to be mentioned.

The survey was distributed via the online survey software tool 'Survey Monkey'. This online tool enabled a number of functions such as the possibility to use the skip logic that directed respondents to the next questions dependent on their responses. The primary platform for data to be disseminated was via Facebook. A link to the survey was created and shared on the social media platform Facebook, through which anyone seeing the post (those who fall within the inclusion criteria) and was interested in participating, could click on the link to the survey. Anyone who was not interested to participate, was free to ignore the post. A Facebook paid advert was purchased to boost the post and reach the selective older adult population who fall within the inclusion criteria.

During preparation of the survey, survey errors were minimised by taking into consideration four errors and the steps required to minimise them (Dillman, Smyth, Christian, 2014). Coverage error was reduced by including a web survey; therefore, all members of the population had the chance to be included in the study. Sampling error was tackled by using a formula calculation to identify the minimum number of individuals required to take part in the study to have a representative sample. Non-response error was reduced by creating a short survey with close-ended questions, thus, encouraging participants to finish the survey. Measurement error was tackled by making sure that the questions and answers presented in the survey were applicable to all possible participants. Following the economic exchange view of survey response, the participants were explained the motivators why they should respond. They were told that their answers would be beneficial for the society in view of having a more detailed insight on the views of older persons with regards to gym attendance.

3.3.4 Instrument design (interviews)

The interview guides were constructed by the research team to meet the objectives of this study. The interview guides were then translated into the Maltese language with the expert assistance of an academic in Maltese language. Similar to the questionnaire, this was not passed through a test of validity and reliability, however, this was done to accommodate participants who preferred to be interviewed in Maltese. Information letters and consent forms were prepared in both English and Maltese.

The interview guide was designed in a number of sequential sections. In the first section, an introduction sought to explain the aims of the study and what was expected from the participants. This was done so that the participants could get a better understanding of what to expect and ease them into the interview. Demographic information that included information on gender, age, living status, district and qualification, was sought in the next section. The next sections sought to identify whether the respondent attended to gyms, and if yes, the frequency, duration, type of exercise, guidance and program preparation. It also included information regarding the reasons behind anyone stopping gym attendance. This was done so that the gym attendance patterns could be investigated. In the subsequent sections, the barriers and motivators were explored by asking questions about the factors that motivate or might motivate gym attendance and the factors that discourage or may discourage gym attendance. Both barriers and motivators sections consisted of questions related to the physical, psychological, other, social and environmental factors. This was done so that participants could freely open up about their experiences and opinions in relation to this area. In the final section, respondents were asked about their interest in a gym dedicated specifically to individuals over 65 years of age.

In this second Phase of the research, interviews were held with key informants. The interview guide that was used consisted of open-ended questions. This was done to ease the flow of the interview. These interview guides are widely employed by healthcare professionals within the research sector (Strauss, & Corbin, 1998) as they facilitate

qualitative research interview techniques to allow for data generation in an ordinary fashion. This method allowed for in-depth data, as it gave the participants freedom to express themselves and therefore give meaning to their experiences. These semi-structured interviews permitted flexibility, a key element in such approach (Silverman, 2006). The time and place of the interviews were decided by the participants to ensure privacy and allow participants to feel comfortable. The participants were given an information sheet, entailing information about the study and were asked to sign a consent form, should they agree with all the conditions. In addition to jotting down notes, an audio recording of the interviews was kept for subsequent transcription.

3.3.5 Data collection procedure

- The data collection was divided into two phases; Phase 1 being the quantitative data generation, and Phase 2 being the qualitative data generation.
- Information letters and consent forms were prepared in both English and Maltese.
- Questionnaire validation was carried out via a pilot study.
- Four questions were asked during this period of pilot study about the clarity of the survey questions and ease to understand, the ease to answer questions, the time taken to complete survey and the congruence between the two versions (English and Maltese versions).
- Adjustments were made until the final versions of the survey were complete.
- A link to the survey (both English and Maltese versions) was created and shared on the social media platform Facebook.
- After approximately six months, response rate was low, therefore a Facebook paid advert was purchased to boost the post and reach the selective older adult population who fall within the inclusion criteria (Facebook paid advert was purchased for five days).
- Collector was kept open for a period of seven months.

- Meetings were set up with those individuals who indicated their willingness to participate in an interview, at a time and location that was mutually agreeable. This kept on going for a period of two months.
- All participants that attended the interview received an information letter prior to the meeting and submitted a signed consent form.
- All interviews were audio-recorded and transcribed.
- Transcripts were sent to the participants to report back for accuracy.

3.4 The Analytical Process

The analytical techniques that were selected for the findings of the study involved descriptive methods for demographic data, inferential methods for the quantitative findings and framework analysis for the qualitative findings.

In order to transfer the findings from the study to the general population, it was necessary to employ both descriptive and inferential methods. The critique towards quantitative methods that lack insight of individual environments or situations (Baxter & Jack, 2008) was addressed by employing both methods. The surveys allowed for the obtaining of information from a large cohort with statistical possibility, conscious that poor design and low response rate would influence accuracy and validity (Jones, Baxter & Khanduja, 2013). The quantitative and qualitative data generated, both provided a combined better understanding of the barriers and motivators to gym attendance amongst community-dwelling older persons. The statistical data from the quantitative findings was analysed using R software. Pearson's Chi-squared test, Fisher's exact test, Kruskal-Wallis rank sum test and Wilcoxon rank sum test were utilised. Pearson's Chi-squared test was used to test the association between two categorical variables, when the sample was large enough. Fisher's exact test was similarly used to compare the association between two categorical variables, when the sample was small. The Kruskal-Wallis rank sum test is a non-parametric method, used for comparing two or more independent samples. Similarly, the

Wilcoxon rank sum test is a non-parametric test, used to compare two independent groups of samples, where data are not distributed normally.

The qualitative approach using interviews enabled in-depth perspectives of participants' attitudes towards gym attendance, through discussion. This enabled the possibility to explore complex or poorly understood topics (Fossey et al., 2002). The critique towards qualitative methods is that data is generated from a limited sample size and a biased selection. Measures were taken to ensure that data generation was not limited to just an initial group of persons and as such, a snowballing technique was employed where participants were encouraged to refer other participants to the study. The interviews were audio recorded, then transcribed and sent to the participants to report back for accuracy. The qualitative data that emerged from this process was analysed through qualitative means, adopting a thematic analytical approach involving a priori themes to guide the analysis. The use of these a priori themes encouraged the employment of the Framework Analysis approach, described by Ritchie and Spencer (1994) (Srivastava & Thomson, 2009). It also provides evident and systematic stages to the analysis process, and although it is inductive in nature, it allows for the inclusion of a priori and emergent concepts (Lacey & Luff, 2007). To ensure that the analysis exposed the findings well, the collected data was broken down into themes. These themes were developed through a logical process of inductive reasoning that was examined. A feature of this method is the matrix output, consisting of summarised data, which provide a structure by which the researcher can concisely summarise the data and be able to "analyse it by case and by code" (Gale et al., 2013, p.1). The development of a thematic framework, based on the socioecological framework, health belief model and social determinants of health was strongly facilitated by this approach, by constructing 'a priori' themes. The individual factors a priori themes were perceived health benefits, physical appearance, mental well-being and rate of perceived exertion for motivators and perceived health limitations, perceived pain and perceived negative mental health for barriers. As for the social factors for both barriers and motivators, based on the

social determinants of health, the a priori themes were economic stability, neighbourhood and built environment, education, social and community context, and healthcare access and quality (CDC, 2023; Artiga & Hinton, 2018). These themes helped in the shaping of the initial format of theory-building research (Eisenhardt, 1989), by acting as the basis on which emerging themes can be identified and familiarised with. This was then followed by another three stages, known as: Indexing, Charting, Mapping and Interpretation. This approach was developed as it helped in view of the ability to link such qualitative findings with quantitative findings (Gale et al., 2013). This process was carried out using NVivo software.

3.5 Ethical considerations

To ensure the rigour of the research process, that the study is scientifically valid whilst observing participants' rights, and not causing harm to them (Ketefian, 2015) the ethical principles of respect for autonomy, beneficence, non-maleficence and justice (Beauchamp and Childress, 2001) were considered in the light of their implications. These four principles have been influential in bioethics and are vital for understanding the current approaches to analysing ethical dilemmas. The principle of beneficence is the responsibility to act for the benefit of the participant, and in distinction to non-maleficence, this principle does not only focus on preventing harm and suffering, but also to benefit the participants and promote their welfare.

The principle of non-maleficence is the obligation of the researcher not to intentionally cause harm or suffering to the participants. This principle was adopted by creating questions which would not cause any psychological harm to the participants. This study also respected this principle by maintaining confidentiality throughout the study, as well as managing and storing collected data anonymously. Survey responses were stored in an encrypted format on the researcher's personal computer that was password protected. Following completion of the study, data was retained in anonymous format, which could

only be accessed by the researcher and by the academic supervisor and examiners if necessary. The collected data were pseudonymised, meaning that the data was assigned codes pertaining to the personal information and stored securely and separately from any codes and personal data. The coded-audio-recordings and transcripts were stored on the researcher's personal computer that was password protected and in an encrypted format. All material in hard-copy form was placed in a locked cupboard. Personal data was destroyed, while coded data was retained in anonymous form. Data was retained in anonymous form following completion of the study and publication of the results.

Autonomy refers to the fact that all persons have the power to make rational and moral decisions, allowing the individual capacity for self-determination. This principle is the foundation for the exercise of informed consent in the researcher/participant transaction. This was adopted in this study by having all participants receive an information letter in English or Maltese which was hyperlinked with the survey and on the Facebook post that provided information about the study, such as the aims of the study and the methodology used, an overview of the questions asked in the survey and information about participants' rights. Participants were also not obliged to participate or to answer all questions and could withdraw from the study at any time without giving a reason, with the data being destroyed. Participants that carried out the survey could decide to contact the researcher out of their own will to be part of Phase 2 of the study. The participants that were interviewed were provided with information letters (in English or Maltese) that provided information about the study. Participants provided a voluntary, and informed consent (signed a consent form if they agreed with the conditions) to participate and for the interview to be audio-recorded. Participants were explained that they have the right, under the General Data Protection Regulation (GDPR) and national legislation, to access, rectify and where applicable ask for the data concerning them to be erased. The participants were encouraged to ask any questions they might have regarding the study or about their participation.

The principle of justice is generally understood as equitable, fair, and appropriate treatment of participants. This was adopted by treating all participants equally, all having equal opportunities and rights.

Ethical approval to conduct this study was sought and obtained from the Faculty Research Ethics Committee (FREC) (FHS-2022-00030) (Appendix A2).

3.6 Conclusion

This chapter has given a detailed overview of the methodology used for this study. It gave the rationale for choosing case study methodology. It described the research design, including the epistemological foundations and philosophical considerations, nature of inquiry, research strategy and data collection methods. This chapter also gave a detailed explanation on the process of data collection, the analytical process and ethical considerations.

Chapter 4: Results and Data Analysis – Phase 1 (survey questionnaire)

Introduction to the chapter

The purpose of this study was to identify the barriers and motivators towards gym attendance among community-dwelling older persons, as well as to identify which factors contribute most as a barrier or as a motivator. A number of aims were linked to this being: to identify the likelihood of older persons to engage in gym use, as well as identifying which barrier or motivator category affects participants with different demographic backgrounds most. This chapter presents the findings following the data collected during Phase 1 (the survey). The analysis was guided by the socio-ecological framework and the concept of the social determinants of health, both of which allow for appropriate categorisation of the barriers and motivators according to their nature. The findings were analysed by statistical methods and are presented in this chapter.

4.1 Findings

An open call to participation resulted in 221 survey responses, of which 177 responses were considered as 'complete'. A complete survey response was determined based on the finding that respondents replied to all the questions excluding Q30 and 31. Questions 30 to 31 were open ended questions that sought 'any other' views. 177 replies met these criteria; and 44 replies were found to be 'incomplete' and hence eliminated from the data pool. Hence for the purposes of the analysis and subsequent discussion $N = 177$. From the 177 complete responses, 107 were submitted in English and 70 were submitted in Maltese. This is being reported to reflect the nature of the language of response since respondents were given the option to take the survey either in the English language or the Maltese language.

On reading the data it became apparent that some of the categories had very low numbers e.g. the number of respondents in the 80-84 years and 85-89 years age category was 9 and 2 respectively. It was decided to merge categories of data. This was done so that inferential analysis would be well grounded ensuring validity of the results. As such, the categories for age groups 80–84, 85–89 and 90+ were merged to 80 and above (≥ 80 years); and the

categories for education level of 'No schooling or Pre-primary level' and 'Primary level' were merged as 'No schooling or Primary level'. 'Secondary level: O - Level/SEC' and 'Intermediates/'A'- Levels/Matriculation Certificate' were merged as 'Secondary/Intermediates/A-level' and 'Undergraduate Diploma/ Certificate', 'Bachelor's level Degree', 'Master levels Degree/ Post-Graduate Diploma/ Certificate', and 'Doctoral level' were merged as 'Tertiary level'.

Respondents were given the choice to 'rather not answer' the question on gender. None of the responses indicated this option. From the 177 complete responses there were 38.6% (n=69) male respondents and 61.4% (n=108) female respondents. There were 53.4% (n=95) who were 65-69 years of age, 25.6% (n=45) who were 70-74 years of age, 14.8% (n=26) who were 75-79 years of age, and there were 6.3% (n=11) who were ≥ 80 years of age. There were 18.8% (n=33) who lived alone, 68.2% (n=121) who lived with spouse/ partner, 6.3% (n=11) who lived with children, 5.1% (n=9) who lived with spouse/ partner and children, and 1.7% (n=3) who lived with other. There were 11.9% (n=21) who lived in the Southern Harbour District, 33.5% (n=60) who lived in the Northern Harbour District, 23.9% (n=42) who lived in the South Eastern District, 11.9% (n=21) who lived in the Western District, 14.2% (n=25) who lived in the Northern District, and 4.5% (n=8) who lived in the Gozo and Comino District. There were 19.9% (n=35) who had no schooling or Primary level, 41.5% (n=73) who had a Secondary/ Intermediate/ A-level, and 38.6% (n=68) who had a Tertiary level. From the 177 complete responses, there were 15.3% (n=28) who at the time of completion of survey were attending a gym, 41.5% (n=73) who were at the time of completion of survey not attending a gym, but had previously attended, and there were 43.2% (n=76) who had never been to a gym before.

The descriptive findings are tabled in Table 11.

Table 11: Complete responses and independent variables

Complete responses and independent variables	
Variable	Complete responses, N = 177 (n, % distribution)
Gender	
Male	69 (38.6%)
Female	108 (61.4%)
Age	
65-69 years	95 (53.4%)
70-74 years	45 (25.6%)
75-79 years	26 (14.8%)
≥80 years	11 (6.3%)
Living status	
Live alone	33 (18.8%)
Live with spouse/partner	121 (68.2%)
Live with children	11 (6.3%)
Live with spouse/partner & children	9 (5.1%)
Live with other	3 (1.7%)
District	
Southern Harbour District	21 (11.9%)
Northern Harbour District	60 (33.5%)
South Eastern District	42 (23.9%)
Western District	21 (11.9%)
Northern District	25 (14.2%)
Gozo and Comino District	8 (4.5%)
Qualification	
No schooling or Primary level	35 (19.9%)
Secondary/Intermediate/A-level	73 (41.5%)
Tertiary level	68 (38.6%)
Gym attendance	
Attending	28 (15.3%)
Previously attended	73 (41.5%)
Never	76 (43.2%)

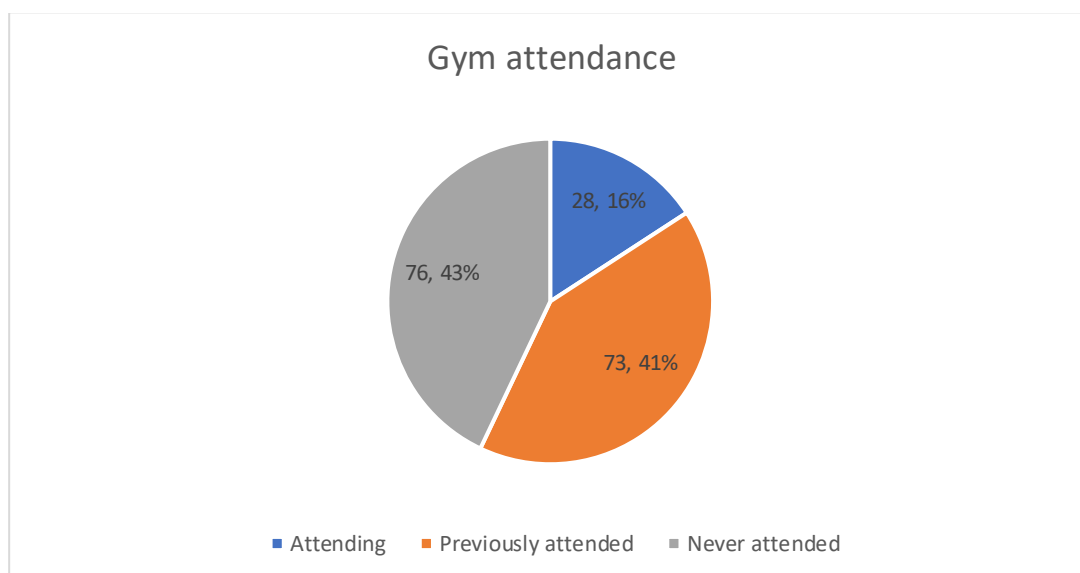


Figure 3: Pie chart showing the history of gym attendance of the survey participants

It was important to assess the findings according to the different variables of gender, age, living status, district, qualification, and history of gym attendance. This was done in order to understand the impact / influence of these variables on the attitudes of older persons to gym attendance. These are assessed in the following subsections.

4.2 Patterns of gym attendance according to gender

Gym attendance was analysed according to gender. This was done in order to answer the question ‘What are the findings in the patterns of gym attendance among community-dwelling older persons according to the independent variable of gender?’. From the 28 responses that reported their attendance at the time of completion of survey, 46.4% (n=13) were males, and 53.6% (n=15) were females. From the 73 that reported that they do not attend, but previously attended, there were 39.7% (n=29) who were males, and 60.3% (n=44) who were females. From the 76 that reported that they had never attended a gym before, 35.5% (n=27) were males, and 64.5% (n=49) were females. There were almost as many males and females who at the time of completion of survey were attending a gym, however there were more females who previously attended or never attended a gym, when compared to males.

Table 12: Table showing how the dependent variable ‘Gym attendance’ varies according to the independent variable - gender

Gym attendance vs gender			
Variable	Attending, n = 28	Previously attended, n = 73	Never, n = 76
Gender			
Male	13 (46.4%)	29 (39.7%)	27 (35.5%)
Female	15 (53.6%)	44 (60.3%)	49 (64.5%)

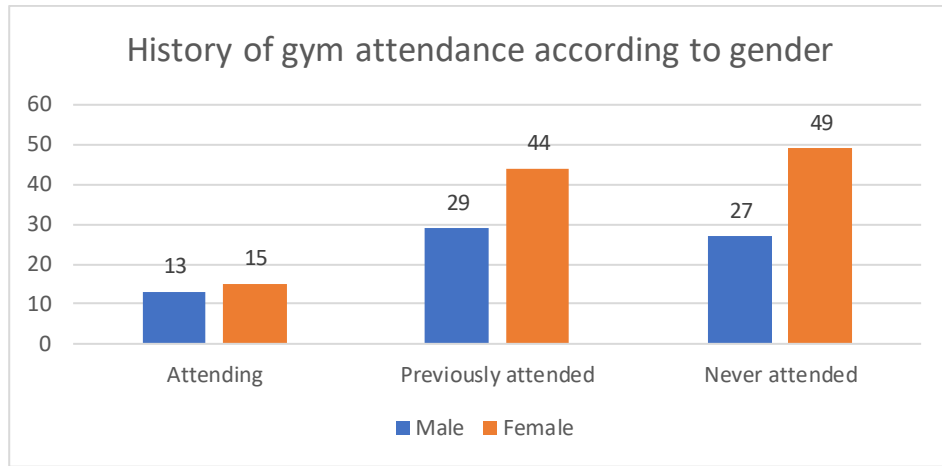


Figure 4: Bar graph showing the history of gym attendance according to gender

Current gym attendees

Gym attendance patterns were investigated in relation to the demographic distributions for those who were currently attending the gym at the time of completion of survey. This included frequency of gym attendance, length of session, type of gym activity, use of personal trainer, and program preparation, for current gym attendees, categorised by gender. From the 13 male, current gym attendees, 84.6% (n=11) attended the gym for four times or less, and 15.4% (n=2) attended the gym for five times or more. From the 15 female, current gym attendees, 86.7% (n=13) attended the gym for 4 times or less, and 13.3% (n=2) attended the gym for five times or more. No male current gym attendees reported attending the gym for less than 30 minutes, 69.2% (n=9) reported attending between 30 minutes and one hour and 30.8% (n=4) reported attending for more than one hour. As for female current gym attendees, there were 6.7% (n=1) who attended for less than 30 minutes, 60% (n=9) who attended between 30 minutes and one hour, and 33.3% (n=5) who reported attending for more than one hour. Among male current gym attendees, 38.5% (n=5) reported carrying out cardiovascular training, 30.8% (n=4) reported carrying out weight/resistance training and 30.8% (n=4) reported carrying out a combination of cardiovascular and weight/resistance training. Among female current gym attendees, 26.7% (n=4) reported carrying out cardiovascular training, 20% (n=3) reported carrying out weight/resistance training, 13.3% (n=2) reported carrying out a combination of cardiovascular and weight/resistance training, 6.7% (n=1) reported carrying out

cardiovascular, weight/resistance training and yoga, 6.7% (n=1) reported carrying out fitness, 20% (n=3) reported carrying out Pilates and 6.7% (n=1) reported carrying out yoga, Pilates and aqua aerobics. From the 13 male current gym attendees, 61.5% (n=8) used to always train alone, 23.1% (n=3) used to occasionally engage with a personal trainer, and 15.4% (n=2) used to more often than not, work with the guidance of a personal trainer. From the 15 female current gym attendees, 20% (n=3) used to always train alone, 26.7% (n=4) used to occasionally engage with a personal trainer, and 53.3% (n=8) used to more often than not, work with the guidance of a personal trainer. As for the males, 69.2% (n=9) prepared the gym program themselves, and 30.8% (n=4) had someone else prepare their gym program. As for the females, 26.7% (n=4) prepared the gym program themselves, and 73.3% (n=11) had someone else prepare their gym program.

Table 13: Gym factors for current gym attendees categorised by gender

Gym factors for current gym attendees		
Factor	Male, n = 13	Female, n = 15
Frequency of gym attendance		
4 times or less	11 (84.6%)	13 (86.7%)
5 times or more	2 (15.4%)	2 (13.3%)
Length of session		
Under 30 minutes	0 (0.0%)	1 (6.7%)
30 minutes to 1 hour	9 (69.2%)	9 (60.0%)
More than 1 hour	4 (30.8%)	5 (33.3%)
Type of gym activity		
Cardiovascular training (e.g. treadmill, bike, rowing)	5 (38.5%)	4 (26.7%)
Weight / resistance training	4 (30.8%)	3 (20.0%)
Cardiovascular & Weight / resistance training	4 (30.8%)	2 (13.3%)
<i>Other</i>		
Cardiovascular & Weight / resistance training & Yoga	0 (0.0%)	1 (6.7%)
Fitness	0 (0.0%)	1 (6.7%)
Pilates	0 (0.0%)	3 (20.0%)
Yoga, Pilates, Aqua Aerobics	0 (0.0%)	1 (6.7%)
Use of a personal trainer		
No, I always train alone	8 (61.5%)	3 (20.0%)
Yes, I occasionally engage a personal trainer	3 (23.1%)	4 (26.7%)
Yes, more often than not, I work with the guidance of a personal trainer	2 (15.4%)	8 (53.3%)
Who prepares your gym program?		
Myself	9 (69.2%)	4 (26.7%)
Other	4 (30.8%)	11 (73.3%)

Previous gym attendees

The distribution of gym factors was investigated by category of gender, among those that do not attend a gym, but had previously done so. 39.7 % (n = 29) were males and 60.3% (n=44) were females who had all previously attended a gym. From the 29 male, previous gym attendees, 89.7% (n=26) attended the gym for four times or less, and 10.3% (n=3) attended the gym for five times or more. From the 44 female, previous gym attendees, 90.9% (n=40) attended the gym for 4 times or less, and 9.1% (n=4) attended the gym for five times or more. From the 29 male previous gym attendees, 3.4% (n=1) reported their previous attendance to the gym for less than 30 minutes, 72.4% (n=21) reported attending between 30 minutes and one hour and 24.1% (n=7) reported attending for more than one hour. As for female previous gym attendees, there were 9.1% (n=4) who attended for less than 30 minutes, 75% (n=33) who attended between 30 minutes and one hour, and 15.9% (n=7) who reported attending for more than one hour. Among male previous gym attendees, 37.9% (n=11) reported carrying out cardiovascular training, 3.4% (n=1) reported carrying out weight/resistance training, 51.7% (n=15) reported carrying out a combination of cardiovascular and weight/resistance training, 3.4% (n=1) reported carrying out circuit training, and 3.4% (n=1) reported carrying out activities to lose weight. Among female previous gym attendees, 68.2% (n=30) reported carrying out cardiovascular training, 15.9% (n=7) reported carrying out a combination of cardiovascular and weight/resistance training, 2.3% (n=1) reported carrying out back exercises, 2.3% (n=1) reported carrying out cardiovascular, weight/resistance training and balance exercises, 4.5% (n=2) reported carrying out cardiovascular training and Pilates, 2.3% (n=1) reported carrying out Pilates, 2.3% (n=1) reported carrying out post-operative hip replacement surgery exercises and 2.3% (n=1) reported carrying out yoga and Pilates. From the 29 male previous gym attendees, 79.3% (n=23) used to always train alone, 13.8% (n=4) used to occasionally engage with a personal trainer, and 6.9% (n=2) used to more often than not, work with the guidance of a personal trainer. From the 44 female previous gym attendees, 43.2% (n=19)

used to always train alone, 31.8% (n=14) used to occasionally engage with a personal trainer, and 25% (n=11) used to more often than not, work with the guidance of a personal trainer. As for the males, 69% (n=20) prepared the gym program themselves, and 31% (n=9) had someone else prepare their gym program. As for the females, 40.9% (n=18) prepared the gym program themselves, and 59.1% (n=26) had someone else prepare their gym program.

Table 14: Gym factors for previous gym attendees categorised by gender

Gym factors for previous gym attendees		
Factor	Male, n = 29	Female, n = 44
Frequency of gym attendance		
4 times or less	26 (89.7%)	40 (90.9%)
5 times or more	3 (10.3%)	4 (9.1%)
Length of session		
Under 30 minutes	1 (3.4%)	4 (9.1%)
30 minutes to 1 hour	21 (72.4%)	33 (75.0%)
More than 1 hour	7 (24.1%)	7 (15.9%)
Type of gym activity		
Cardiovascular training (e.g. treadmill, bike, rowing)	11 (37.9%)	30 (68.2%)
Weight / resistance training	1 (3.4%)	0 (0.0%)
Cardiovascular & Weight / resistance training	15 (51.7%)	7 (15.9%)
<i>Other</i>		
Back exercises	0 (0.0%)	1 (2.3%)
Cardiovascular & Weight / resistance training & Balance exercises	0 (0.0%)	1 (2.3%)
Cardiovascular training & Pilates	0 (0.0%)	2 (4.5%)
Circuit training	1 (3.4%)	0 (0.0%)
Pilates	0 (0.0%)	1 (2.3%)
Post operative hip replacement surgery exercises	0 (0.0%)	1 (2.3%)
To lose weight	1 (3.4%)	0 (0.0%)
Yoga/Pilates	0 (0.0%)	1 (2.3%)
Use of a personal trainer		
No, I always trained alone	23 (79.3%)	19 (43.2%)
Yes, I occasionally engaged with a personal trainer	4 (13.8%)	14 (31.8%)
Yes, more often than not, I worked with the guidance of a personal trainer	2 (6.9%)	11 (25.0%)
Who prepares your gym program?		
Myself	20 (69.0%)	18 (40.9%)
Other	9 (31.0%)	26 (59.1%)

4.3 Patterns of gym attendance according to age

Gym attendance was analysed according to age. This was done in order to answer the question ‘What are the findings in the patterns of gym attendance among community-dwelling older persons according to the independent variable of age?’. From the 28 responses that reported their attendance at the time of completion of survey, 53.6% (n=15) were 65-69 years old, 25% (n=7) were 70-74 years old, 14.3% (n=4) were 75-79 years old and 7.1% (n=2) were aged 80 years or more. From the 73 responses that were not attending a gym at the time of completion of survey, but previously attended, 64.4% (n=47) were 65-69 years old, 21.9% (n=16) were 70-74 years old, 12.3% (n=9) were 75-79 years old, while 1.4% (n=1) were aged 80 years or more. From the 76 responses that reported that they had never attended a gym before, 43.4% (n=33) were 65-69 years old, 28.9% (n=22) were 70-74 years old, 17.1% (n=13) were 75-79 years old, while 10.5% (n=8) were aged 80 years or more. More individual in the younger age groups were found to be attending a gym, when compared to the older age groups. Similarly, this was observed in the group who do not attend, but had previously done so. As for the never attended group, a similar pattern was also observed.

Table 15: Table showing how the dependent variable ‘Gym attendance’ varies according to the independent variable - age

Gym attendance vs age			
Variable	Attending, n = 28	Previously attended, n = 73	Never, n = 76
Age			
65-69 years	15 (53.6%)	47 (64.4%)	33 (43.4%)
70-74 years	7 (25.0%)	16 (21.9%)	22 (28.9%)
75-79 years	4 (14.3%)	9 (12.3%)	13 (17.1%)
≥80 years	2 (7.1%)	1 (1.4%)	8 (10.5%)

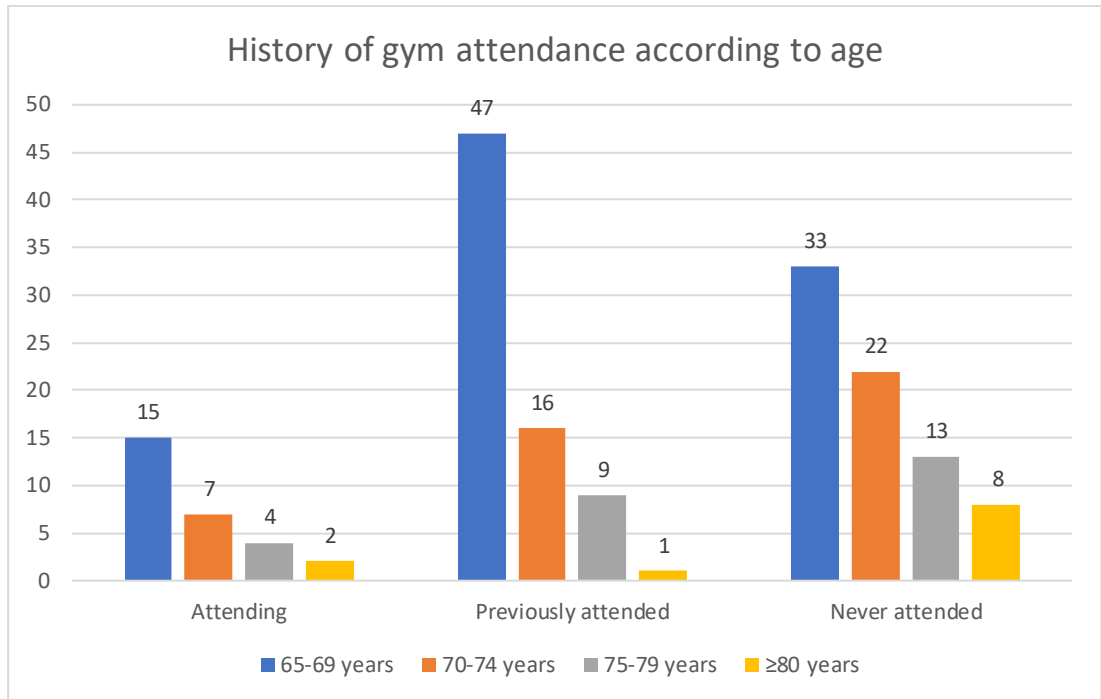


Figure 5: Bar graph showing the history of gym attendance according to age

Current gym attendees

Gym attendance patterns were investigated in relation to the demographic distributions for those who were currently attending the gym at the time of completion of survey. This included frequency of gym attendance, length of session, type of gym activity, use of personal trainer, and program preparation, for current gym attendees, categorised by age. From the 15 responses corresponding to the 65-69 years group who were current gym attendees at the time of completion of survey, 86.7% (n=13) attended the gym for four times or less, and 13.3% (n=2) attended the gym for five times or more. From the 7 responses corresponding to the 70-74 years group who were current gym attendees at the time of completion of survey, 85.7% (n=6) attended the gym for 4 times or less, and 14.3% (n=1) attended the gym for five times or more. From the 4 responses corresponding to the 75-79 years group who were current gym attendees at the time of completion of survey, 75% (n=3) attended the gym for 4 times or less, and 25% (n=1) attended the gym for five times or more. From the 2 responses corresponding to the ≥80 years group who were current gym attendees at the time of completion of survey, 100% (n=2) attended the gym for 4 times or less. From the 15 responses corresponding to the 65-69 years group who

were current gym attendees at the time of completion of survey, 73.3% (n=11) reported attending between 30 minutes and one hour and 26.7% (n=4) reported attending for more than one hour. As for the 70-74 years group, who were current gym attendees, there were 14.3% (n=1) who attended for less than 30 minutes, 57.1% (n=4) who attended between 30 minutes and one hour, and 28.6% (n=2) who reported attending for more than one hour. As for the 75-79 years group, who were current gym attendees, there were 25% (n=1) who attended between 30 minutes and one hour, and 75% (n=3) who reported attending for more than one hour. As for the ≥ 80 years group, who were current gym attendees, there were 100% (n=2) who attended between 30 minutes and one hour. Among the 65-69 years group who were current gym attendees, 26.7% (n=4) reported carrying out cardiovascular training, 33.3% (n=5) reported carrying out weight/resistance training, 20% (n=3) reported carrying out a combination of cardiovascular and weight/resistance training, 6.7% (n=1) reported carrying out cardiovascular and weight/resistance training and yoga, 6.7% (n=1) reported carrying out Pilates, and 6.7% (n=1) reported carrying out yoga, Pilates and aqua aerobics. Among the 70-74 years age group who were current gym attendees, 42.9% (n=3) reported carrying out cardiovascular training, 28.6% (n=2) reported carrying out weight/resistance training, 14.3% (n=1) reported carrying out a combination of cardiovascular and weight/resistance training, and 14.3% (n=1) reported carrying out fitness. Among the 75-79 years age group who were current gym attendees, 25% (n=1) carried out cardiovascular training, 25% (n=1) carried out a combination of cardiovascular and weight/resistance training and 50% (n=2) carried out Pilates. Among the ≥ 80 age group who were current gym attendees, 50% (n=1) carried out cardiovascular training, and 50% (n=1) carried out cardiovascular and weight/resistance training. From the 15 responses who were 65-69 years of age and were attending a gym at the time of completion of survey, there were 26.7% (n=4) who used to always train alone, 40% (n=6) who used to occasionally engage with a personal trainer, and 33.3% (n=5) who used to more often than not, work with the guidance of a personal trainer. From the 7 responses who were 70-74 years of age and were attending a gym at the time of completion of survey, there were

42.9% (n=3) who used to always train alone, 14.3% (n=1) who used to occasionally engage with a personal trainer, and 42.9% (n=3) who used to more often than not, work with the guidance of a personal trainer. From the 4 responses who were 75-79 years of age and were attending a gym at the time of completion of survey, there were 50% (n=2) who used to always train alone, and 50% (n=2) who used to more often than not, work with the guidance of a personal trainer. From the 2 responses who were ≥ 80 years of age and were attending a gym at the time of completion of survey, there were 100% (n=2) who used to always train alone. From the 15 responses who were 65-69 years of age and were current gym attendees at the time of completion of survey, there were 53.3% (n=8) who prepared the gym program themselves, and 46.7% (n=7) who had someone else prepare their gym program. As for those who were 70-74 years of age and were current gym attendees at the time of completion of survey, there were 14.3% (n=1) who prepared the gym program themselves, and 85.7% (n=6) who had someone else prepare their gym program. As for those who were 75-79 years of age and were current gym attendees at the time of completion of survey, there were 50% (n=2) who prepared the gym program themselves, and 50% (n=2) who had someone else prepare their gym program. As for those who were ≥ 80 years of age and were current gym attendees at the time of completion of survey, there were 100% (n=2) who prepared the gym program themselves.

Table 16: Gym factors for current gym attendees categorised by age

Gym factors for current gym attendees				
Factor	65-69 years, n = 15	70-74 years, n = 7	75-79 years, n = 4	≥80 years, n = 2
Frequency of gym attendance				
4 times or less	13 (86.7%)	6 (85.7%)	3 (75.0%)	2 (100.0%)
5 times or more	2 (13.3%)	1 (14.3%)	1 (25.0%)	0 (0.0%)
Length of session				
Under 30 minutes	0 (0.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)
30 minutes to 1 hour	11 (73.3%)	4 (57.1%)	1 (25.0%)	2 (100.0%)
More than 1 hour	4 (26.7%)	2 (28.6%)	3 (75.0%)	0 (0.0%)
Type of gym activity				
Cardiovascular training (e.g. treadmill, bike, rowing)	4 (26.7%)	3 (42.9%)	1 (25.0%)	1 (50.0%)
Weight / resistance training	5 (33.3%)	2 (28.6%)	0 (0.0%)	0 (0.0%)
Cardiovascular & Weight / resistance training	3 (20.0%)	1 (14.3%)	1 (25.0%)	1 (50.0%)
<i>Other</i>				
Cardiovascular & Weight / resistance training & Yoga	1 (6.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Fitness	0 (0.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)
Pilates	1 (6.7%)	0 (0.0%)	2 (50.0%)	0 (0.0%)
Yoga, Pilates, Aqua Aerobics	1 (6.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Use of a personal trainer				
No, I always train alone	4 (26.7%)	3 (42.9%)	2 (50.0%)	2 (100.0%)
Yes, I occasionally engage a personal trainer	6 (40.0%)	1 (14.3%)	0 (0.0%)	0 (0.0%)
Yes, more often than not, I work with the guidance of a personal trainer	5 (33.3%)	3 (42.9%)	2 (50.0%)	0 (0.0%)
Who prepares your gym program?				
Myself	8 (53.3%)	1 (14.3%)	2 (50.0%)	2 (100.0%)
Other	7 (46.7%)	6 (85.7%)	2 (50.0%)	0 (0.0%)

Previous gym attendees

The distribution of gym factors was investigated by category of age, among those that do not attend a gym, but had previously done so. From the 47 responses corresponding to the 65-69 years group who were previous gym attendees at the time of completion of survey, 91.5% (n=43) attended the gym for four times or less, and 8.5% (n=4) attended the gym for five times or more. From the 16 responses corresponding to the 70-74 years group who were previous gym attendees at the time of completion of survey, 87.5% (n=14) attended the gym for 4 times or less, and 12.5% (n=2) attended the gym for five times or more. From

the 9 responses corresponding to the 75-79 years group who were previous gym attendees at the time of completion of survey, 88.9% (n=8) attended the gym for 4 times or less, and 11.1% (n=1) attended the gym for five times or more. From the 1 response corresponding to the ≥ 80 years group who was a previous gym attendee at the time of completion of survey, 100% (n=1) attended the gym for 4 times or less. From the 47 responses corresponding to the 65-69 years group who were previous gym attendees at the time of completion of survey, 4.3% (n=2) reported attending for less than 30 minutes, 74.5% (n=35) reported attending between 30 minutes and one hour and 21.3% (n=10) reported attending for more than one hour. As for the 70-74 years group, who were previous gym attendees, there were 6.3% (n=1) who attended for less than 30 minutes, 75% (n=12) who attended between 30 minutes and one hour, and 18.8% (n=3) who reported attending for more than one hour. As for the 75-79 years group, who were previous gym attendees, there were 22.2% (n=2) who attended for less than 30 minutes, 66.7% (n=6) who attended between 30 minutes and one hour, and 11.1% (n=1) who reported attending for more than one hour. As for the ≥ 80 years group, who were previous gym attendees, there were 100% (n=1) who attended between 30 minutes and one hour. Among the 65-69 years group who were previous gym attendees, 59.6% (n=28) reported carrying out cardiovascular training, 2.1% (n=1) reported carrying out weight/resistance training, 23.4% (n=11) reported carrying out a combination of cardiovascular and weight/resistance training, 2.1% (n=1) reported carrying out back exercises, 2.1% (n=1) reported carrying out cardiovascular, weight/resistance training and balance exercises, 2.1% (n=1) reported carrying out circuit training, 2.1% (n=1) reported carrying out Pilates, 2.1% (n=1) reported carrying out post-operative hip replacement surgery exercises, 2.1% (n=1) reported carrying out exercises to lose weight, and 2.1% (n=1) reported carrying out yoga and Pilates. Among the 70-74 years age group who were previous gym attendees, 50% (n=8) reported carrying out cardiovascular training, 42.8% (n=7) reported carrying out a combination of cardiovascular and weight/resistance training, and 6.3% (n=1) reported carrying out cardiovascular training and Pilates. Among the 75-79 years age group who were previous gym attendees, 44.4% (n=4) carried out cardiovascular

training, 44.4% (n=4) carried out a combination of cardiovascular and weight/resistance training and 11.1% (n=1) carried out cardiovascular training and Pilates. Among the ≥ 80 age group who were current gym attendees, 100% (n=) carried out cardiovascular training. From the 47 responses who were 65-69 years of age and had previously attended a gym, there were 53.2% (n=25) who used to always train alone, 29.8% (n=14) who used to occasionally engage with a personal trainer, and 17% (n=8) who used to more often than not, work with the guidance of a personal trainer. From the 16 responses who were 70-74 years of age and had previous attended a gym, there were 62.5% (n=10) who used to always train alone, 18.8% (n=3) who used to occasionally engage with a personal trainer, and 18.8% (n=3) who used to more often than not, work with the guidance of a personal trainer. From the 9 responses who were 75-79 years of age and had previously attended a gym, there were 77.8% (n=7) who used to always train alone, and 11.1% (n=1) who occasionally engaged with a personal trainer, and 11.1% (n=1) who used to more often than not, work with the guidance of a personal trainer. From the 1 response who was ≥ 80 years of age and had previously attended a gym, there was 100% (n=1) who more often than not, used to work with the guidance of a personal trainer. From the 47 responses who were 65-69 years of age and were previous gym attendees at the time of completion of survey, there were 46.8% (n=22) who prepared the gym program themselves, and 53.2% (n=25) who had someone else prepare their gym program. As for those who were 70-74 years of age and were previous gym attendees at the time of completion of survey, there were 62.5% (n=10) who prepared the gym program themselves, and 37.5% (n=6) who had someone else prepare their gym program. As for those who were 75-79 years of age and were previous gym attendees at the time of completion of survey, there were 66.7% (n=6) who prepared the gym program themselves, and 33.3% (n=3) who had someone else prepare their gym program. As for those who were ≥ 80 years of age and were previous gym attendees at the time of completion of survey, there were 100% (n=1) who had someone else prepare their gym program.

Table 17: Gym factors for previous gym attendees categorised by age

Gym factors for previous gym attendees				
Factor	65-69 years, n = 47	70-74 years, n = 16	75-79 years, n = 9	≥80 years, n = 1
Frequency of gym attendance				
4 times or less	43 (91.5%)	14 (87.5%)	8 (88.9%)	1 (100.0%)
5 times or more	4 (8.5%)	2 (12.5%)	1 (11.1%)	0 (0.0%)
Length of session				
Under 30 minutes	2 (4.3%)	1 (6.3%)	2 (22.2%)	0 (0.0%)
30 minutes to 1 hour	35 (74.5%)	12 (75.0%)	6 (66.7%)	1 (100.0%)
More than 1 hour	10 (21.3%)	3 (18.8%)	1 (11.1%)	0 (0.0%)
Type of gym activity				
Cardiovascular training (e.g. treadmill, bike, rowing)	28 (59.6%)	8 (50.0%)	4 (44.4%)	1 (100.0%)
Weight / resistance training	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cardiovascular & Weight / resistance training	11 (23.4%)	7 (43.8%)	4 (44.4%)	0 (0.0%)
<i>Other</i>				
Back exercises	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cardiovascular & Weight / resistance training & Balance exercises	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cardiovascular training & Pilates	0 (0.0%)	1 (6.3%)	1 (11.1%)	0 (0.0%)
Circuit training	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Pilates	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Post operative hip replacement surgery exercises	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
To lose weight	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Yoga/Pilates	1 (2.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Use of a personal trainer				
No, I always trained alone	25 (53.2%)	10 (62.5%)	7 (77.8%)	0 (0.0%)
Yes, I occasionally engaged with a personal trainer	14 (29.8%)	3 (18.8%)	1 (11.1%)	0 (0.0%)
Yes, more often than not, I worked with the guidance of a personal trainer	8 (17.0%)	3 (18.8%)	1 (11.1%)	1 (100.0%)
Who prepares your gym program?				
Myself	22 (46.8%)	10 (62.5%)	6 (66.7%)	0 (0.0%)
Other	25 (53.2%)	6 (37.5%)	3 (33.3%)	1 (100.0%)

4.4 Patterns of gym attendance according to living status

Gym attendance was analysed according to living status. This was done in order to answer the question ‘What are the findings in the patterns of gym attendance among community-dwelling older persons according to the independent variable of living status?’. From the 28 responses that reported their attendance at the time of completion of the survey, 17.9% (n=5) used to live alone, 64.3% (n=18) used to live with spouse/ partner, 7.1% (n=2) used to live with children, 3.6% (n=1) used to live with spouse/partner and children, and 7.1% (n=2) used to live with other. From the 73 responses that were not attending a gym at the time of completion of survey, but previously attended, 19.2% (n=14) used to live alone, 67.1% (n=49) used to live with spouse/ partner, 6.8% (n=5) used to live with children, 6.8% (n=5) used to live with spouse/partner and children, and 0% (n=0) used to live with other. From the 76 responses that reported that they had never attended a gym before, 18.4% (n=14) used to live alone, 71.1% (n=54) used to live with spouse/partner, 5.3% (n=4) used to live with children, 3.9% (n=3) used to live with spouse/ partner and children, and 1.3% (n=1) used to live with other. It was noted that more respondents who lived with spouse/partner were at the time of completion of survey attending a gym or had previously attended a gym.

Table 18: Table showing how the dependent variable ‘Gym attendance’ varies according to the independent variable – living status

Gym attendance vs living status			
Variable	Attending, n = 28	Previously attended, n = 73	Never, n = 76
Living status			
Live alone	5 (17.9%)	14 (19.2%)	14 (18.4%)
Live with spouse/partner	18 (64.3%)	49 (67.1%)	54 (71.1%)
Live with children	2 (7.1%)	5 (6.8%)	4 (5.3%)
Live with spouse/partner & children	1 (3.6%)	5 (6.8%)	3 (3.9%)
Live with other	2 (7.1%)	0 (0.0%)	1 (1.3%)

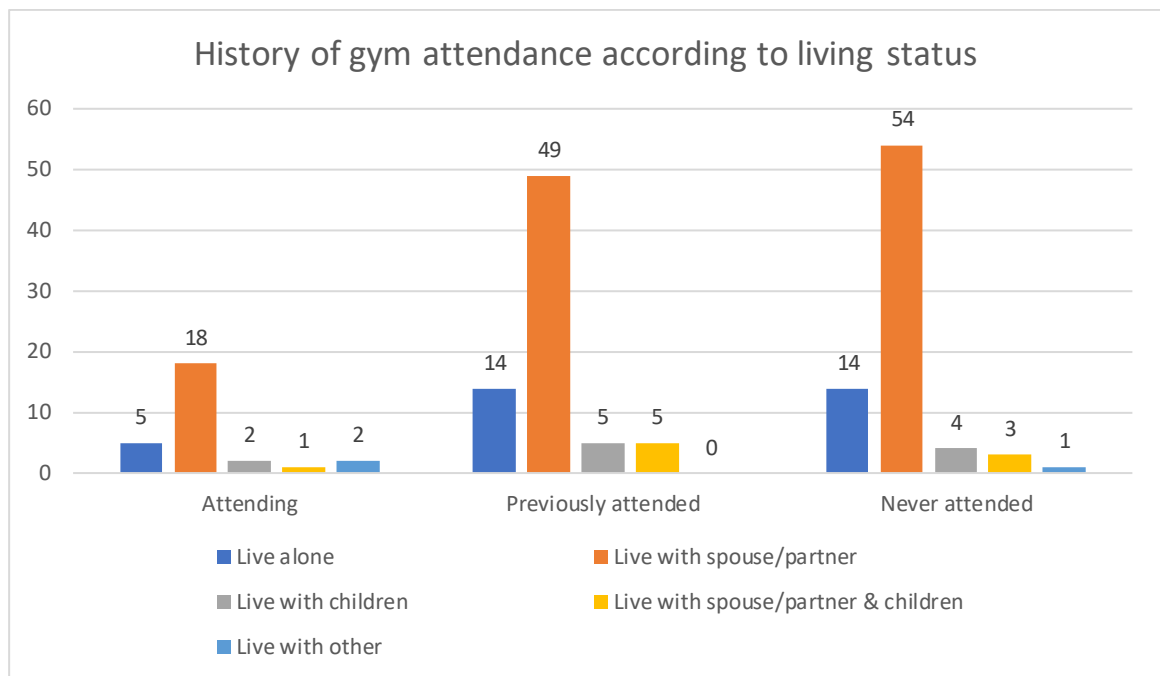


Figure 6: Bar graph showing the history of gym attendance according to living status

Current gym attendees

Gym attendance patterns were investigated in relation to the demographic distributions for those who were currently attending the gym at the time of completion of survey. This included frequency of gym attendance, length of session, type of gym activity, use of personal trainer, and program preparation, for current gym attendees, categorised by living status. From the 5 responses corresponding to the 'live alone' group who were current gym attendees at the time of completion of survey, 100% (n=5) attended the gym for four times or less. From the 18 responses corresponding to the 'live with spouse/partner' group who were current gym attendees at the time of completion of survey, 94.4% (n=17) attended the gym for 4 times or less, and 5.6% (n=1) attended the gym for five times or more. From the 2 responses corresponding to the 'live with children' group who were current gym attendees at the time of completion of survey, 50% (n=1) attended the gym for 4 times or less, and 50% (n=1) attended the gym for five times or more. From the 1 response corresponding to the 'live with spouse/partner and children' group who were current gym attendees at the time of completion of survey, 100% (n=1) attended the gym for 5 times or more. From the 2 responses corresponding to the 'live other' group who were current gym

attendees at the time of completion of survey, 50% (n=1) attended the gym for 4 times or less, and 50% (n=1) attended the gym for five times or more. From the 5 responses corresponding to the 'live alone' group who were current gym attendees at the time of completion of survey, 20% (n=1) reported attending between 30 minutes and one hour and 80% (n=4) reported attending for more than one hour. As for the 'live with spouse/partner' group, who were current gym attendees, there were 77.8% (n=14) who attended between 30 minutes and one hour, and 22.2% (n=4) who reported attending for more than one hour. As for the 'live with children' group, who were current gym attendees, there were 50% (n=1) who attended between 30 minutes and one hour, and 50% (n=1) who reported attending for more than one hour. As for the 'live with spouse/partner and children' group, who were current gym attendees, there were 100% (n=1) who attended for less than 30 minutes. As for the 'live with other' group, who were current gym attendees, there were 100% (n=2) who attended between 30 minutes and one hour. Among the 'live alone' group who were current gym attendees, 40% (n=2) reported carrying out cardiovascular training, 20% (n=1) reported carrying out a combination of cardiovascular and weight/resistance training, and 40% (n=2) reported carrying out Pilates. Among the 'live with spouse/partner' group who were current gym attendees, 27.8% (n=5) reported carrying out cardiovascular training, 33.3% (n=6) reported carrying out weight/resistance training, 22.2% (n=4) reported carrying out a combination of cardiovascular and weight/resistance training, 5.6% (n=1) reported carrying out cardiovascular, weight/resistance training and yoga, 5.6% (n=1) reported carrying out fitness, and 5.6% (n=1) reported carrying out Pilates. Among the 'live with children' group who were current gym attendees, 50% (n=1) carried out cardiovascular training, 50% (n=1) carried out a combination of cardiovascular and weight/resistance training. Among the 'live with spouse/partner and children' group who were current gym attendees, 100% (n=1) carried out cardiovascular training. Among the 'live with other' group who were current gym attendees, 50% (n=1) carried out weight/resistance training, and 50% (n=1) carried out yoga, Pilates and aqua aerobics. From the 5 responses who 'live alone' and were attending a gym at the time of completion of

survey, there were 20% (n=1) who used to always train alone, 40% (n=2) who used to occasionally engage with a personal trainer, and 40% (n=2) who used to more often than not, work with the guidance of a personal trainer. From the 18 responses who 'live with spouse/partner' and were attending a gym at the time of completion of survey, there were 38.9% (n=7) who used to always train alone, 27.8% (n=5) who used to occasionally engage with a personal trainer, and 33.3% (n=6) who used to more often than not, work with the guidance of a personal trainer. From the 2 responses who 'live with children' and were attending a gym at the time of completion of survey, there were 50% (n=1) who used to always train alone, and 50% (n=1) who used to more often than not, work with the guidance of a personal trainer. From the 1 response who 'live with spouse/partner and children' and were attending a gym at the time of completion of survey, there were 100% (n=1) who used to always train alone. From the 2 responses who 'live with other' and were attending a gym at the time of completion of survey, there were 50% (n=1) who used to train alone, and 50% (n=1) who used to more often than not, work with the guidance of a personal trainer. From the 5 responses who 'live alone' and were current gym attendees at the time of completion of survey, there were 40% (n=2) who prepared the gym program themselves, and 60% (n=3) who had someone else prepare their gym program. As for those who 'live with spouse/partner' and were current gym attendees at the time of completion of survey, there were 44.4% (n=8) who prepared the gym program themselves, and 55.6% (n=10) who had someone else prepare their gym program. As for those who 'live with children' and were current gym attendees at the time of completion of survey, there were 50% (n=1) who prepared the gym program themselves, and 50% (n=1) who had someone else prepare their gym program. As for those who 'live with spouse/partner and children' and were current gym attendees at the time of completion of survey, there were 100% (n=1) who had someone else prepare their gym program. As for those who 'live with other' and were current gym attendees at the time of completion of survey, there were 100% (n=2) who used to prepare their own gym program.

Table 19: Gym factors for current gym attendees categorised by living status

Gym factors for current gym attendees					
Factor	Live alone, n = 5	Live with spouse/ partner, n = 18	Live with children, n = 2	Live with spouse/ partner & children, n = 1	Live with other, n = 2
Frequency of gym attendance					
4 times or less	5 (100.0%)	17 (94.4%)	1 (50.0%)	0 (0.0%)	1 (50.0%)
5 times or more	0 (0.0%)	1 (5.6%)	1 (50.0%)	1 (100.0%)	1 (50.0%)
Length of session					
Under 30 minutes	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
30 minutes to 1 hour	1 (20.0%)	14 (77.8%)	1 (50.0%)	0 (0.0%)	2 (100.0%)
More than 1 hour	4 (80.0%)	4 (22.2%)	1 (50.0%)	0 (0.0%)	0 (0.0%)
Type of gym activity					
Cardiovascular training (e.g. treadmill, bike, rowing)	2 (40.0%)	5 (27.8%)	1 (50.0%)	1 (100.0%)	0 (0.0%)
Weight / resistance training	0 (0.0%)	6 (33.3%)	0 (0.0%)	0 (0.0%)	1 (50.0%)
Cardiovascular & Weight / resistance training	1 (20.0%)	4 (22.2%)	1 (50.0%)	0 (0.0%)	0 (0.0%)
<i>Other</i>					
Cardiovascular & Weight / resistance training & Yoga	0 (0.0%)	1 (5.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Fitness	0 (0.0%)	1 (5.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Pilates	2 (40.0%)	1 (5.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Yoga, Pilates, Aqua Aerobics	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)
Use of a personal trainer					
No, I always train alone	1 (20.0%)	7 (38.9%)	1 (50.0%)	1 (100.0%)	1 (50.0%)
Yes, I occasionally engage a personal trainer	2 (40.0%)	5 (27.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Yes, more often than not, I work with the guidance of a personal trainer	2 (40.0%)	6 (33.3%)	1 (50.0%)	0 (0.0%)	1 (50.0%)
Who prepares your gym program?					
Myself	2 (40.0%)	8 (44.4%)	1 (50.0%)	0 (0.0%)	2 (100.0%)
Other	3 (60.0%)	10 (55.6%)	1 (50.0%)	1 (100.0%)	0 (0.0%)

Previous gym attendees

The distribution of gym factors was investigated by category of living status, among those that do not attend a gym, but had previously done so. From the 14 responses corresponding to the ‘live alone’ group who had previously attended a gym, 92.9% (n=13) attended the gym for four times or less, and 7.1% (n=1) attended for 5 times or more. From the 49 responses corresponding to the ‘live with spouse/partner’ group who had previously

attended a gym, 89.9% (n=44) attended the gym for 4 times or less, and 10.2% (n=5) attended the gym for five times or more. From the 5 responses corresponding to the 'live with children' group who had previously attended a gym, 80% (n=4) attended the gym for 4 times or less, and 20% (n=1) attended the gym for five times or more. From the 5 responses corresponding to the 'live with spouse/partner and children' group who had previously attended a gym, 100% (n=5) attended the gym for 4 times or less. From the 14 responses corresponding to the 'live alone' group who had previously attended a gym, 14.3% (n=2) reported attending for less than 30 minutes, 71.4% (n=10) attended between 30 minutes and one hour and 14.3% (n=2) reported attending for more than one hour. As for the 'live with spouse/partner' group, who had previously attended a gym, there were 6.1% (n=3) who attended for less than 30 minutes, 71.4% (n=35) who attended between 30 minutes and one hour, and 22.4% (n=11) who reported attending for more than one hour. As for the 'live with children' group, who had previously attended a gym, there were 100% (n=5) who attended between 30 minutes and one hour. As for the 'live with spouse/partner and children' group, who had previously attended a gym, there were 80% (n=4) who attended for between 30 minutes and one hour, and 20% (n=1) who attended for more than one hour. Among the 'live alone' group who had previously attended a gym, 50% (n=7) reported carrying out cardiovascular training, 21.4% (n=3) reported carrying out a combination of cardiovascular and weight/resistance training, 7.1% (n=1) reported carrying out cardiovascular, weight/resistance training and balance exercises, 7.1% (n=1) reported carrying out cardiovascular training and Pilates, 7.1% (n=1) reported carrying out circuit training and 7.1% (n=1) reported carrying out post-operative hip replacement surgery exercises. Among the 'live with spouse/partner' group who had previously attended a gym, 59.2% (n=29) reported carrying out cardiovascular training, 32.7% (n=16) reported carrying out a combination of cardiovascular and weight/resistance training, 2% (n=1) reported carrying out back exercises, 2% (n=1) reported carrying out Pilates, 2% (n=1) reported carrying out exercises to lose weight, and 2% (n=1) reported carrying out yoga and Pilates. Among the 'live with children' group who had previously attended a gym, 60%

(n=3) carried out cardiovascular training, 20% (n=1) carried out a combination of cardiovascular and weight/resistance training, and 20% (n=1) carried out cardiovascular training and Pilates. Among the 'live with spouse/partner and children' group who had previously attended a gym, 40% (n=2) carried out cardiovascular training, 20% (n=1) carried out weight/resistance training, and 40% (n=2) carried out cardiovascular and weight/resistance training. From the 14 responses who 'live alone' and had previously attended a gym, there were 42.9% (n=6) who used to always train alone, 42.9% (n=6) who used to occasionally engage with a personal trainer, and 14.3% (n=2) who used to more often than not, work with the guidance of a personal trainer. From the 49 responses who 'live with spouse/partner' and had previously attended a gym, there were 63.3% (n=31) who used to always train alone, 14.3% (n=7) who used to occasionally engage with a personal trainer, and 22.4% (n=11) who used to more often than not, work with the guidance of a personal trainer. From the 5 responses who 'live with children' and had previously attended a gym, there were 40% (n=2) who used to always train alone, and 60% (n=3) who occasionally engaged with a personal trainer. From the 5 responses who 'live with spouse/partner and children' and had previously attended a gym, there were 60% (n=3) who used to always train alone, and 40% (n=2) who occasionally engaged with a personal trainer. From the 14 responses who 'live alone' and had previously attended a gym, there were 42.9% (n=6) who prepared the gym program themselves, and 57.1% (n=8) who had someone else prepare their gym program. As for those who 'live with spouse/partner' and had previously attended a gym, there were 53.1% (n=26) who prepared the gym program themselves, and 46.9% (n=23) who had someone else prepare their gym program. As for those who 'live with children' and had previously attended a gym, there were 40% (n=2) who prepared the gym program themselves, and 60% (n=3) who had someone else prepare their gym program. As for those who 'live with spouse/partner and children' and had previously attended a gym, there were 80% (n=4) who prepared the gym program themselves, and 20% (n=1) who had someone else prepare their gym program.

Table 20: Gym factors for previous gym attendees categorised by living status

Gym factors for previous gym attendees					
Factor	Live alone, n = 14	Live with spouse/ partner, n = 49	Live with children, n = 5	Live with spouse/ partner & children, n = 5	Live with other, n = 0
Frequency of gym attendance					
4 times or less	13 (92.9%)	44 (89.8%)	4 (80.0%)	5 (100.0%)	0 (NA%)
5 times or more	1 (7.1%)	5 (10.2%)	1 (20.0%)	0 (0.0%)	0 (NA%)
Length of session					
Under 30 minutes	2 (14.3%)	3 (6.1%)	0 (0.0%)	0 (0.0%)	0 (NA%)
30 minutes to 1 hour	10 (71.4%)	35 (71.4%)	5 (100.0%)	4 (80.0%)	0 (NA%)
More than 1 hour	2 (14.3%)	11 (22.4%)	0 (0.0%)	1 (20.0%)	0 (NA%)
Type of gym activity					
Cardiovascular training (e.g. treadmill, bike, rowing)	7 (50.0%)	29 (59.2%)	3 (60.0%)	2 (40.0%)	0 (NA%)
Weight / resistance training	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (20.0%)	0 (NA%)
Cardiovascular & Weight / resistance training	3 (21.4%)	16 (32.7%)	1 (20.0%)	2 (40.0%)	0 (NA%)
<i>Other</i>					
Back exercises	0 (0.0%)	1 (2.0%)	0 (0.0%)	0 (0.0%)	0 (NA%)
Cardiovascular & Weight / resistance training & Balance exercises	1 (7.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (NA%)
Cardiovascular training & Pilates	1 (7.1%)	0 (0.0%)	1 (20.0%)	0 (0.0%)	0 (NA%)
Circuit training	1 (7.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (NA%)
Pilates	0 (0.0%)	1 (2.0%)	0 (0.0%)	0 (0.0%)	0 (NA%)
Post operative hip replacement surgery exercises	1 (7.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (NA%)
To lose weight	0 (0.0%)	1 (2.0%)	0 (0.0%)	0 (0.0%)	0 (NA%)
Yoga/Pilates	0 (0.0%)	1 (2.0%)	0 (0.0%)	0 (0.0%)	0 (NA%)
Use of a personal trainer					
No, I always trained alone	6 (42.9%)	31 (63.3%)	2 (40.0%)	3 (60.0%)	0 (NA%)
Yes, I occasionally engaged with a personal trainer	6 (42.9%)	7 (14.3%)	3 (60.0%)	2 (40.0%)	0 (NA%)
Yes, more often than not, I worked with the guidance of a personal trainer	2 (14.3%)	11 (22.4%)	0 (0.0%)	0 (0.0%)	0 (NA%)
Who prepares your gym program?					
Myself	6 (42.9%)	26.0 (53.1%)	2 (40.0%)	4 (80.0%)	0 (NA%)
Other	8 (57.1%)	23 (46.9%)	3 (60.0%)	1 (20.0%)	0 (NA%)

4.5 Patterns of gym attendance according to district

Gym attendance was analysed according to district. This was done in order to answer the question ‘What are the findings in the patterns of gym attendance among community-dwelling older persons according to the independent variable of district?’. From the 28 responses that reported their attendance at the time of completion of the survey, 3.6% (n=1) used to live in the Southern Harbour District, 42.9% (n=12) used to live in the Northern Harbour District, 17.9% (n=5) used to live in the South Eastern District, 10.7% (n=3) used to live in the Western District, 21.4% (n=6) used to live in the Northern District and 3.6% (n=1) used to live in the Gozo and Comino District. From the 73 responses that were not attending a gym at the time of completion of survey, but previously attended, 9.6% (n=7) used to live in the Southern Harbour District, 35.6% (n=26) used to live in the Northern Harbour District, 20.5% (n=15) used to live in the South Eastern District, 12.3% (n=9) used to live in the Western District, 17.8% (n=13) used to live in the Northern District and 4.1% (n=3) used to live in the Gozo and Comino District. From the 76 responses that reported that they had never attended a gym before, 17.1% (n=13) used to live in the Southern Harbour District, 28.9% (n=22) used to live in the Northern Harbour District, 28.9% (n=22) used to live in the South Eastern District, 11.8% (n=9) used to live in the Western District, 7.9% (n=6) used to live in the Northern District and 5.3% (n=4) used to live in the Gozo and Comino District. It was noted that participants who lived in the Northern Harbour District were more likely to attend a gym.

Table 21: Table showing how the dependent variable 'Gym attendance' varies according to the independent variable – district

Gym attendance vs district			
Variable	Attending, n = 28	Previously attended, n = 73	Never, n = 76
District			
Southern Harbour District	1 (3.6%)	7 (9.6%)	13 (17.1%)
Northern Harbour District	12 (42.9%)	26 (35.6%)	22 (28.9%)
South Eastern District	5 (17.9%)	15 (20.5%)	22 (28.9%)
Western District	3 (10.7%)	9 (12.3%)	9 (11.8%)
Northern District	6 (21.4%)	13 (17.8%)	6 (7.9%)
Gozo and Comino District	1 (3.6%)	3 (4.1%)	4 (5.3%)

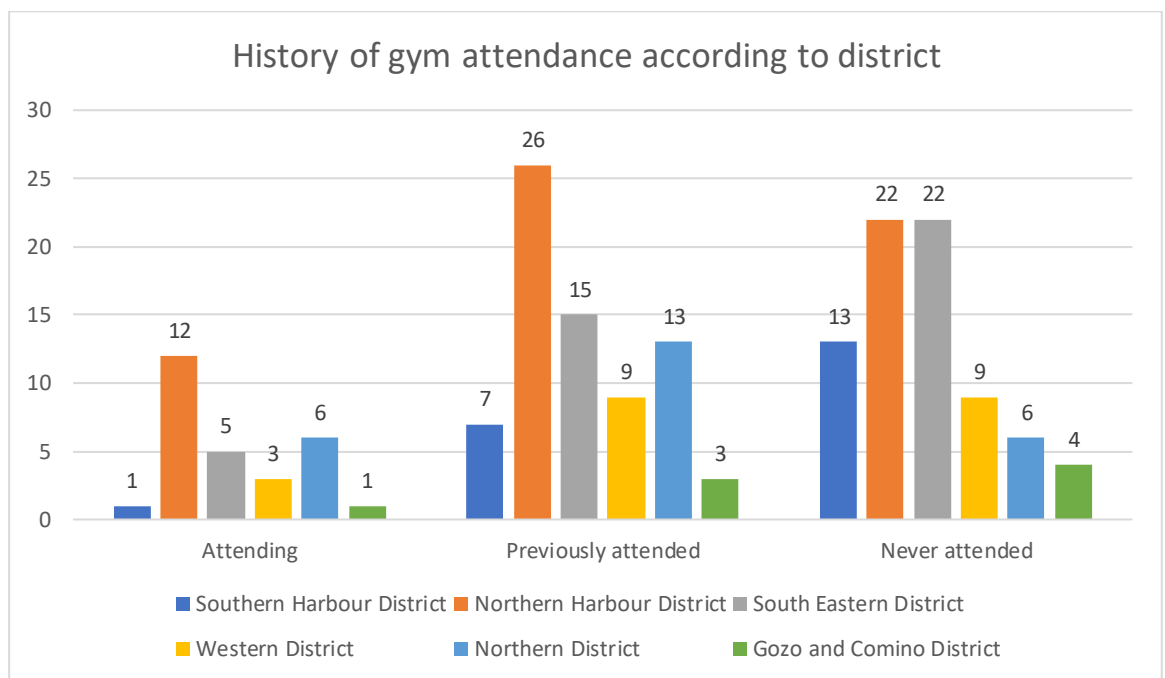


Figure 7: Bar graph showing the history of gym attendance according to district

Current gym attendees

Gym attendance patterns were investigated in relation to the demographic distributions for those who were currently attending the gym at the time of completion of survey. This included frequency of gym attendance, length of session, type of gym activity, use of personal trainer, and program preparation, for current gym attendees, categorised by district. From the 1 response corresponding to participants living in the Southern Harbour District who were current gym attendees at the time of completion of survey, 100% (n=1) attended the gym for four times or less. From the 12 responses corresponding to

participants living in the Northern Harbour District who were current gym attendees at the time of completion of survey, 83.3% (n=10) attended the gym for 4 times or less, and 16.7% (n=2) attended the gym for five times or more. From the 5 responses corresponding to participants living in the South Eastern District who were current gym attendees at the time of completion of survey, 100% (n=5) attended the gym for 4 times or less. From the 3 responses corresponding to participants living in the Western District and who were current gym attendees at the time of completion of survey, 100% (n=3) attended the gym for 4 times or less. From the 6 responses corresponding to participants living in the Northern District, and who were current gym attendees at the time of completion of survey, 66.7% (n=4) attended the gym for 4 times or less, and 33.3% (n=2) attended the gym for five times or more. From the 1 response corresponding to participants living in the Gozo and Comino District, and who were current gym attendees at the time of completion of survey, 100% (n=1) attended the gym for 4 times or less. From the 1 response corresponding to participants living in the Southern Harbour District and who were current gym attendees at the time of completion of survey, 100% (n=1) reported attending between 30 minutes and one hour. As for the participants living in the Northern Harbour District and were current gym attendees, there were 58.3% (n=7) who attended between 30 minutes and one hour, and 41.7% (n=5) who reported attending for more than one hour. As for the participants living in the South Eastern District, who were current gym attendees, there were 80% (n=4) who attended between 30 minutes and one hour, and 20% (n=1) who reported attending for more than one hour. As for the participants living in the Western District, who were current gym attendees, there were 100% (n=3) who attended between 30 minutes and one hour. As for the participants living in the Northern District, who were current gym attendees, there were 16.7% (n=1) who attended for less than 30 minutes, 33.3% (n=2) who attended between 30 minutes and one hour, and 50% (n=3) who attended for more than one hour. As for the participants living in the Gozo and Comino District, who were current gym attendees, there were 100% (n=1) who attended between 30 minutes and one hour. Among the participants living in the Southern Harbour District who were current gym attendees,

100% (n=1) reported carrying out a combination of cardiovascular and weight/resistance training. Among the participants living in the Northern Harbour District who were current gym attendees, 33.3% (n=4) reported carrying out cardiovascular training, 25% (n=3) reported carrying out weight/resistance training, 16.7% (n=2) reported carrying out a combination of cardiovascular and weight/resistance training, 16.7% (n=2) reported carrying out Pilates, and 8.3% (n=2) reported carrying out yoga, Pilates and aqua aerobics. Among the participants living in the South Eastern District who were current gym attendees, 60% (n=3) carried out cardiovascular training, 20% (n=1) carried out weight/resistance training, and 20% (n=1) reported carrying out fitness. Among the participants living in the Western District who were current gym attendees, 66.7% (n=2) carried out weight/resistance training, and 33.3% (n=1) reported carrying out cardiovascular and weight/resistance training. Among the participants living in the Northern District who were current gym attendees, 16.7% (n=1) carried out cardiovascular training, 16.7% (n=1) reported carrying out weight/resistance training, 33.3% (n=2) reported carrying out cardiovascular and weight/resistance training, and 16.7% (n=1) carried out cardiovascular and weight/resistance training and yoga, and 16.7% (n=1) reported carrying out Pilates. Among the participants living in the Gozo and Comino District who were current gym attendees, 100% (n=1) carried out cardiovascular training. From the one response who lived in the Southern Harbour District, who was attending a gym at the time of completion of survey, there were 100% (n=1) who used to always train alone. From the 12 responses who lived in the Northern Harbour District and were attending a gym at the time of completion of survey, there were 33.3% (n=4) who used to always train alone, 33.3% (n=4) who used to occasionally engage with a personal trainer, and 33.3% (n=4) who used to more often than not, work with the guidance of a personal trainer. From the 5 responses who lived in the South Eastern District and were attending a gym at the time of completion of survey, there were 20% (n=1) who used to always train alone, and 80% (n=4) who used to more often than not, work with the guidance of a personal trainer. From the 3 responses who lived in the Western District and were attending a gym at the time of completion of survey,

there were 66.7% (n=2) who used to always train alone, and 33.3% (n=1) who used to more often than not, work with the guidance of a personal trainer. From the 6 responses who lived in the Northern District and were attending a gym at the time of completion of survey, there were 50% (n=3) who used to train alone, 33.3% (n=2) who used to occasionally engage with a personal trainer and 16.7% (n=1) who used to more often than not, work with the guidance of a personal trainer. From the 1 response who lived in the Gozo and Comino District and were attending a gym at the time of completion of survey, there were 100% (n=1) who used to occasionally engage with a personal trainer. From the 1 response who lived in the Southern Harbour District and were current gym attendees at the time of completion of survey, there were 100% (n=1) who prepared the gym program themselves. As for those who lived in the Northern Harbour District and were current gym attendees at the time of completion of survey, there were 50% (n=6) who prepared the gym program themselves, and 50% (n=6) who had someone else prepare their gym program. As for those who lived in the South Eastern District and were current gym attendees at the time of completion of survey, there were 20% (n=1) who prepared the gym program themselves, and 80% (n=4) who had someone else prepare their gym program. As for those who lived in the Western District and were current gym attendees at the time of completion of survey, there were 100% (n=3) who had someone else prepare their gym program. As for those who lived in the Northern District and were current gym attendees at the time of completion of survey, there were 66.7% (n=4) who used to prepare their own gym program, and 33.3% (n=2) who had someone else prepare their gym program. As for those who lived in the Gozo and Comino District and were current gym attendees at the time of completion of survey, there were 100% (n=1) who used to prepare their own gym program.

Table 22: Gym factors for current gym attendees categorised by district

Gym factors for current gym attendees						
Factor	Southern Harbour District, n = 1	Northern Harbour District, n = 12	South Eastern District, n = 5	Western District, n = 3	Northern District, n = 6	Gozo and Comino District, n = 1
Frequency of gym attendance						
4 times or less	1 (100.0%)	10 (83.3%)	5 (100.0%)	3 (100.0%)	4 (66.7%)	1 (100.0%)
5 times or more	0 (0.0%)	2 (16.7%)	0 (0.0%)	0 (0.0%)	2 (33.3%)	0 (0.0%)
Length of session						
Under 30 minutes	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (16.7%)	0 (0.0%)
30 minutes to 1 hour	1 (100.0%)	7 (58.3%)	4 (80.0%)	3 (100.0%)	2 (33.3%)	1 (100.0%)
More than 1 hour	0 (0.0%)	5 (41.7%)	1 (20.0%)	0 (0.0%)	3 (50.0%)	0 (0.0%)
Type of gym activity						
Cardiovascular training (e.g. treadmill, bike, rowing)	0 (0.0%)	4 (33.3%)	3 (60.0%)	0 (0.0%)	1 (16.7%)	1 (100.0%)
Weight / resistance training	0 (0.0%)	3 (25.0%)	1 (20.0%)	2 (66.7%)	1 (16.7%)	0 (0.0%)
Cardiovascular & Weight / resistance training	1 (100.0%)	2 (16.7%)	0 (0.0%)	1 (33.3%)	2 (33.3%)	0 (0.0%)
<i>Other</i>						
Cardiovascular & Weight / resistance training & Yoga	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (16.7%)	0 (0.0%)
Fitness	0 (0.0%)	0 (0.0%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Pilates	0 (0.0%)	2 (16.7%)	0 (0.0%)	0 (0.0%)	1 (16.7%)	0 (0.0%)
Yoga, Pilates, Aqua Aerobics	0 (0.0%)	1 (8.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Use of a personal trainer						
No, I always train alone	1 (100.0%)	4 (33.3%)	1 (20.0%)	2 (66.7%)	3 (50.0%)	0 (0.0%)
Yes, I occasionally engage a personal trainer	0 (0.0%)	4 (33.3%)	0 (0.0%)	0 (0.0%)	2 (33.3%)	1 (100.0%)
Yes, more often than not, I work with the guidance of a personal trainer	0 (0.0%)	4 (33.3%)	4 (80.0%)	1 (33.3%)	1 (16.7%)	0 (0.0%)
Who prepares your gym program?						
Myself	1 (100.0%)	6 (50.0%)	1 (20.0%)	0 (0.0%)	4 (66.7%)	1 (100.0%)
Other	0 (0.0%)	6 (50.0%)	4 (80.0%)	3 (100.0%)	2 (33.3%)	0 (0.0%)

Previous gym attendees

The distribution of gym factors was investigated by category of district, among those that do not attend a gym, but had previously done so. From the 7 responses corresponding to participants living in the Southern Harbour District who had previously attended a gym, 100% (n=7) attended the gym for four times or less. From the 26 responses corresponding to participants living in the Northern Harbour District who had previously attended a gym,

92.3% (n=24) attended the gym for 4 times or less, and 7.7% (n=2) attended the gym for five times or more. From the 15 responses corresponding to participants living in the South Eastern District who had previously attended a gym, 86.7% (n=13) attended the gym for 4 times or less, and 13.3% (n=2) attended the gym for 5 times or more. From the 9 responses corresponding to participants living in the Western District and who had previously attended a gym, 88.9% (n=8) attended the gym for 4 times or less, and 11.1% (n=1) attended the gym for 5 times or more. From the 13 responses corresponding to participants living in the Northern District, and who had previously attended a gym, 84.6% (n=11) attended the gym for 4 times or less, and 15.4% (n=2) attended the gym for five times or more. From the 3 responses corresponding to participants living in the Gozo and Comino District, and who had previously attended a gym, 100% (n=3) attended the gym for 4 times or less. From the 7 responses corresponding to participants living in the Southern Harbour District and who had previously attended a gym, 85.7% (n=6) reported attending between 30 minutes and one hour, and 14.3% (n=1) attended for more than one hour. As for the participants living in the Northern Harbour District and had previously attended a gym, there were 7.7% (n=2) who attended for less than 30 minutes, 61.5% (n=16) who attended between 30 minutes and one hour, and 30.8% (n=8) who reported attending for more than one hour. As for the participants living in the South Eastern District, who had previously attended a gym, there were 6.7% (n=1) who attended for less than 30 minutes, 73.3% (n=11) who attended between 30 minutes and one hour, and 20% (n=3) who reported attending for more than one hour. As for the participants living in the Western District, who had previously attended a gym, there were 11.1% (n=1) who attended for less than 30 minutes, 66.7% (n=6) who attended between 30 minutes and one hour, and 22.2% (n=2) who attended for more than one hour. As for the participants living in the Northern District, who had previously attended a gym, there were 100% (n=13) who attended between 30 minutes and one hour. As for the participants living in the Gozo and Comino District, who had previously attended a gym, there were 33.3% (n=1) who attended for less than 30 minutes, and 66.7% (n=2) who attended between 30 minutes and one hour. Among the

participants living in the Southern Harbour District who had previously attended a gym, 100% (n=7) reported carrying out cardiovascular training. Among the participants living in the Northern Harbour District who had previously attended a gym, 50% (n=13) reported carrying out cardiovascular training, 30.8% (n=3) reported carrying out a combination of cardiovascular and weight/resistance training, 3.8% (n=1) reported carrying out cardiovascular, weight/resistance training and balance exercises, 3.8% (n=1) reported carrying out cardiovascular training and Pilates, 3.8% (n=1) reported carrying out circuit training, 3.8% (n=1) reported carrying out post-operative hip replacement surgery exercises, and 3.8% (n=1) reported carrying out yoga and Pilates. Among the participants living in the Sout Eastern District who had previously attended a gym, 40% (n=6) carried out cardiovascular training, 6.7% (n=1) carried out weight/resistance training, 40% (n=6) carried out cardiovascular and weight/resistance training, 6.7% (n=1) carried out back exercises, and 6.7% (n=1) reported carrying out exercises to lose weight. Among the participants living in the Western District who had previously attended a gym, 66.7% (n=6) carried out cardiovascular training, and 33.3% (n=3) carried out cardiovascular and weight/resistance training. Among the participants living in the Northern District who had previously attended a gym, 61.5% (n=8) carried out cardiovascular training, 23.1% (n=3) reported carrying out cardiovascular and weight/resistance training, 7.7% (n=1) reported carrying out cardiovascular training and Pilates, and 7.7% (n=1) carried out Pilates. Among the participants living in the Gozo and Comino District who had previously attended a gym, 33.3% (n=1) carried out cardiovascular training, and 66.7% (n=2) carried out cardiovascular and weight/resistance training. From the 7 responses who lived in the Southern Harbour District, who had previously attended a gym, there were 42.9% (n=3) who used to always train alone, 28.6% (n=2) who used to occasionally engage with a personal trainer, and 28.6% (n=2) who used to more often than not, work with the guidance of a personal trainer. From the 26 responses who lived in the Northern Harbour District and had previously attended a gym, there were 61.5% (n=16) who used to always train alone, 19.2% (n=5) who used to occasionally engage with a personal trainer, and 19.2% (n=5)

who used to more often than not, work with the guidance of a personal trainer. From the 15 responses who lived in the South Eastern District and had previously attended a gym, there were 53.3% (n=9) who used to always train alone, 26.7% (n=4) who occasionally engaged with a personal trainer, and 13.3% (n=2) who used to more often than not, work with the guidance of a personal trainer. From the 9 responses who lived in the Western District and had previously attended a gym, there were 33.3% (n=3) who used to always train alone, 55.6% (n=5) who used to occasionally engage with a personal trainer, and 11.1% (n=1) who used to more often than not, work with the guidance of a personal trainer. From the 13 responses who lived in the Northern District and had previously attended a gym, there were 69.2% (n=9) who used to train alone, 15.4% (n=2) who used to occasionally engage with a personal trainer and 15.4% (n=2) who used to more often than not, work with the guidance of a personal trainer. From the 1 response who lived in the Gozo and Comino District and had previously attended a gym, there were 66.7% (n=2) who used to train alone, and 33.3% (n=1) used to more often than not, work with the guidance of a personal trainer. From the 7 responses who lived in the Southern Harbour District and had previously attended a gym, there were 57.1% (n=4) who prepared the gym program themselves, and 42.9% (n=3) who had someone else prepare their gym program. As for those who lived in the Northern Harbour District and had previously attended a gym, there were 46.2% (n=12) who prepared the gym program themselves, and 53.8% (n=14) who had someone else prepare their gym program. As for those who lived in the South Eastern District and had previously attended a gym, there were 53.3% (n=8) who prepared the gym program themselves, and 46.7% (n=7) who had someone else prepare their gym program. As for those who lived in the Western District and had previously attended a gym, there were 44.4% (n=4) who prepared their gym program themselves, and 55.6% (n=5) had someone else prepare their gym program. As for those who lived in the Northern District and had previously attended a gym, there were 61.5% (n=8) who used to prepare their own gym program, and 38.5% (n=5) who had someone else prepare their gym program. As for those who lived in the Gozo and Comino District and had previously attended a gym, there were 66.7% (n=2) who

used to prepare their own gym program, and 33.3% (n=1) who had someone else prepare their gym program.

Table 23: Gym factors for previous gym attendees categorised by district

Gym factors for previous gym attendees						
Factor	Southern Harbour District, n = 7	Northern Harbour District, n = 26	South Eastern District, n = 15	Western District, n = 9	Northern District, n = 13	Gozo and Comino District, n = 3
Frequency of gym attendance						
4 times or less	7 (100.0%)	24 (92.3%)	13 (86.7%)	8 (88.9%)	11 (84.6%)	3 (100.0%)
5 times or more	0 (0.0%)	2 (7.7%)	2 (13.3%)	1 (11.1%)	2 (15.4%)	0 (0.0%)
Length of session						
Under 30 minutes	0 (0.0%)	2 (7.7%)	1 (6.7%)	1 (11.1%)	0 (0.0%)	1 (33.3%)
30 minutes to 1 hour	6 (85.7%)	16 (61.5%)	11 (73.3%)	6 (66.7%)	13 (100.0%)	2 (66.7%)
More than 1 hour	1 (14.3%)	8 (30.8%)	3 (20.0%)	2 (22.2%)	0 (0.0%)	0 (0.0%)
Type of gym activity						
Cardiovascular training (e.g. treadmill, bike, rowing)	7 (100.0%)	13 (50.0%)	6 (40.0%)	6 (66.7%)	8 (61.5%)	1 (33.3%)
Weight/ resistance training	0 (0.0%)	0 (0.0%)	1 (6.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cardiovascular & Weight / resistance training	0 (0.0%)	8 (30.8%)	6 (40.0%)	3 (33.3%)	3 (23.1%)	2 (66.7%)
<i>Other</i>						
Back exercises	0 (0.0%)	0 (0.0%)	1 (6.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cardiovascular & Weight / resistance training & Balance exercises	0 (0.0%)	1 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cardiovascular training & Pilates	0 (0.0%)	1 (3.8%)	0 (0.0%)	0 (0.0%)	1 (7.7%)	0 (0.0%)
Circuit training	0 (0.0%)	1 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Pilates	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (7.7%)	0 (0.0%)
Post operative hip replacement surgery exercises	0 (0.0%)	1 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
To lose weight	0 (0.0%)	0 (0.0%)	1 (6.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Yoga/Pilates	0 (0.0%)	1 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Use of a personal trainer						
No, I always trained alone	3 (42.9%)	16 (61.5%)	9 (60.0%)	3 (33.3%)	9 (69.2%)	2 (66.7%)
Yes, I occasionally engaged with a personal trainer	2 (28.6%)	5 (19.2%)	4 (26.7%)	5 (55.6%)	2 (15.4%)	0 (0.0%)
Yes, more often than not, I worked with the guidance of a personal trainer	2 (28.6%)	5 (19.2%)	2 (13.3%)	1 (11.1%)	2 (15.4%)	1 (33.3%)
Who prepares your gym program?						
Myself	4 (57.1%)	12 (46.2%)	8 (53.3%)	4 (44.4%)	8 (61.5%)	2 (66.7%)
Other	3 (42.9%)	14 (53.8%)	7 (46.7%)	5 (55.6%)	5 (38.5%)	1 (33.3%)

4.6 Patterns of gym attendance according to qualification

Gym attendance was analysed according to qualification. This was done in order to answer the question ‘What are the findings in the patterns of gym attendance among community-dwelling older persons according to the independent variable of qualification?’. From the 28 responses that reported their attendance at the time of completion of the survey, 3.6% (n=1) had no schooling or primary level education, 50% (n=14) had Secondary/ Intermediates/ A-levels education and 46.4% (n=13) had tertiary level education. From the 73 responses that were not attending a gym at the time of completion of survey, but previously attended, 9.6% (n=7) had no schooling or primary level education, 43.8% (n=32) had Secondary/Intermediates/A-levels education, and 46.6% (n=34) had tertiary level education. From the 76 responses that reported that they had never attended a gym before, 35.5% (n=27) had no schooling or primary level, 36.8% (n=28) had Secondary/Intermediates/A-levels education, and 27.6% (n=21) had tertiary level education. It was noted that participants who had a secondary/ intermediates / A-level education level and tertiary level were more likely to attend a gym.

Table 24: Table showing how the dependent variable ‘Gym attendance’ varies according to the independent variable - qualification

Gym attendance vs qualification			
Variable	Attending, n = 28	Previously attended, n = 73	Never, n = 76
Qualification			
No schooling or Primary level	1 (3.6%)	7 (9.6%)	27 (35.5%)
Secondary/Intermediates/A-levels	14 (50.0%)	32 (43.8%)	28 (36.8%)
Tertiary level	13 (46.4%)	34 (46.6%)	21 (27.6%)

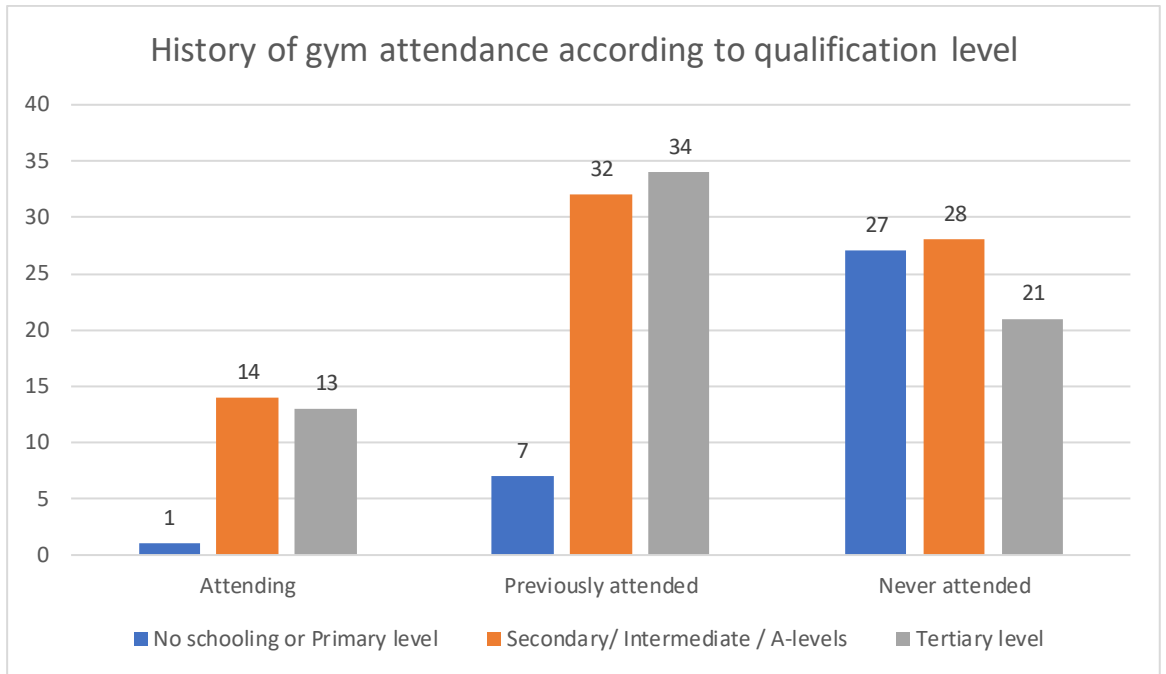


Figure 8: Bar graph showing the history of gym attendance according to education level

The variables were assessed according to different findings using the Pearson's Chi-squared test and a significant finding was observed for gym attendance according to qualification, with more educated individuals being associated more with gym attendance.

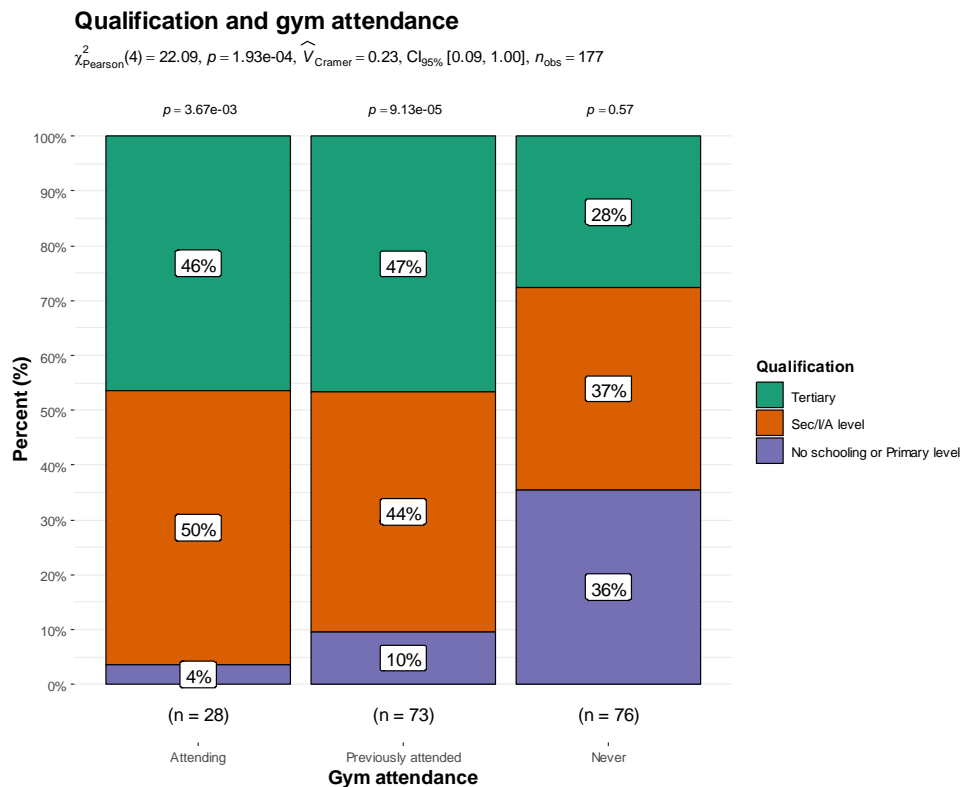


Figure 9: Stacked bar chart with statistical tests: Significance between gym attendance and qualification

Current gym attendees

Gym attendance patterns were investigated in relation to the demographic distributions for those who were currently attending the gym at the time of completion of survey. This included frequency of gym attendance, length of session, type of gym activity, use of personal trainer, and program preparation, for current gym attendees, categorised by qualification. From the 1 current gym attendees who had no schooling or primary level education, 100% (n=1) attended the gym for four times or less. From the 14 current gym attendees who had a secondary/intermediates/A-levels education level, 85.7% (n=12) attended the gym for 4 times or less, and 14.3% (n=2) attended the gym for five times or more. From the 13 current gym attendees who had a tertiary education level, 84.6% (n=11) attended for four times or less, and 15.4% (n=2) attended for five times or more. As for those who currently attended a gym and had no schooling or primary level education, 100% (n=1) reported attending for more than one hour. As for current gym attendees who had a secondary/intermediates/A-levels education level, there were 57.1% (n=8) who attended between 30 minutes and one hour, and 42.9% (n=6) who reported attending for more than one hour. As for current gym attendees who had a tertiary education level, there were 7.7% (n=1) who attended for less than 30 minutes, 76.9% (n=10) who attended between 30 minutes and one hour, and 15.4% (n=2) who reported attending for more than one hour. Among current gym attendees who had no schooling or primary level education, 100% (n=1) reported carrying out fitness. Among current gym attendees who had a secondary/intermediates/A-level education level, 35.7% (n=5) reported carrying out cardiovascular training, 14.3% (n=2) reported carrying out weight/resistance training, 35.7% (n=5) reported carrying out a combination of cardiovascular and weight/resistance training, 35.7% (n=5) reported carrying out cardiovascular, weight/resistance training and yoga, and 14.3% (n=2) reported carrying out yoga. Among current gym attendees who had a tertiary education level, 30.8% (n=4) reported carrying out cardiovascular training, 38.5% (n=5) reported carrying out weight/resistance training, 7.7% (n=1) reported carrying out a

combination of cardiovascular and weight/resistance training, 30.8% (n=4) reported carrying out cardiovascular, weight/resistance training and yoga, 7.7% (n=1) reported carrying out Pilates, and 7.7% (n=1) reported carrying out yoga, Pilates and aqua aerobics. Among current gym attendees who had no schooling or primary level education, 100% (n=1) used to more often than not, work with the guidance of a personal trainer. Among current gym attendees who had a secondary / intermediates/ A-levels education, 42.9% (n=6) used to always train alone, 28.6% (n=4) used to occasionally engage with a personal trainer, and 28.6% (n=4) used to more often than not, work with the guidance of a personal trainer. Among current gym attendees who had a tertiary education, 38.5% (n=5) used to always train alone, 23.1% (n=3) used to occasionally engage with a personal trainer, and 38.5% (n=5) used to more often than not, work with the guidance of a personal trainer. As for current gym attendees who had no schooling or primary level education, 100% (n=1) had someone else prepare their gym program. As for current gym attendees, who had a secondary/intermediates/A-level education, 35.7% (n=5) prepared the gym program themselves, and 64.3% (n=9) had someone else prepare their gym program. As for current gym attendees, who had a tertiary education level, 61.5% (n=8) prepared the gym program themselves, and 38.5% (n=5) had someone else prepare their gym program.

Table 25: Gym factors for current gym attendees categorised by qualification

Gym factors for current gym attendees			
Factor	No schooling or Primary level, n = 1	Secondary/ Intermediates /A-levels, n = 14	Tertiary level, n = 13
Frequency of gym attendance			
4 times or less	1 (100.0%)	12 (85.7%)	11 (84.6)
5 times or more	0 (0.0%)	2 (14.3%)	2 (15.4%)
Length of session			
Under 30 minutes	0 (0.0%)	0 (0.0%)	1 (7.7%)
30 minutes to 1 hour	0 (0.0%)	8 (57.1%)	10 (76.9%)
More than 1 hour	1 (100.0%)	6 (42.9%)	2 (15.4%)
Type of gym activity			
Cardiovascular training (e.g. treadmill, bike, rowing)	0 (0.0%)	5 (35.7%)	4 (30.8%)
Weight / resistance training	0 (0.0%)	2 (14.3%)	5 (38.5%)
Cardiovascular & Weight / resistance training	0 (0.0%)	5 (35.7%)	1 (7.7%)
<i>Other</i>			
Cardiovascular & Weight / resistance training & Yoga	0 (0.0%)	5 (35.7%)	4 (30.8%)
Fitness	1 (100.0%)	0 (0.0%)	0 (0.0%)
Pilates	0 (0.0%)	2 (14.3%)	1 (7.7%)
Yoga, Pilates, Aqua Aerobics	0 (0.0%)	0 (0.0%)	1 (7.7%)
Use of a personal trainer			
No, I always train alone	0 (0.0%)	6 (42.9%)	5 (38.5%)
Yes, I occasionally engage a personal trainer	0 (0.0%)	4 (28.6%)	3 (23.1%)
Yes, more often than not, I work with the guidance of a personal trainer	1 (100.0%)	4 (28.6%)	5 (38.5%)
Who prepares your gym program?			
Myself	0 (0.0%)	5 (35.7%)	8 (61.5%)
Other	1 (100.0%)	9 (64.3%)	5 (38.5%)

Previous gym attendees

The distribution of gym factors was investigated by category of qualification/ formal education, among those that do not attend a gym, but had previously done so. From the 7 previous gym attendees who had no schooling or primary level education, 100% (n=7) attended the gym for four times or less. From the 32 previous gym attendees who had a secondary/intermediates/A-levels education level, 87.5% (n=28) attended the gym for 4 times or less, and 12.5% (n=4) attended the gym for five times or more. From the 34 previous gym attendees who had a tertiary education level, 91.2% (n=31) attended for four times or less, and 8.8% (n=3) attended for five times or more. As for those who previously

attended a gym and had no schooling or primary level education, 71.4% (n=5) reported attending between 30 minutes and one hour, and 28.6% (n=2) reported attending for more than one hour. As for previous gym attendees who had a secondary/intermediates/A-levels education level, there were 12.5% (n=4) who attended for less than 30 minutes, 68.8% (n=22) who attended between 30 minutes and one hour, and 18.8% (n=6) who reported attending for more than one hour. As for previous gym attendees who had a tertiary education level, there were 2.9% (n=1) who attended for less than 30 minutes, 79.4% (n=27) who attended between 30 minutes and one hour, and 17.6% (n=6) who reported attending for more than one hour. Among previous gym attendees who had no schooling or primary level education, 71.4% (n=5) reported carrying out cardiovascular training, 14.3% (n=1) reported carrying out cardiovascular and weight/resistance training, and 14.3% (n=1) reported carrying out cardiovascular and weight/resistance training and balance exercises. Among previous gym attendees who had a secondary/intermediates/A-level education level, 43.8% (n=14) reported carrying out cardiovascular training, 3.1% (n=1) reported carrying out weight/resistance training, 43.8% (n=14) reported carrying out a combination of cardiovascular and weight/resistance training, 3.1% (n=1) reported carrying out back exercises, 3.1% (n=1) reported carrying out Pilates, and 3.1% (n=1) reported carrying out post-operative hip replacement surgery exercises. Among previous gym attendees who had a tertiary education level, 64.7% (n=22) reported carrying out cardiovascular training, 20.6% (n=7) reported carrying out a combination of cardiovascular and weight/resistance training, 5.9% (n=2) reported carrying out cardiovascular training and Pilates, 2.9% (n=1) reported carrying out circuit training, and 2.9% (n=1) reported carrying out exercises to lose weight, and 2.9% (n=1) reported carrying out yoga, and Pilates. Among previous gym attendees who had no schooling or primary level education, 51.7% (n=4) used to train alone, 28.6% (n=2) used to occasionally engage with a personal trainer, and 14.3% (n=1) used to more often than not, work with the guidance of a personal trainer. Among previous gym attendees who had a secondary / intermediates/ A-levels education, 68.8% (n=22) used to always train alone, 18.8% (n=6) used to occasionally engage with a personal trainer, and

12.5% (n=4) used to more often than not, work with the guidance of a personal trainer. Among previous gym attendees who had a tertiary education, 47.1% (n=16) used to always train alone, 29.4% (n=10) used to occasionally engage with a personal trainer, and 23.5% (n=8) used to more often than not, work with the guidance of a personal trainer. As for previous gym attendees who had no schooling or primary level education, 57.1% (n=4) prepared the gym program themselves, and 42.9% (n=3) had someone else prepare their gym program. As for previous gym attendees, who had a secondary/intermediates/A-level education, 59.4% (n=19) prepared the gym program themselves, and 40.6% (n=13) had someone else prepare their gym program. As for previous gym attendees, who had a tertiary education level, 44.1% (n=15) prepared the gym program themselves, and 55.9% (n=19) had someone else prepare their gym program.

Table 26: Gym factors for previous gym attendees categorised by qualification

Gym factors for previous gym attendees			
Factor	No schooling or Primary level, n = 7	Secondary/ Intermediates /A-levels, n = 32	Tertiary level, n = 34
Frequency of gym attendance			
4 times or less	7 (100.0%)	28 (87.5%)	31 (91.2%)
5 times or more	0 (0.0%)	4 (12.5%)	3 (8.8%)
Length of session			
Under 30 minutes	0 (0.0%)	4 (12.5%)	1 (2.9%)
30 minutes to 1 hour	5 (71.4%)	22 (68.8%)	27 (79.4%)
More than 1 hour	2 (28.6%)	6 (18.8%)	6 (17.6%)
Type of gym activity			
Cardiovascular training (e.g. treadmill, bike, rowing)	5 (71.4%)	14 (43.8%)	22 (64.7%)
Weight / resistance training	0 (0.0%)	1 (3.1%)	0 (0.0%)
Cardiovascular & Weight / resistance training	1 (14.3%)	14 (43.8%)	7 (20.6%)
<i>Other</i>			
Back exercises	0 (0.0%)	1 (3.1%)	0 (0.0%)
Cardiovascular & Weight / resistance training & Balance exercises	1 (14.3%)	0 (0.0%)	0 (0.0%)
Cardiovascular training & Pilates	0 (0.0%)	0 (0.0%)	2 (5.9%)
Circuit training	0 (0.0%)	0 (0.0%)	1 (2.9%)
Pilates	0 (0.0%)	1 (3.1%)	0 (0.0%)
Post operative hip replacement surgery exercises	0 (0.0%)	1 (3.1%)	0 (0.0%)
To lose weight	0 (0.0%)	0 (0.0%)	1 (2.9%)
Yoga/Pilates	0 (0.0%)	0 (0.0%)	1 (2.9%)
Use of a personal trainer			
No, I always trained alone	4 (57.1%)	22 (68.8%)	16 (47.1%)
Yes, I occasionally engaged with a personal trainer	2 (28.6%)	6 (18.8%)	10 (29.4%)
Yes, more often than not, I worked with the guidance of a personal trainer	1 (14.3%)	4 (12.5%)	8 (23.5%)
Who prepares your gym program?			
Myself	4 (57.1%)	19 (59.4%)	15 (44.1%)
Other	3 (42.9%)	13 (40.6%)	19 (55.9%)

4.7 Non-adherence to gym attendance

Participants who reported a previous history of gym attendance were invited to indicate the reasons for which they stopped. The reasons were guided with a pre-set list of reasons, as well as the option to indicate any other reasons with a description. The reasons for which respondents stopped attending the gym are summarised in the table 27 and presented in figure 10. There were 73 respondents who had indicated that they once attended a gym. Since respondents were allowed to indicate multiple reasons the total number of hits per reason are presented. The three more common reasons given were for health reasons (20), due to the Covid-19 pandemic (14) and because they didn't feel comfortable (8).

Table 27: Tally of reasons for non-adherence to gym attendance among previous gym goers

Characteristic	Number of times mentioned
Q19 – Reasons for stopping gym attendance	
Health reasons	20
COVID-19 pandemic	14
Didn't feel comfortable	8
Environmental issues	4
Peer pressure	4
Issues with body image	1
Decreased social support	1
<i>Other</i>	
Preference for other forms of exercise	6
Time constraints	5
Laziness	3
Work responsibilities	3
Gym closed	2
Other priorities	2
End of treatment	1
Had a subsidised offer to attend and when it stopped, I didn't go anymore.	1
Just stopped maybe will start again	1
Lack of enjoyment	1
Loss of interest	1
Moving house	1
Family commitments	1
There used to be very few females and used to feel uncomfortable. There used to be a lot of men staring.	1

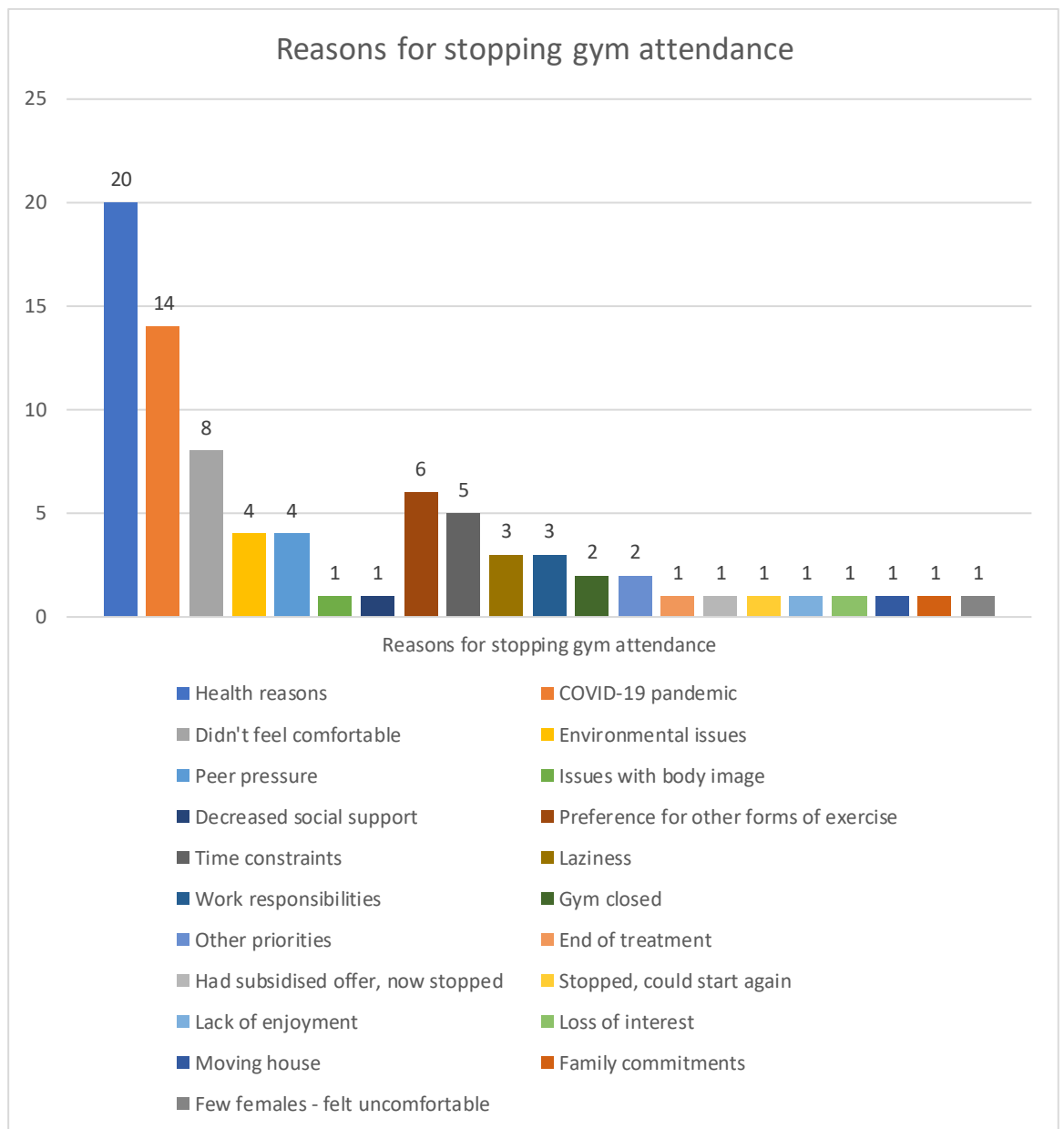


Figure 10: Bar chart showing the reasons for stopping gym attendance among participants who reported a previous history of gym attendance

4.8 Barriers to gym attendance

In this section, the findings on the barriers to gym attendance are reported. This was done to answer the research question “What are the barriers to gym attendance in community-dwelling older persons?” Only the completed survey responses were considered (N = 177).

The Likert scale (1-5) that was used pertains to the level of significance, with 1 indicating least barrier and 5 indicating greatest barrier. The scores obtained for every category were added up and divided by the number of complete responses (177) to obtain an average, through which it was determined which factors contribute most as barriers to gym

attendance in older adults and are demonstrated in table 28 in order from greatest barrier to least barrier. Barriers are presented to reflect the individual, social and environment factors with relevant sub-factors and their categories in accordance with the socio-ecological framework. These values are also presented in the following figures.

Table 28: Sum of Likert Scale for all categories (barriers)

Barriers	Category	Average of Likert Scale Scoring
Individual Level - Physical Factors	Poor health	2.98
	Tired/fatigue	2.79
	Pain	2.78
	Risk of injury	2.73
	Fear of injury	2.67
Individual Level - Psychological Factors	Lack of willpower	3.01
	Lack of positive attitude	2.80
	Lack of enjoyment	2.72
	Too old	2.45
	Emotional problems that interfere with daily living	2.24
	Nervous/ depressed	1.97
Individual Level - Other Factors	Cost	3.12
	Inconvenient	2.64
	Lack of time	2.58
	Lack of knowledge	2.49
Social Factors	Family/ work responsibilities	2.46
	Lack of social support	2.24
Environmental Factors	Lack of age-appropriate programs	3.07
	Lack of exercise facilities	2.52

4.8.1 Individual level physical factors (barriers)

This sub-section is described in view of the distribution of significance of physical barriers as experienced by the participants. These included poor health, risk of injury, pain, tired/fatigue and fear of injury. A rating of 1 on the Likert scale was considered as the least likely barrier to influence not going, and a rating of 5 on the Likert scale was considered as the most likely barrier to influence not going. In terms of physical barriers, the least barrier to gym attendance among older persons was fear of injury (2.67), whereas the greatest barrier was poor health (2.98).

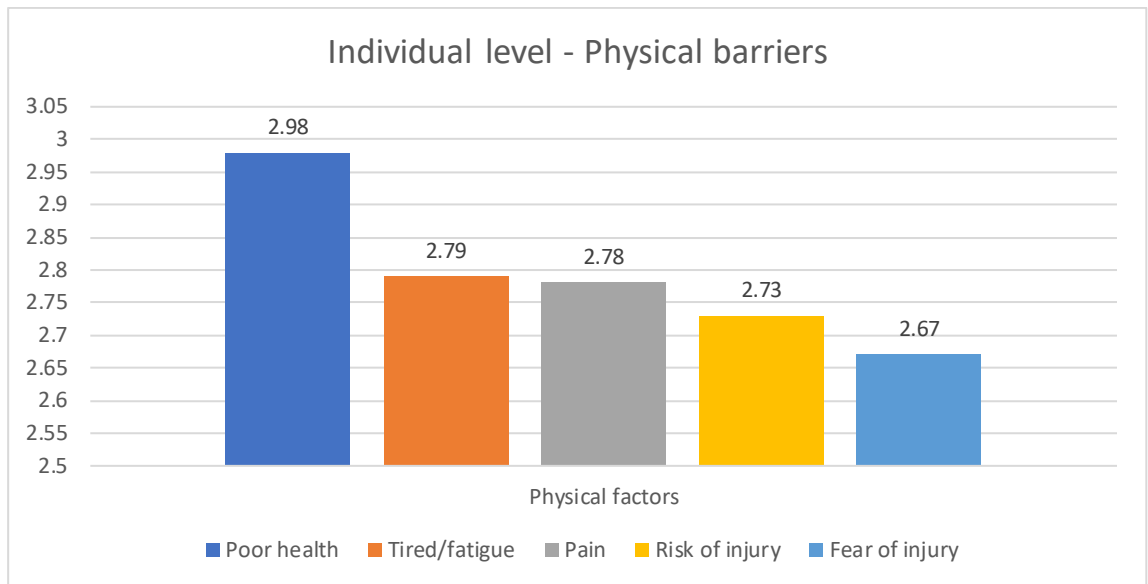


Figure 11: Bar chart showing the average Likert scale scoring for physical barriers

4.8.2 Individual level psychological factors (barriers)

Psychological barriers in terms of lack of willpower, lack of positive attitude, lack of enjoyment, too old, emotional problems that interfere with daily living and nervous/depression were investigated. A rating of 1 on the Likert scale was considered as the least likely barrier to influence not going, and a rating of 5 on the Likert scale was considered as the most likely barrier to influence not going. In terms of psychological barriers, the least barrier to gym attendance among older persons was nervous/ depressed (1.97), and the greatest barrier was lack of willpower (3.01).

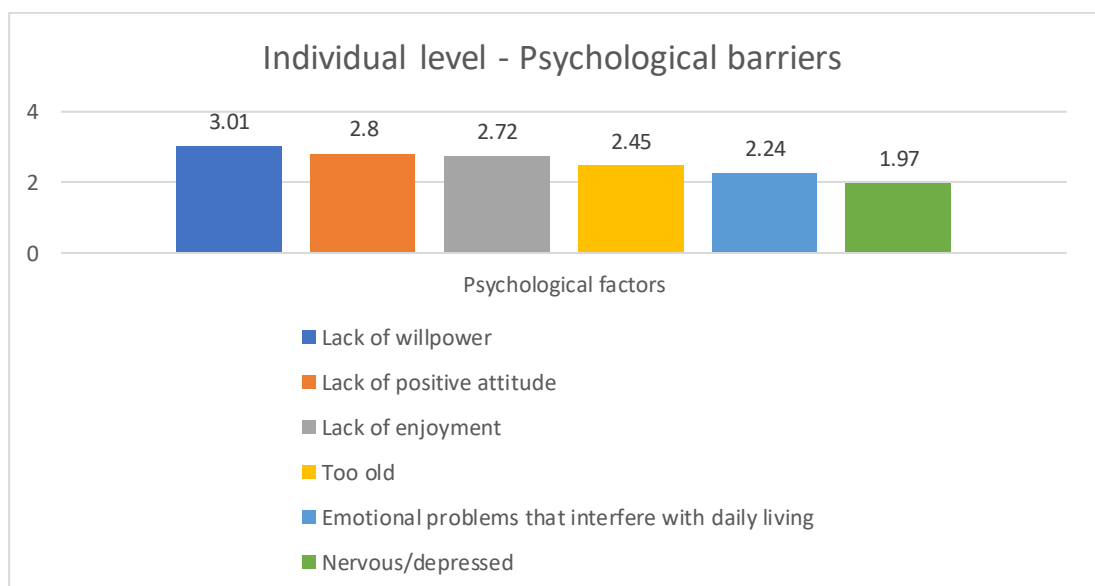


Figure 12: Bar chart showing the average Likert scale scoring for psychological barriers

4.8.3 Individual level other factors (barriers)

Under the individual level factors bracket, there were also other factors, mainly: lack of time, lack of knowledge, inconvenience, and cost. A rating of 1 on the Likert scale was considered as the least likely barrier to influence not going, and a rating of 5 on the Likert scale was considered as the most likely barrier to influence not going. In terms of other barriers, the least barrier to gym attendance among older persons was lack of knowledge (2.49), while the greatest barrier was cost (3.12).

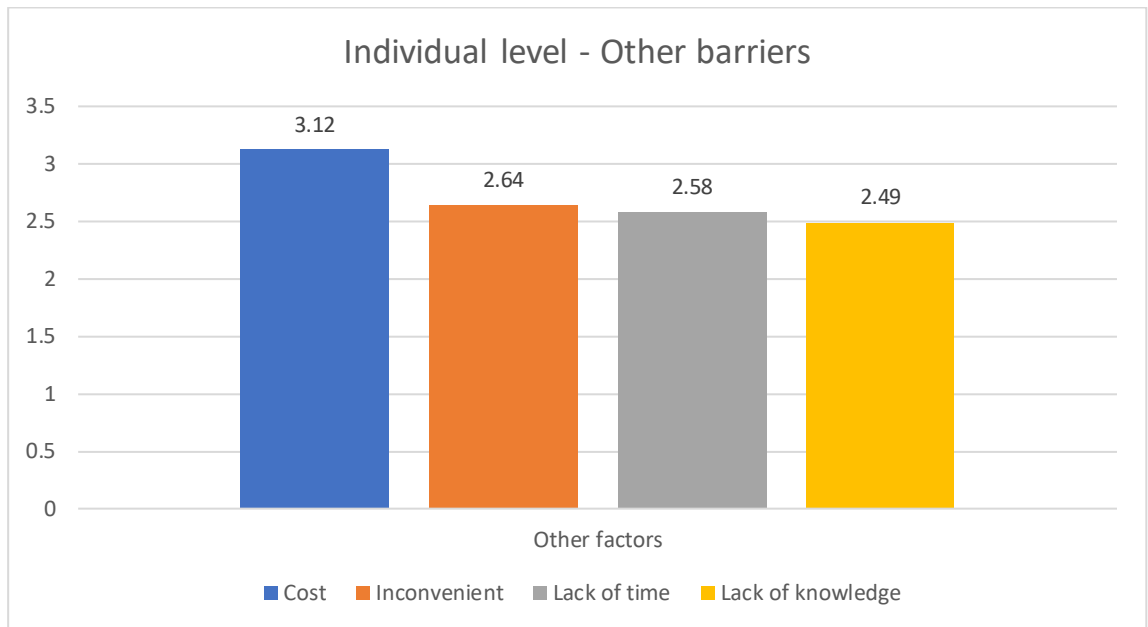


Figure 13: Bar chart showing the average Likert scale scoring for other barriers

4.8.4 Social factors (barriers)

Social barriers were discussed in view of family/work responsibilities and lack of social support. A rating of 1 on the Likert scale was considered as the least likely barrier to influence not going, and a rating of 5 on the Likert scale was considered as the most likely barrier to influence not going. In terms of social barriers, the least barrier to gym attendance among older persons was lack of social support (2.24), and the greatest barrier was family/work responsibilities (2.46).

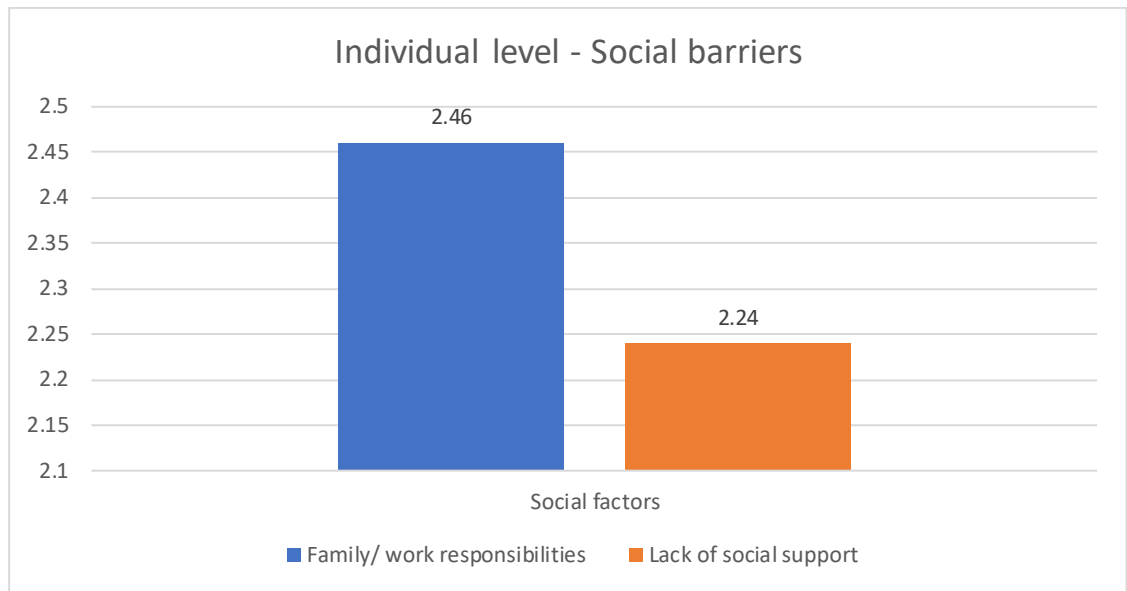


Figure 14: Bar chart showing the average Likert scale scoring for social barriers

4.8.5 Environmental factors (barriers)

Lack of exercise facilities and lack of age-appropriate programs were the two environmental barriers discussed in the survey. A rating of 1 on the Likert scale was considered as the least likely barrier to influence not going, and a rating of 5 on the Likert scale was considered as the most likely barrier to influence not going. In terms of environmental barriers, the least barrier to gym attendance among older persons was lack of exercise facilities (2.52), and the greatest barrier was lack of age-appropriate programs (3.07).

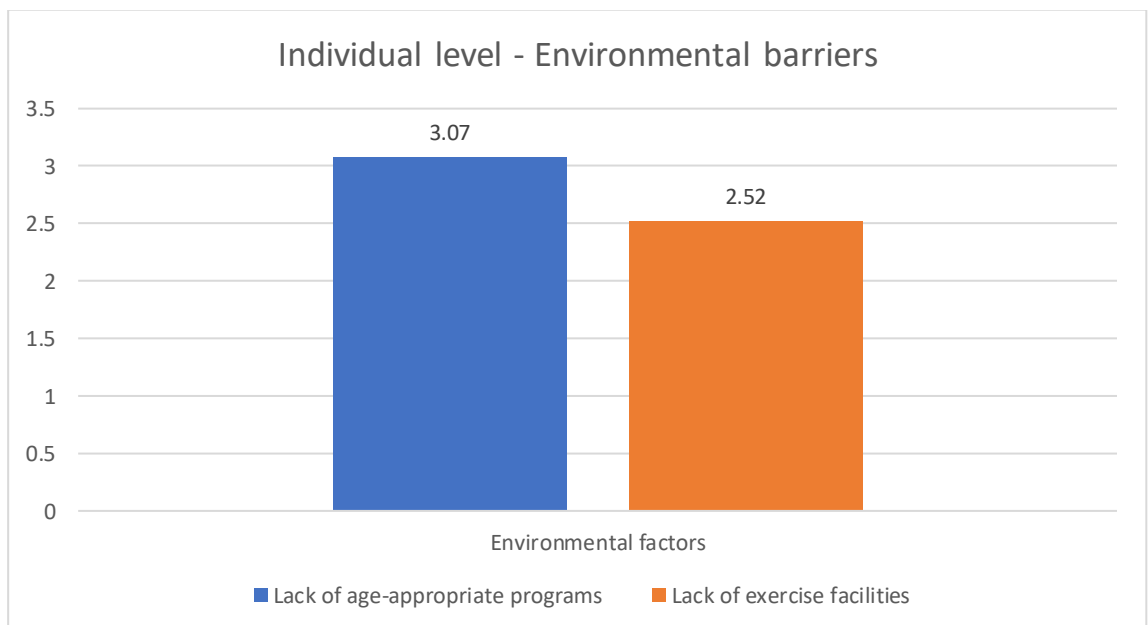


Figure 15: Bar chart showing the average Likert scale scoring for environmental barriers

4.8.6 Barriers to gym attendance (overall)

The greatest five barriers as scored by the survey participants were: cost (3.12), lack of age-appropriate programs (3.07), lack of willpower (3.01), poor health (2.98), and lack of positive attitude (2.80). The following table (table 29) indicates the order in which every barrier was scored by the participants, and figure 16 shows the greatest five barriers as a chart.

Table 29: Sum of Likert Scale for all categories (barriers) from greatest to smallest

Category	Average of Likert Scale Scoring
Cost	3.12
Lack of age-appropriate programs	3.07
Lack of willpower	3.01
Poor health	2.98
Lack of positive attitude	2.80
Tired/fatigue	2.79
Pain	2.78
Risk of injury	2.73
Lack of enjoyment	2.72
Fear of injury	2.67
Inconvenient	2.64
Lack of time	2.58
Lack of exercise facilities	2.52
Lack of knowledge	2.49
Family/ work responsibilities	2.46
Too old	2.45
Emotional problems that interfere with daily living	2.24
Lack of social support	2.24
Nervous/ depressed	1.97

Key:

Individual Level - Physical Factors
Individual Level - Psychological Factors
Individual Level - Other Factors
Social Factors
Environmental Factors

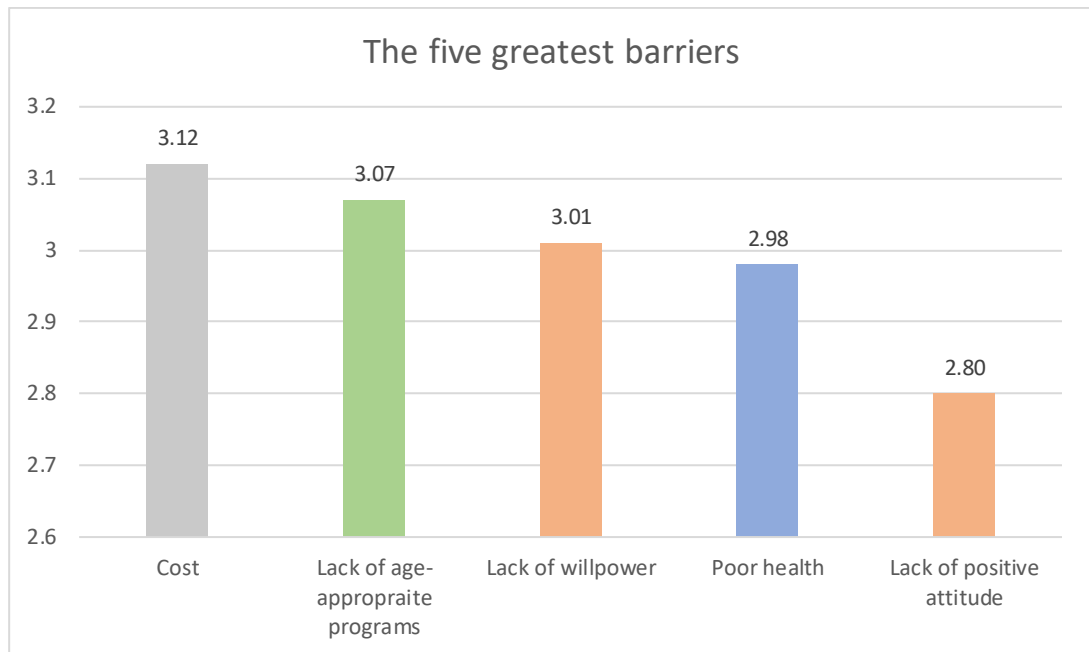


Figure 16: Bar chart showing the average Likert scale scoring for the five greatest barriers

4.9 Motivators to gym attendance

In this section, the findings on the motivators to gym attendance are reported. This was done to answer the research question “What are the motivators to gym attendance in community-dwelling older persons?”. Only the completed survey responses were considered (N = 177).

The Likert scale (1-5) that was used pertains to the level of significance, with 1 indicating least motivator and 5 indicating greatest motivator. The scores obtained for every category were added up and divided by the number of complete responses (177) to obtain an average, through which it could be determined which factors contribute most as motivators to gym attendance in older adults and are demonstrated in table 30 in order from greatest motivator to least motivator. Motivators are presented to reflect the individual, social and environment factors with relevant sub-factors and their categories in accordance with the socio-ecological framework. These values are also presented in the following figures.

Table 30: Sum of Likert Scale for all categories (motivators)

Motivators	Category	Average of Likert Scale Scoring
Individual Level - Physical Factors	Good health	4.18
	Physical functioning benefits	3.95
	Physical benefits	3.92
	Health benefits	3.87
	Reduce/ control pain and injury	3.38
	Appearance benefits	3.36
Individual Level - Psychological Factors	Improved well-being	3.89
	Mental health benefits	3.64
	Mental function benefits	3.63
	Enjoy exercising	3.47
	Readiness for exercise	3.43
	Awareness and efficacy using gym equipment	2.76
Individual Level - Other Factors	Time to focus on self	3.41
	Enough time	3.36
	Creates routine	3.35
	Means of getting out	3.24
	Scheduled time for exercise	3.23
	Past experience with exercise	3.20
Social Factors	Increased social activity	3.24
	Social support and encouragement	3.12
	Social benefits	3.01
	Sense of belonging	2.99
	Observing other being active	2.97
Environmental Factors	Can exercise at own pace/ choose exercises	3.75
	Staff/ instructor characteristics	3.41
	Travel distance	3.39
	Access to exercise facility and/or equipment	3.36
	Current location	3.28
	Organised exercise opportunity	3.27
	Gym atmosphere	3.02

4.9.1 Individual level physical factors (motivators)

Motivators to gym attendance were investigated in terms of individual level factors (physical), including physical benefits, health benefits, physical functioning benefits, good health, reduce/ control pain and injury and appearance benefits. A rating of 1 on the Likert scale was considered as the least likely motivator to influence going to the gym, and a rating of 5 on the Likert scale was considered as the most likely motivator to influence going to the gym. In terms of physical motivators, the least motivator to gym attendance among older persons was appearance benefits (3.36), and the greatest motivator was good health (4.18).

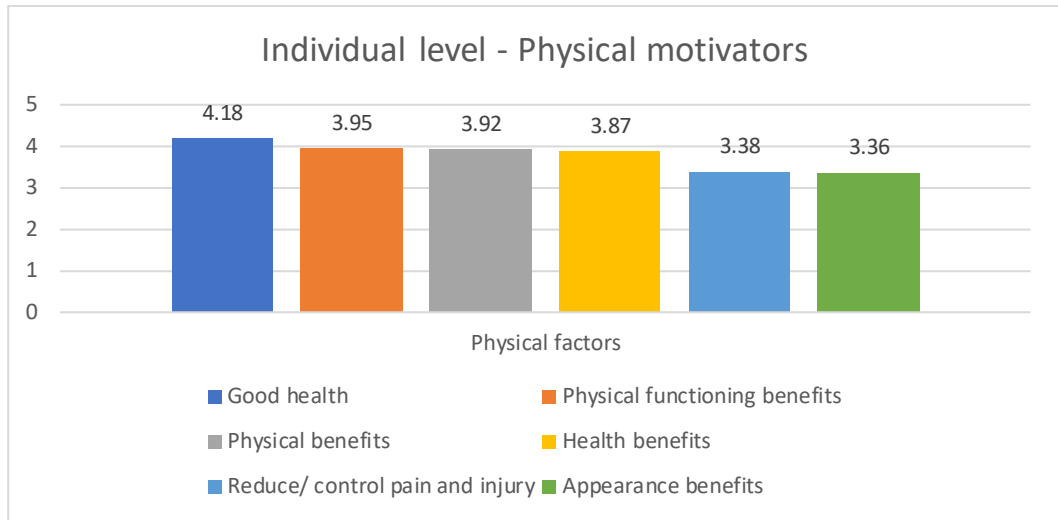


Figure 17: Bar chart showing the average Likert scale scoring for physical motivators

4.9.2 Individual level psychological factors (motivators)

Psychological motivators also play a role. These were investigated in terms of mental function benefits, mental health benefits, improved well-being, readiness for exercise, enjoy exercise and awareness and efficacy using gym equipment. A rating of 1 on the Likert scale was considered as the least likely motivator to influence going to the gym, and a rating of 5 on the Likert scale was considered as the most likely motivator to influence going to the gym. In terms of psychological motivators, the least motivator to gym attendance among older persons was awareness and efficacy using gym equipment (2.76), and the greatest motivator was improved well-being (3.89).

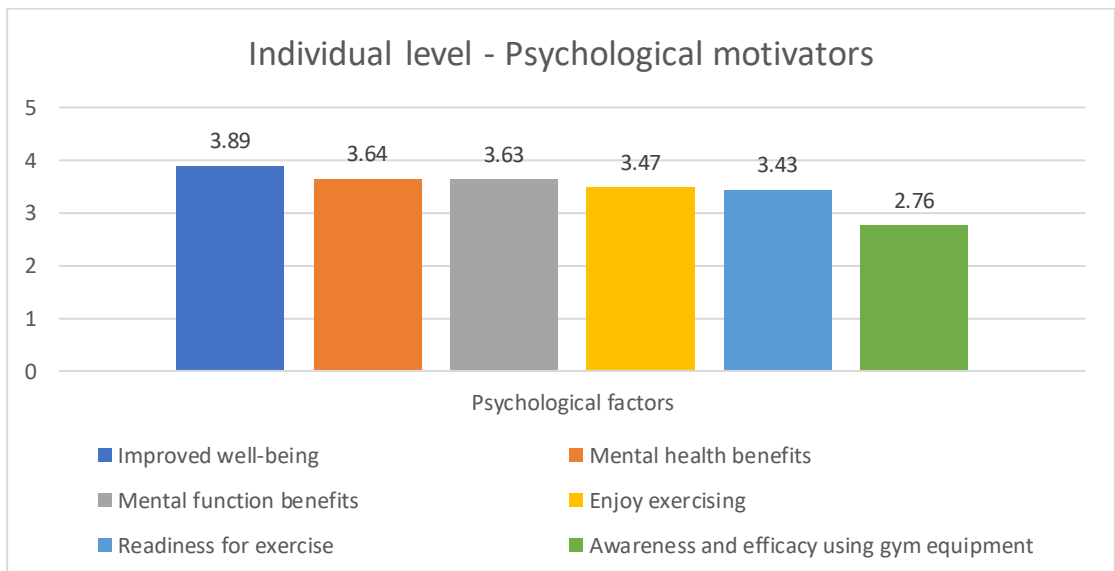


Figure 18: Bar chart showing the average Likert scale scoring for psychological motivators

4.9.3 Individual level other factors (motivators)

Other motivators included scheduled time for exercise, creates routine, means of getting out, past experience with exercise, enough time and time to focus on self. A rating of 1 on the Likert scale was considered as the least likely motivator to influence going to the gym, and a rating of 5 on the Likert scale was considered as the most likely motivator to influence going to the gym. In terms of other motivators, the least motivator to gym attendance among older persons was past experience with exercise (3.20), and the greatest motivator was time to focus on self (3.41).

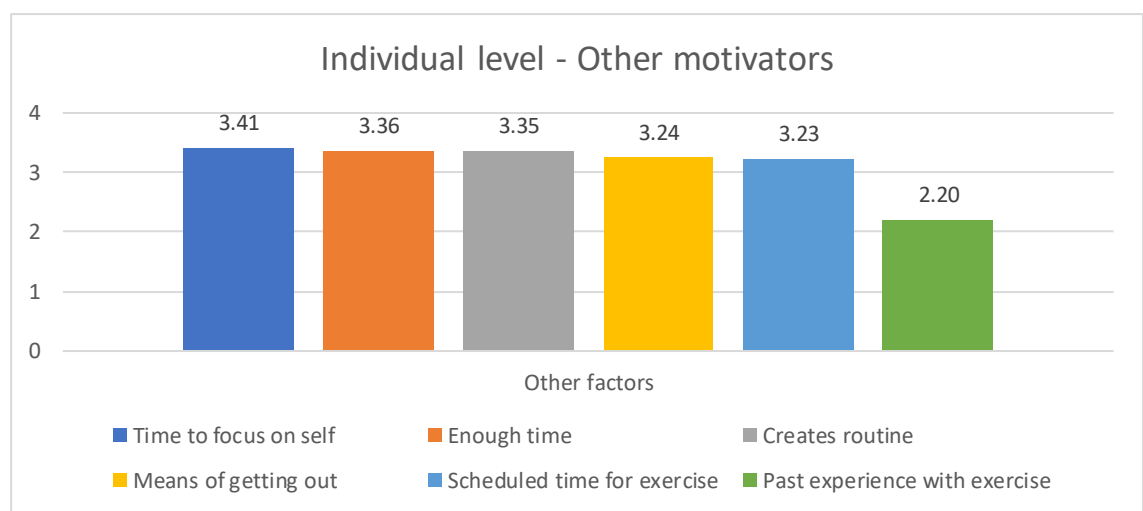


Figure 19: Bar chart showing the average Likert scale scoring for other motivators

4.9.4 Social factors (motivators)

Social motivators encourage participants to engage in gyms. These were investigated in terms of social benefits, social support and encouragement, increased social activity, sense of belonging and observing others being active. A rating of 1 on the Likert scale was considered as the least likely motivator to influence going to the gym, and a rating of 5 on the Likert scale was considered as the most likely motivator to influence going to the gym. In terms of social motivators, the least motivator to gym attendance among older persons was observing others being active (2.97), and the greatest motivator was increased social activity (3.24).

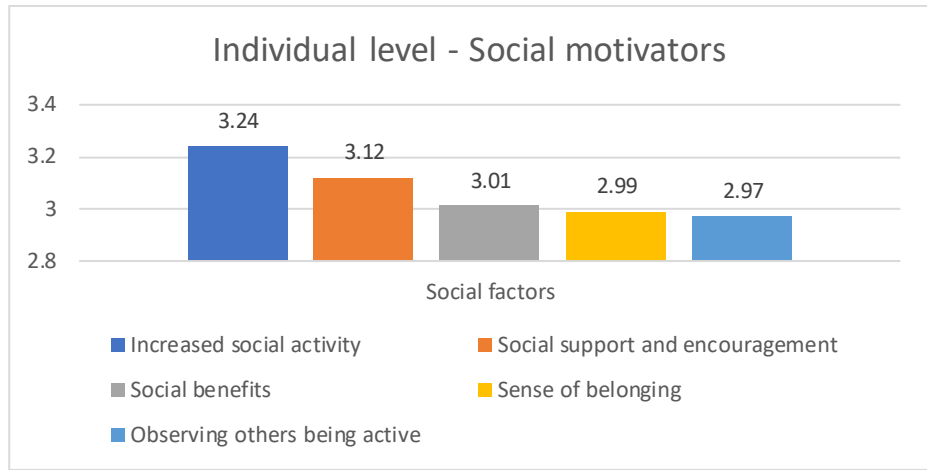


Figure 20: Bar chart showing the average Likert scale scoring for social motivators

4.9.5 Environmental factors (motivators)

Other extrinsic motivators include environmental motivators. These were investigated through the following: organised exercise opportunity, access to exercise facility and/or equipment, current location, travel distance, can exercise at own pace/choose exercises, gym atmosphere and staff/ instructor characteristics. A rating of 1 on the Likert scale was considered as the least likely motivator to influence going to the gym, and a rating of 5 on the Likert scale was considered as the most likely motivator to influence going to the gym. In terms of environmental motivators, the least motivator to gym attendance among older persons was gym atmosphere (3.02), and the greatest motivator was the fact that they can exercise at own pace and can choose the exercises (3.75).

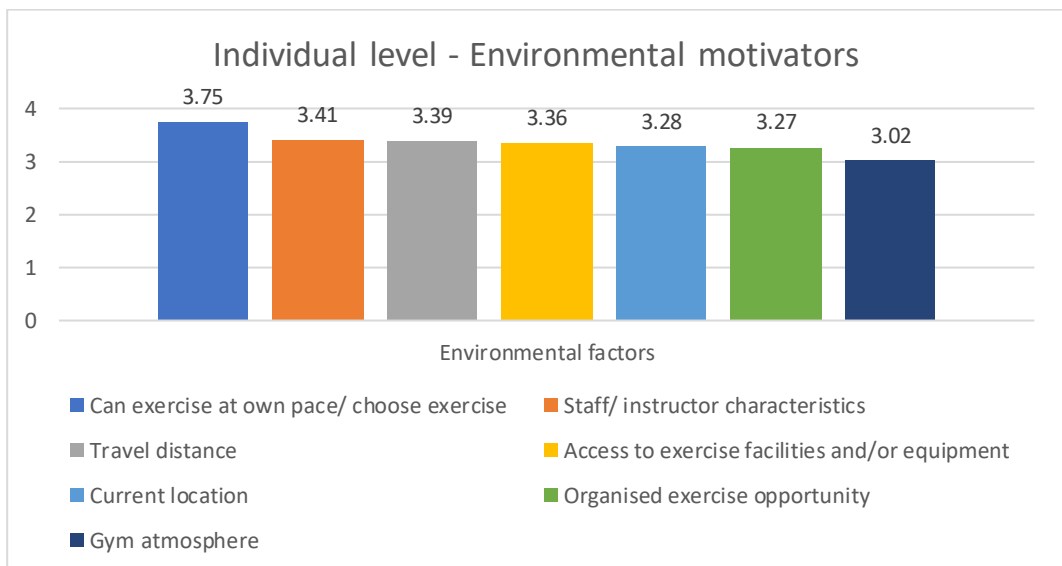


Figure 21: Bar chart showing the average Likert scale scoring for environmental motivators

4.9.6 Motivators to gym attendance (overall)

The greatest five motivators as scored by the survey participants were: good health (4.18), physical functioning benefits (3.95), physical benefits (3.92), improved well-being (3.89) and health benefits (3.87). Table 31 indicates the order in which every motivator was scored by the participants, and figure 22 presents the greatest five motivators.

Table 31: Sum of Likert Scale for all categories (motivators) from greatest to smallest

Category	Average of Likert Scale Scoring
Good health	4.18
Physical functioning benefits	3.95
Physical benefits	3.92
Improved well-being	3.89
Health benefits	3.87
Can exercise at own pace/ choose exercise	3.75
Mental health benefits	3.64
Mental function benefits	3.63
Enjoy exercising	3.47
Readiness for exercise	3.43
Time to focus on self	3.41
Staff/ instructor characteristics	3.41
Travel distance	3.39
Reduce/ control pain and injury	3.38
Appearance benefits	3.36
Enough time	3.36
Access to exercise facility and/or equipment	3.36
Creates routine	3.35
Current location	3.28
Organised exercise opportunity	3.27
Means of getting out	3.24
Increased social activity	3.24
Scheduled time for exercise	3.23
Past experience with exercise	3.20
Social support and encouragement	3.12
Gym atmosphere	3.02
Social benefits	3.01
Sense of belonging	2.99
Observing others being active	2.97
Awareness and efficacy using gym equipment	2.76

Key:

Individual Level - Physical Factors
Individual Level - Psychological Factors
Individual Level - Other Factors
Social Factors
Environmental Factors

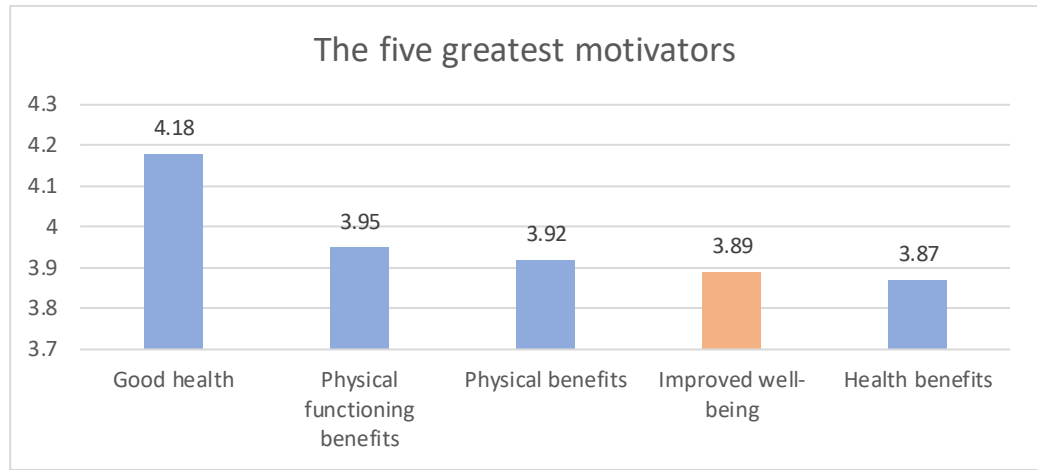


Figure 22: Bar chart showing the average Likert scale scoring for the five greatest motivators

4.10 Association between barriers and different participants' demographic groups

In this section the analysis of the association between the barriers and the independent variables is presented. The barriers are reflected through the median of a sum of scores as indicated on the Likert scale across the five factors as determined by the socio-ecological framework. The Likert Scale scores obtained for every barrier category (physical factors, psychological factors, other factors, social factors and environmental factors) were used to obtain a median score for each category. The values presented in the following tables represent the median score, whereas the 25th and 75th percentile scores are found in brackets. Since the number of questions that assessed each category was not equal, the possible total sum of the scores for each category was different (e.g. for the barriers physical factors there were 5 questions and for the barriers social factors there were 2 questions, allowing a possible total score from the Likert scale of 25 and 10 respectively). In view of this a test for normality had to be taken adopting the Shapiro-Wilk test. The findings indicated that the sum scores for each category did not follow a normal distribution. Since the pattern of data was skewed it necessitated to use a non-parametric test to analyse the data. The Kruskal-Wallis test was used to assess the association between the median scores for each barrier category and the independent variables of gym attendance patterns, gender, age, living status, district and qualification. Violin plot figures were plotted to refract the significant differences.

4.10.1 Association between barriers and gym attendance patterns

When comparing the different barrier categories (physical, psychological, other, social and environmental factors) to the gym attendance patterns, all scores varied significantly when tested with the Kruskal-Wallis test, since the p-values were less than the 0.05 level of significance. Whilst keeping in mind that the higher the score the greater the barrier, the median score for barriers due to physical factors was 9.5 for those currently attending, it was 15 for those previously attended and 16 for those who never attended. Similarly, the median score for the psychological factors was 10.5 for those currently attending, whereas it was 15 for previously attended and 17.5 for those that never attended. As for other factors, the median score was 6.5 for those attending, and 11 and 12 for those previously attended and never attended respectively. The median score for social factors for those attending was 3, whereas it was 6 for those previously attended and 5 for those that never attended. As for environmental factors, the median score was 3 for those attending, 6 for those that previously attended and 7 for those that never attended. This showed that participants that currently attend a gym find the least barriers, while participants that previously attended find more barriers, but those that never attended find the most barriers. The following table summarises this and the following violin plot figures with statistical annotations show all five barrier categories by gym attendance patterns.

Table 32: Association between barriers and gym attendance patterns

Barriers				
Subtotals	Attending, n = 28¹	Previously attended, n = 73¹	Never, n = 76¹	p-value²
Physical Factors	9.5 (6.0, 15.0)	15.0 (10.0, 17.0)	16.0 (11.0, 20.0)	<0.001
Psychological Factors	10.5 (6.0, 13.0)	15.0 (12.0, 18.0)	17.5 (13.0, 19.3)	<0.001
Other Factors	6.5 (4.0, 11.0)	11.0 (8.0, 13.0)	12.0 (9.0, 14.3)	<0.001
Social level Factors	3.0 (2.0, 6.0)	4.0 (2.0, 7.0)	5.0 (4.0, 6.0)	0.026
Environmental level Factors	3.0 (2.0, 5.3)	6.0 (4.0, 7.0)	7.0 (4.0, 8.0)	<0.001
¹ Median (IQR)				
² Kruskal-Wallis rank sum test				

Physical factors

Significant differences in physical barriers when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 23. No significant differences were noted between the previously attended and never attended groups.

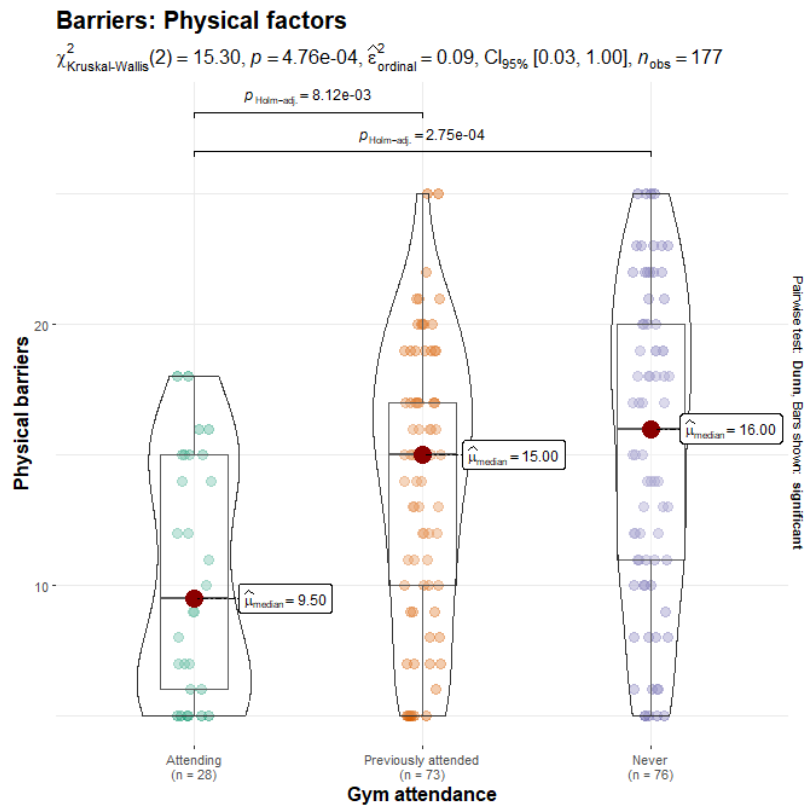


Figure 23: Physical barriers in relation to gym attendance

Psychological factors

Significant differences in psychological barriers when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 24. No significant differences were noted between the previously attended and never attended groups.

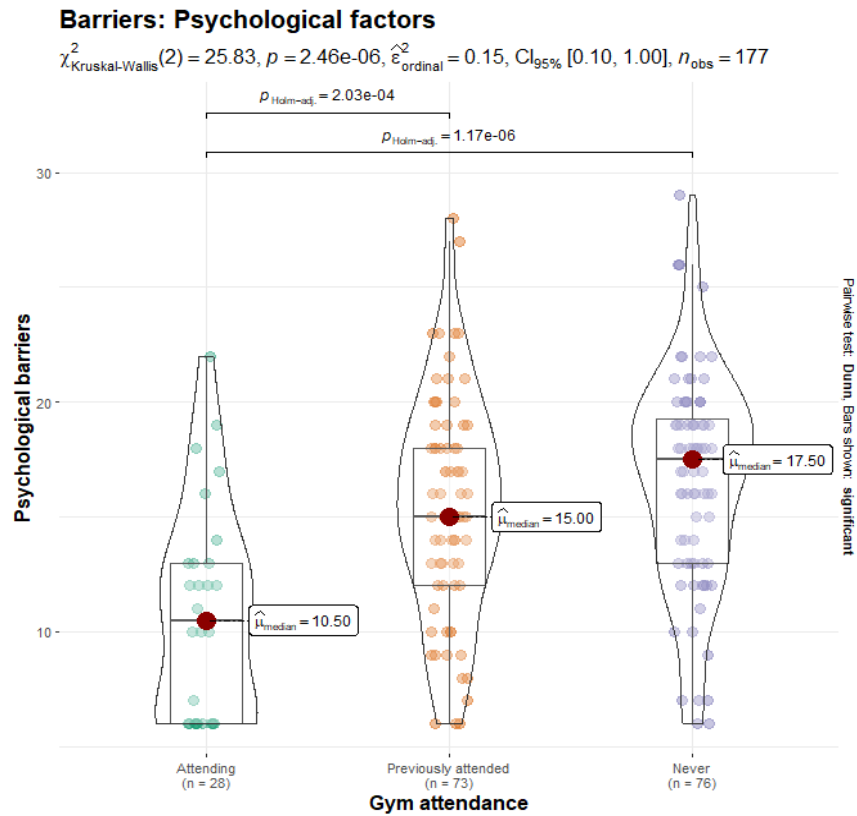


Figure 24: Psychological barriers in relation to gym attendance

Other factors

Significant differences in other barriers when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 25. No significant differences were noted between the previously attended and never attended groups.

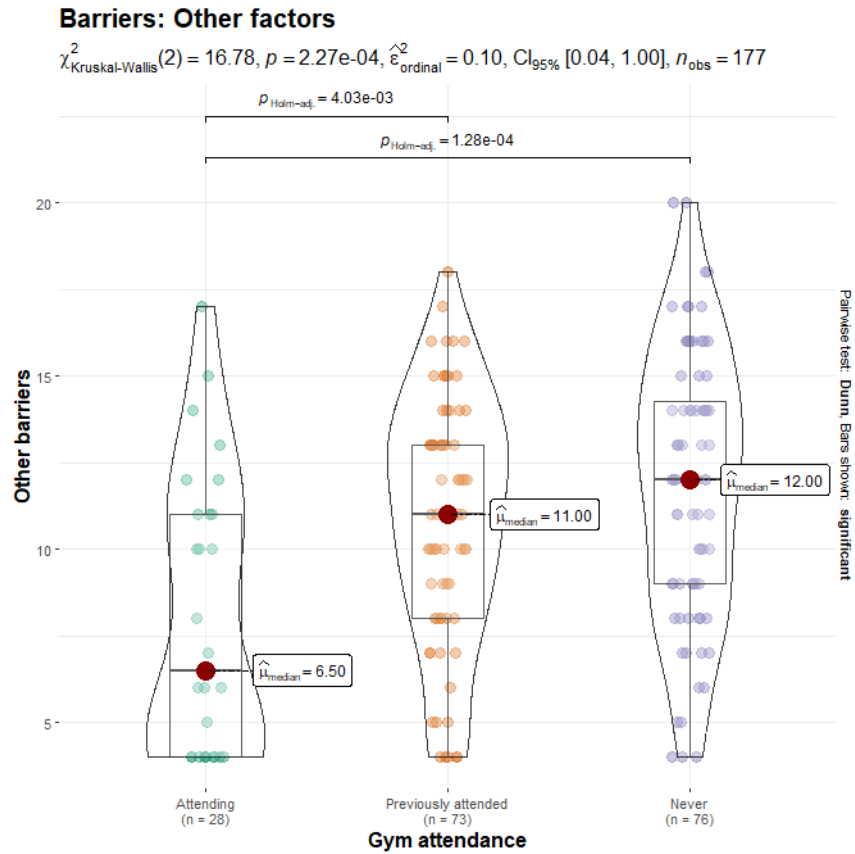


Figure 25: Other barriers in relation to gym attendance

Social factors

Significant differences in social barriers when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 26. No significant differences were noted between the previously attended and never attended groups.

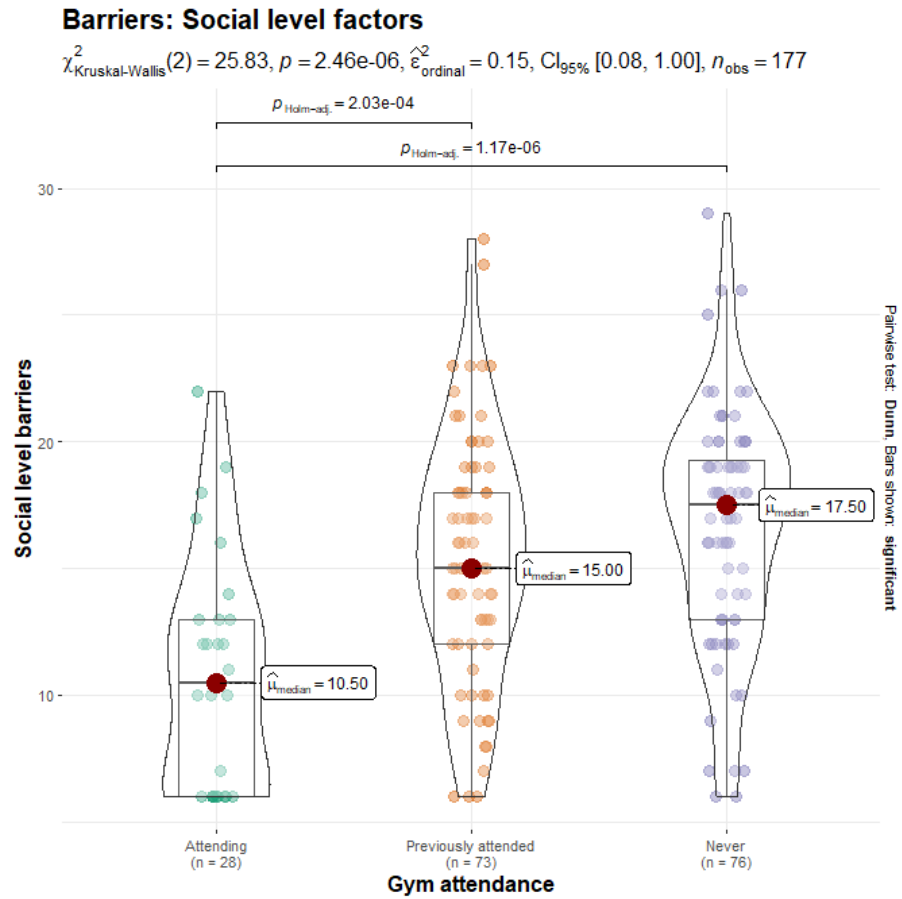


Figure 26: Social barriers in relation to gym attendance

Environmental factors

Significant differences in environmental barriers when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 27. No significant differences were noted between the previously attended and never attended groups.

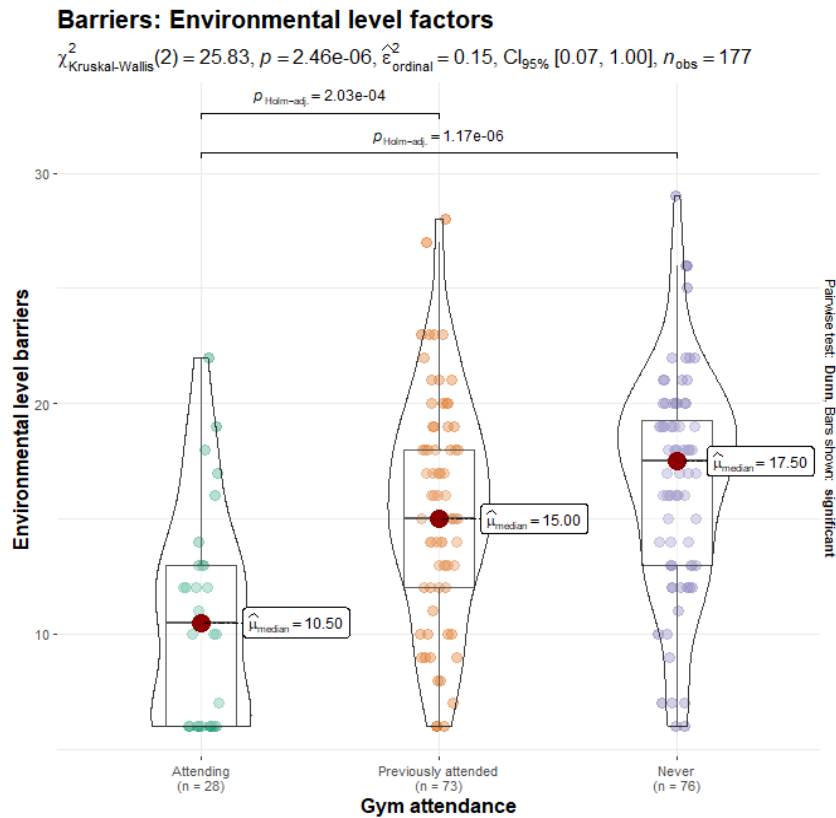


Figure 27: Environmental barriers in relation to gym attendance

4.10.2 Association between barriers and gender

The Wilcoxon signed-rank test was used to compare the different barrier categories (physical, psychological, other, social and environmental factors) to gender. Scores varied significantly between genders for psychological, social and environmental factors, since the p-value was less than the 0.05 level of significance. In fact, as for psychological factors, the median score for males was 14, while that for females was 16.5. With regards to social factors, the median score for males was 4, while it was 5 for females. The median score for males was 5 and for females was 6 for environmental factors. On the other hand, scores varied marginally between genders, for physical and other factors. It was interesting to note that as for all the factors, males had a lower barrier median score, when compared to females. The following table summarises this and the following violin plot figures with statistical annotations show psychological, social and environmental categories by gender.

Table 33: Association between barriers and gender

Barriers			
Subtotals	Male, n = 69 ¹	Female, n = 108 ¹	p-value ²
Physical Factors	13.0 (9.0, 18.0)	15.0 (10.0, 19.0)	0.23
Psychological Factors	14.0 (12.0, 17.0)	16.5 (12.0, 19.3)	0.009
Other Factors	10.0 (7.0, 13.0)	12.0 (8.0, 14.0)	0.058
Social level Factors	4.0 (2.0, 6.0)	5.0 (3.0, 7.0)	0.024
Environmental level Factors	5.0 (3.0, 7.0)	6.0 (4.0, 8.0)	0.036
¹ Median (IQR)			
² Wilcoxon rank sum test			

Psychological factors

Significant differences in psychological barriers were noted when compared according to gender. This is seen in the p-value and median scores presented in figure 28.

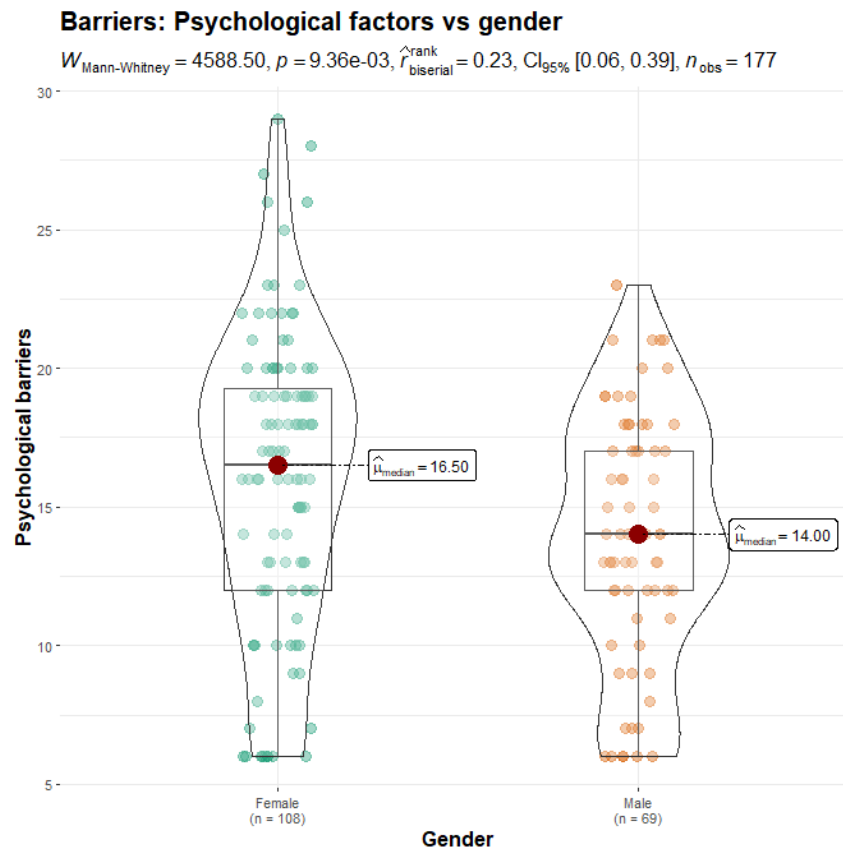


Figure 28: Psychological barriers in relation to gender

Social factors

Significant differences were also observed in social barriers when compared according to gender. This is seen in the p-value and median scores presented in figure 29.

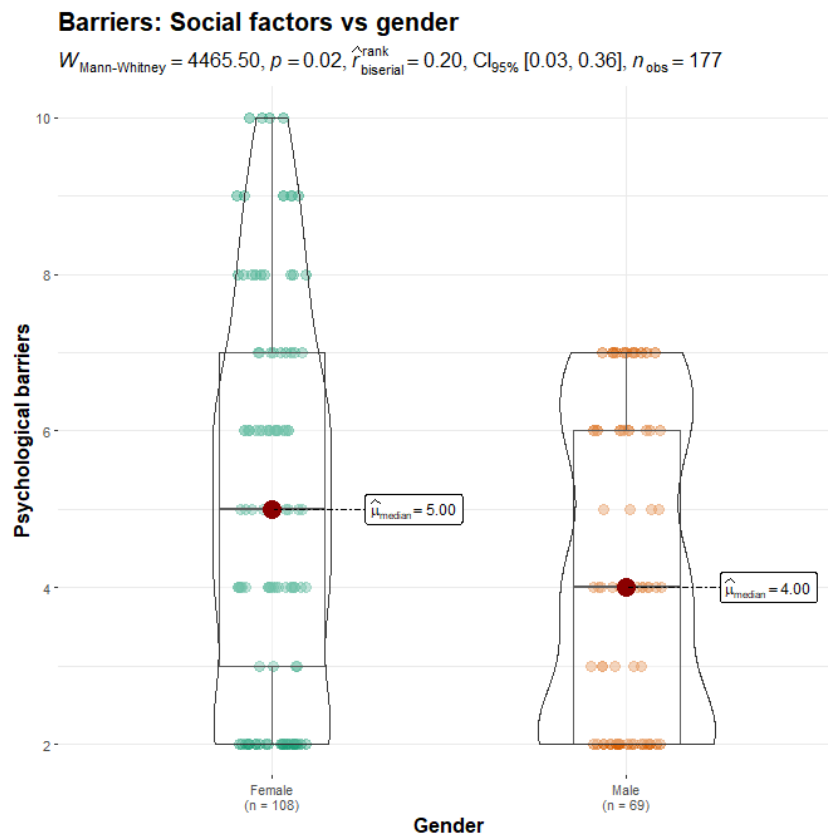


Figure 29: Social barriers in relation to gender

Environmental factors

The scores for environmental barriers varied significantly when compared according to gender. This is seen in the p-value and median scores presented in figure 30.

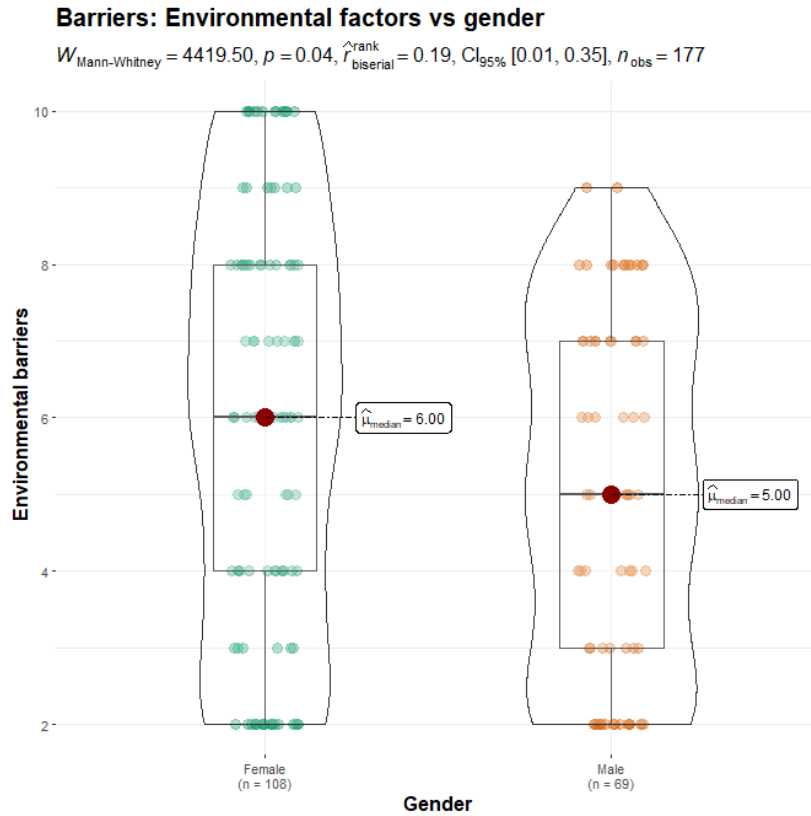


Figure 30: Environmental barriers in relation to gender

4.10.3 Association between barriers and age

Scores vary significantly between age ranges for social factors, following the Kruskal-Wallis test, since the p-value was less than the 0.05 level of significance. As for social factors, the median score for participants who were 65-69 years was 6, for those that were 70-74 years was 4, for those who were 75-79 years was 4, and for those who were 80 years or older, the score was 2. This implies that social barriers were larger among the younger older adults, when compared to the oldest older adults. On the other hand, scores varied marginally between age ranges, for physical, psychological other and environmental factors. The following table summarises this and the following violin plot figure with statistical annotations show the social category by age range.

Table 34: Association between barriers and age

Barriers					
Subtotals	65-69 years, n = 95 ¹	70-74 years, n = 45 ¹	75-79 years, n = 26 ¹	≥80 years, n = 11 ¹	p-value ²
Physical Factors	15.0 (10.0, 19.0)	12.0 (8.0, 17.0)	11.0 (7.3, 15.8)	18.0 (14.0, 22.0)	0.066
Psychological Factors	15.0 (12.0, 19.0)	15.0 (12.0, 18.0)	16.5 (10.5, 18.8)	16.0 (13.0, 19.5)	0.86
Other Factors	12.0 (8.0, 14.0)	11.0 (7.0, 13.0)	10.0 (8.0, 13.0)	8.0 (7.5, 13.5)	0.32
Social level Factors	6.0 (3.0, 7.0)	4.0 (2.0, 6.0)	4.0 (2.3, 5.0)	2.0 (2.0, 5.0)	0.021
Environmental level Factors	6.0 (4.0, 8.0)	6.0 (3.0, 8.0)	5.5 (3.3, 7.0)	7.0 (3.0, 8.5)	0.82

¹ Median (IQR)
² Kruskal-Wallis rank sum test

Social factors

When compared to age, the scores for social barriers varied significantly. This is seen in the p-value and median scores presented in figure 31.

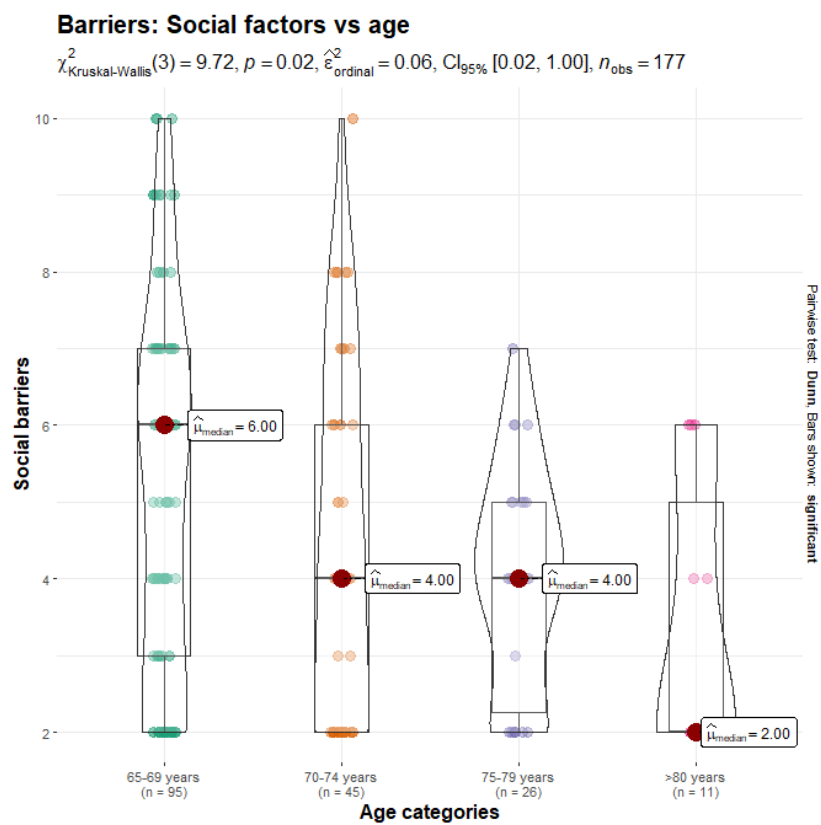


Figure 31: Social barriers in relation to age

4.10.4 Association between barriers and living status

The Kruskal-Wallis test was used to compare the different barrier categories to living status. Scores varied marginally between living status, for all five barrier categories. The following table summarises this.

Table 35: Association between barriers and living status

Barriers						
Subtotals	Live alone, n = 33¹	Live with spouse/ partner, n = 121¹	Live with children, n = 11¹	Live with spouse/ partner & children, n = 9¹	Live with other, n = 3¹	p- value²
Physical Factors	13.0 (7.0, 19.0)	15.0 (9.0, 18.0)	14.0 (9.5, 18.5)	13.0 (12.0, 17.0)	15.0 (12.5, 17.0)	>0.99
Psychological Factors	17.0 (10.0, 20.0)	15.0 (12.0, 19.0)	17.0 (14.5, 20.0)	17.0 (12.0, 17.0)	11.0 (10.5, 12.5)	0.40
Other Factors	10.0 (6.0, 13.0)	11.0 (8.0, 14.0)	11.0 (8.0, 12.5)	14.0 (9.0, 15.0)	14.0 (11.0, 14.5)	0.28
Social level Factors	4.0 (2.0, 6.0)	4.0 (3.0, 7.0)	3.0 (2.0, 5.5)	6.0 (5.0, 7.0)	6.0 (6.0, 6.0)	0.15
Environmental level Factors	6.0 (3.0, 8.0)	6.0 (4.0, 8.0)	4.0 (2.5, 7.5)	5.0 (5.0, 8.0)	2.0 (2.0, 3.0)	0.31
¹ Median (IQR)						
² Kruskal-Wallis rank sum test						

4.10.5 Association between barriers and district

Upon comparison of the different barrier categories to district, scores varied significantly between districts for physical, psychological and social factors, following the Kruskal-Wallis test, since the p-value was less than the 0.05 level of significance. On the other hand, scores varied marginally between districts, for other and environmental factors. The following table summarises this and the following violin plot figures with statistical annotations show the physical, psychological and social categories by district.

Table 36: Association between barriers and district

Barriers							
Subtotals	Southern Harbour District, n = 21¹	Northern Harbour District, n = 60¹	South Eastern District, n = 42¹	Western District, n = 21¹	Northern District, n = 25¹	Gozo and Comino District, n = 8¹	p-value²
Physical Factors	19.0 (14.0, 23.0)	15.0 (10.0, 18.0)	15.0 (12.3, 18.8)	9.0 (6.0, 16.0)	14.0 (9.0, 17.0)	8.0 (6.8, 8.3)	<0.001
Psychological Factors	19.0 (16.0, 21.0)	15.5 (10.0, 19.3)	15.0 (12.3, 18.0)	14.0 (11.0, 18.0)	13.0 (11.0, 18.0)	14.5 (13.8, 18.0)	0.014
Other Factors	13.0 (8.0, 14.0)	11.0 (8.0, 14.0)	12.0 (10.0, 15.0)	10.0 (7.0, 12.0)	10.0 (6.0, 12.0)	10.5 (6.8, 13.0)	0.050
Social level Factors	6.0 (4.0, 7.0)	5.0 (3.8, 7.0)	5.0 (3.0, 6.0)	4.0 (2.0, 6.0)	3.0 (2.0, 6.0)	3.5 (2.8, 4.5)	0.020
Environmental level Factors	7.0 (6.0, 8.0)	6.0 (3.8, 8.0)	5.0 (4.0, 7.0)	6.0 (3.0, 8.0)	5.0 (2.0, 6.0)	7.0 (3.5, 7.3)	0.29
¹ Median (IQR)							
² Kruskal-Wallis rank sum test							

Physical factors

Significant differences in physical barriers when compared to district were noted. In fact, significant differences were noted between:

- Gozo and Comino district and Northern Harbour district
- Gozo and Comino district and South Eastern district
- Gozo and Comino district and Southern Harbour district
- Southern Harbour district and Western district

These can be observed from the p-values and median scores presented in figure 32.

Barriers: Physical factors vs district

$\chi^2_{\text{Kruskal-Wallis}}(5) = 27.19, p = 5.25e-05, \hat{e}_{\text{ordinal}}^2 = 0.15, CI_{95\%} [0.11, 1.00], n_{\text{obs}} = 177$

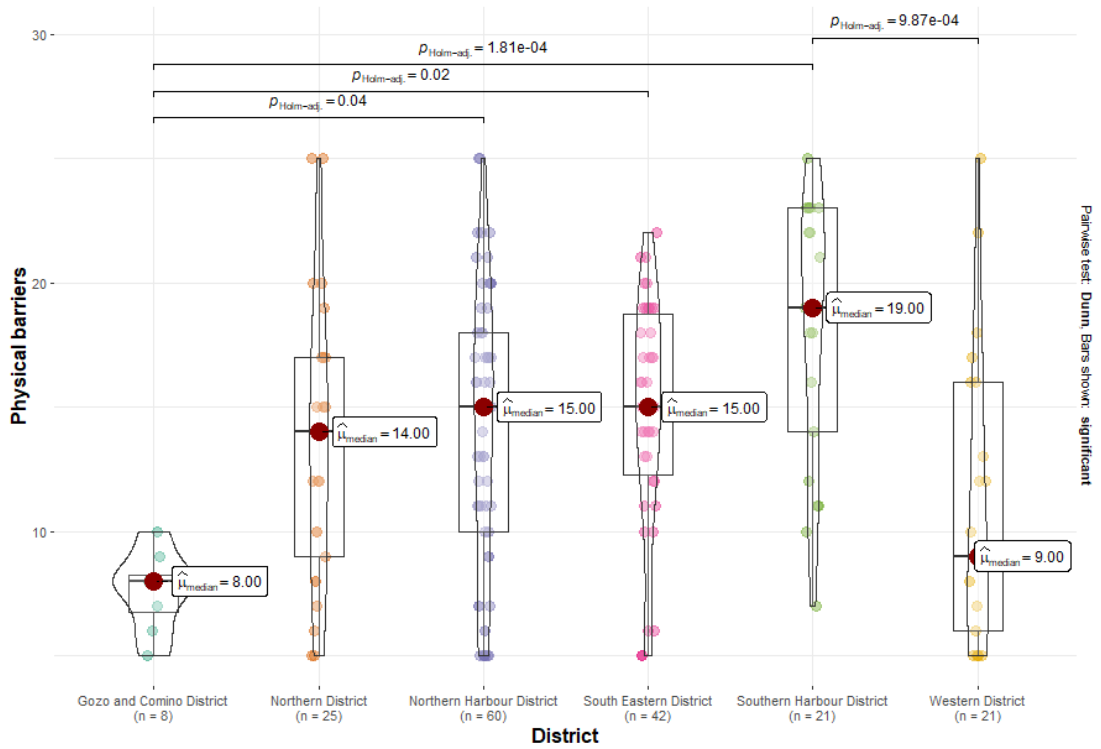


Figure 32: Physical barriers in relation to district

Psychological factors

Significant differences in psychological barriers when compared to district were noted. In fact, significant differences were noted between:

- Northern district and Southern Harbour district
- Northern Harbour district and Southern Harbour district
- Southern Harbour district and Western district

These can be observed from the p-values and median scores presented in figure 33.

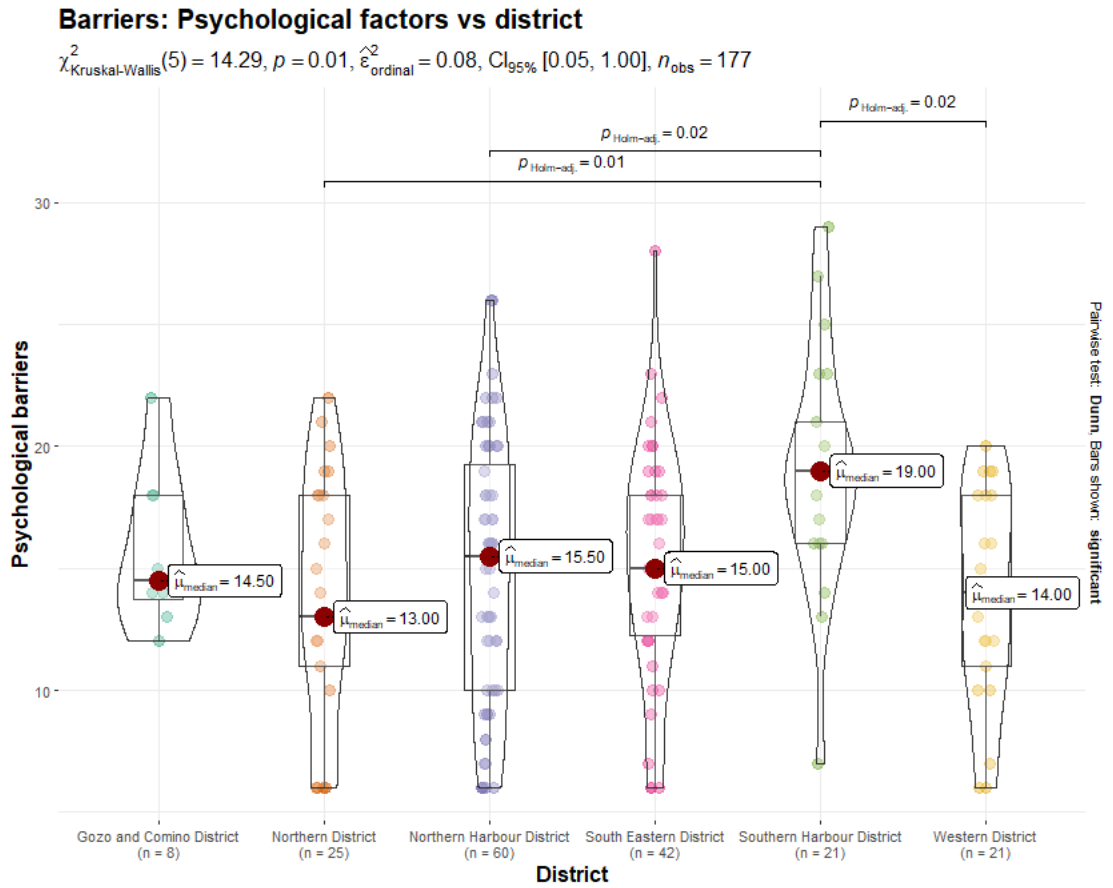


Figure 33: Psychological barriers in relation to district

Social factors

Significant differences in social barriers when compared to district were noted. In fact, significant differences were noted between the Northern district and Southern Harbour district. These can be observed from the p-values and median scores presented in figure 34.

Barriers: Social factors vs district

$\chi^2_{\text{Kruskal-Wallis}}(5) = 13.36, p = 0.02, \hat{\epsilon}^2_{\text{ordinal}} = 0.08, \text{CI}_{95\%} [0.04, 1.00], n_{\text{obs}} = 177$

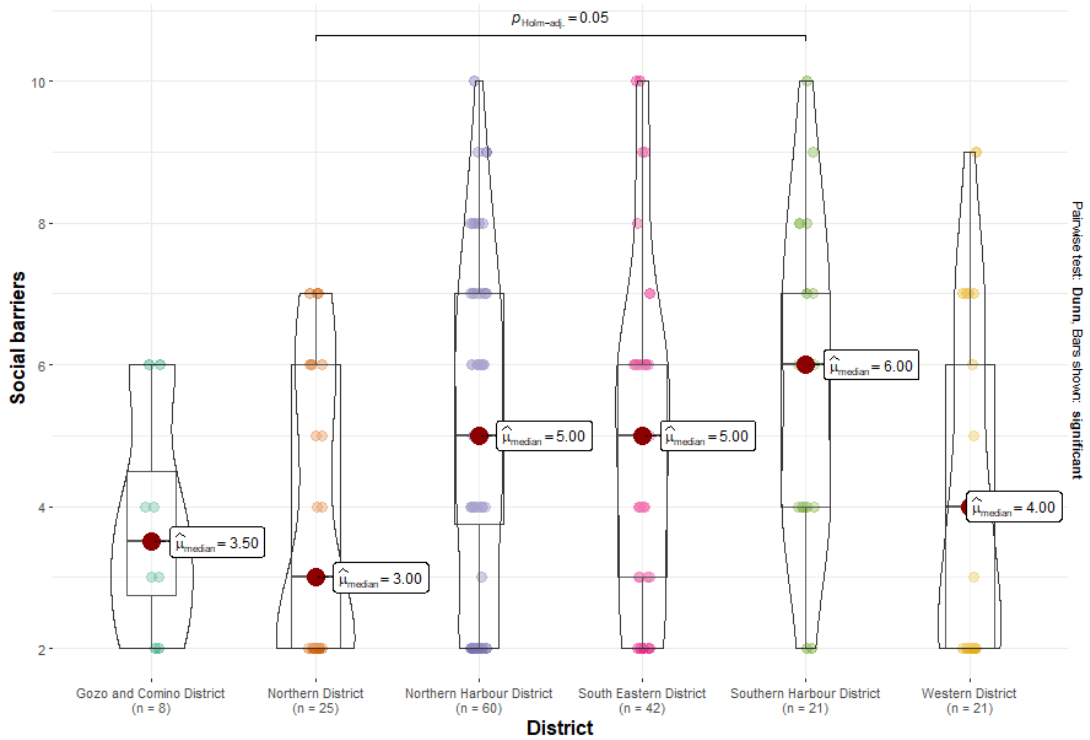


Figure 34: Social barriers in relation to district

4.10.6 Association between barriers and qualification

The Kruskal-Wallis test was used to compare the different barrier categories to qualification. Scores varied marginally between qualification, for all five barrier categories.

The following table summarises this.

Table 37: Association between barriers and qualification

Barriers				
Subtotals	No schooling or Primary level, n = 35 ¹	Secondary/ Intermediates/ A-level, n = 74 ¹	Tertiary level, n = 68 ¹	p-value ²
Physical Factors	15.0 (10.5, 22.0)	14.0 (9.3, 17.8)	14.5 (9.0, 18.0)	0.33
Psychological Factors	16.0 (12.5, 19.0)	16.0 (12.0, 19.0)	15.0 (12.0, 18.3)	0.68
Other Factors	11.0 (8.0, 13.5)	11.0 (8.3, 13.0)	11.5 (8.0, 14.0)	0.96
Social level Factors	4.0 (3.5, 6.0)	4.5 (2.0, 6.0)	4.0 (2.0, 6.3)	>0.99
Environmental level Factors	6.0 (3.5, 8.0)	6.0 (4.0, 7.0)	5.5 (2.0, 8.0)	0.80

¹ Median (IQR)
² Kruskal-Wallis rank sum test

4.11 Association between motivators and different participants' demographic groups

In this section, the analysis of the association between the motivators and the independent variables is presented. The motivators are reflected through the median of the sum of scores as indicated on the Likert scale across the five factors as determined by the socio-ecological framework. The Likert Scale scores obtained for every motivator category (physical factors, psychological factors, other factors, social factors and environmental factors) were used to obtain a median score for each category. The values presented in the following tables represent the median score, whereas the 25th and 75th percentile scores are found in brackets. Since the number of questions that assessed each category was not equal, the possible total sum of the scores for each category was different (e.g. for the motivators social factors there were 5 questions and for the motivators environmental factors there were 5 questions, allowing a possible total score from the Likert scale of 25 and 10 respectively). In view of this a test for normality had to be taken adopting the Shapiro-Wilk test. The findings indicated that the sum scores for each category did not follow a normal distribution. Since the pattern of data was skewed it necessitated to use a non-parametric test to analyse the data. The Kruskal-Wallis test was used to assess the association between the median scores for each motivator category and the independent variables of gym attendance patterns, gender, age, living status, district and qualification. Violin plot figures were plotted to refract the significant differences.

4.11.1 Association between motivators and gym attendance patterns

Upon comparison of the different motivator categories (physical, psychological, other, social and environmental factors) to the gym attendance patterns, all scores except for one; social factors, varied significantly when tested with the Kruskal-Wallis test, since the p-values were less than the 0.05 level of significance. In fact, the median score for physical factors was highest (28) among those that currently attend, while it was lower among those that previously attended (24) and those that never attended (22). Similarly, as for

psychological factors, the median score was 27 for those attended, 21 for those that previously attended and 21 for those that never attended. With regards to other factors, the median score was 25.5 for those that currently attend and 21 and 20 for those that previously attended and those that never attended, respectively. As for environmental factors, the median score for those that currently attend, was 28.5, while it was 25 for those that previously attended and 23.5 for those that never attended. This implies that as for the physical, psychological, other and environmental factors, participants that currently attend a gym experience the most motivators, while participants that previously attended experience less motivators, but those that never attended experience the least motivators. The following table summarises this and the following violin plot figures with statistical annotations show the motivator categories by gym attendance patterns, where a significant difference was noted.

Table 38: Association between motivators and gym attendance patterns

Motivators				
Subtotals	Attending, n = 28¹	Previously attended, n = 73¹	Never, n = 76¹	p- value²
Physical Factors	28.0 (25.0, 30.0)	24.0 (21.0, 26.0)	22.0 (17.0, 27.0)	<0.001
Psychological Factors	27.0 (25.0, 30.0)	21.0 (16.0, 25.0)	21.0 (15.0, 23.3)	<0.001
Other Factors	25.5 (21.8, 27.5)	21.0 (16.0, 23.0)	20.0 (14.8, 24.0)	<0.001
Social level Factors	18.5 (12.0, 23.0)	16.0 (10.0, 18.0)	17.0 (12.8, 20.0)	0.063
Environmental level Factors	28.5 (23.3, 32.3)	25.0 (19.0, 28.0)	23.5 (15.0, 27.3)	0.010
¹ Median (IQR)				
² Kruskal-Wallis rank sum test				

Physical factors

Significant differences in physical motivators when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 35. No significant differences were noted between the previously attended and never attended groups.

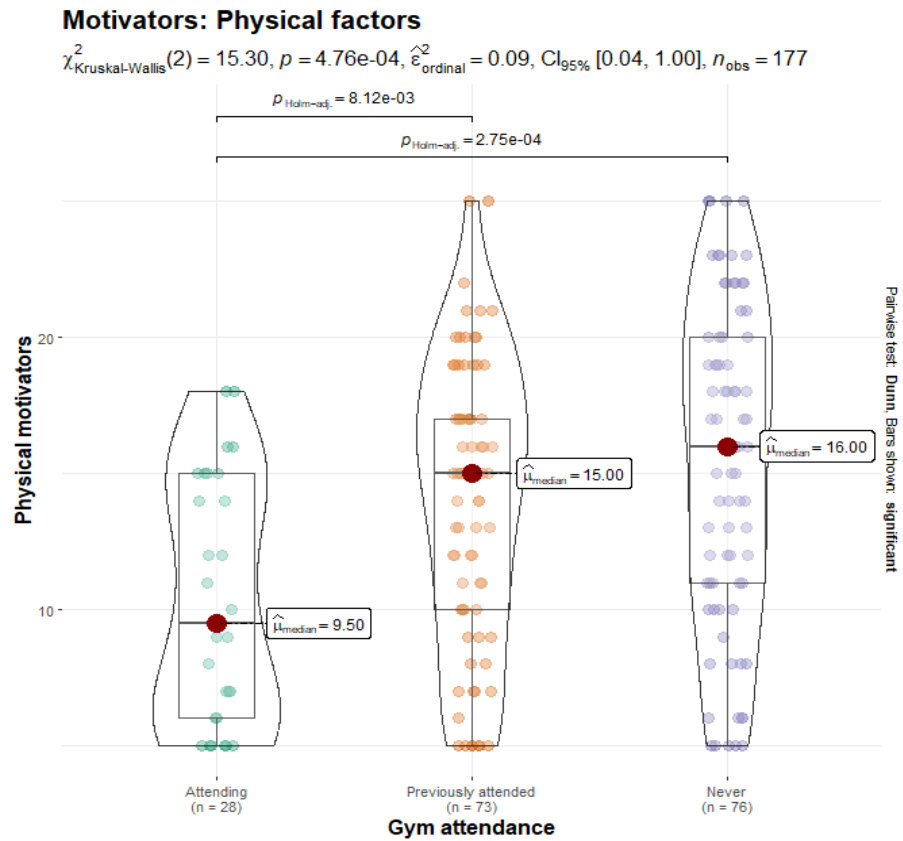


Figure 35: Physical motivators in relation to gym attendance

Psychological factors

Significant differences in psychological motivators when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 36. No significant differences were noted between the previously attended and never attended groups.

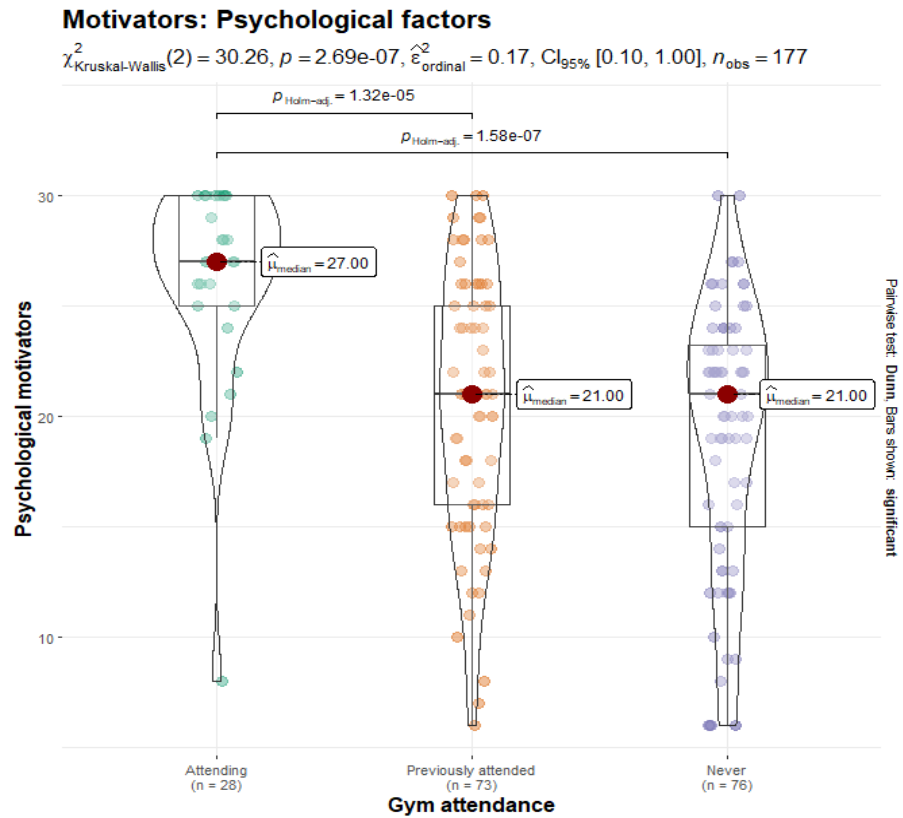


Figure 36: Psychological motivators in relation to gym attendance

Other factors

Significant differences in other motivators when compared to gym attendance were noted between those attending and those that never attended, as well as in between those currently attending and those that previously attended, as per the p-values and median scores presented in figure 37. No significant differences were noted between the previously attended and never attended groups.

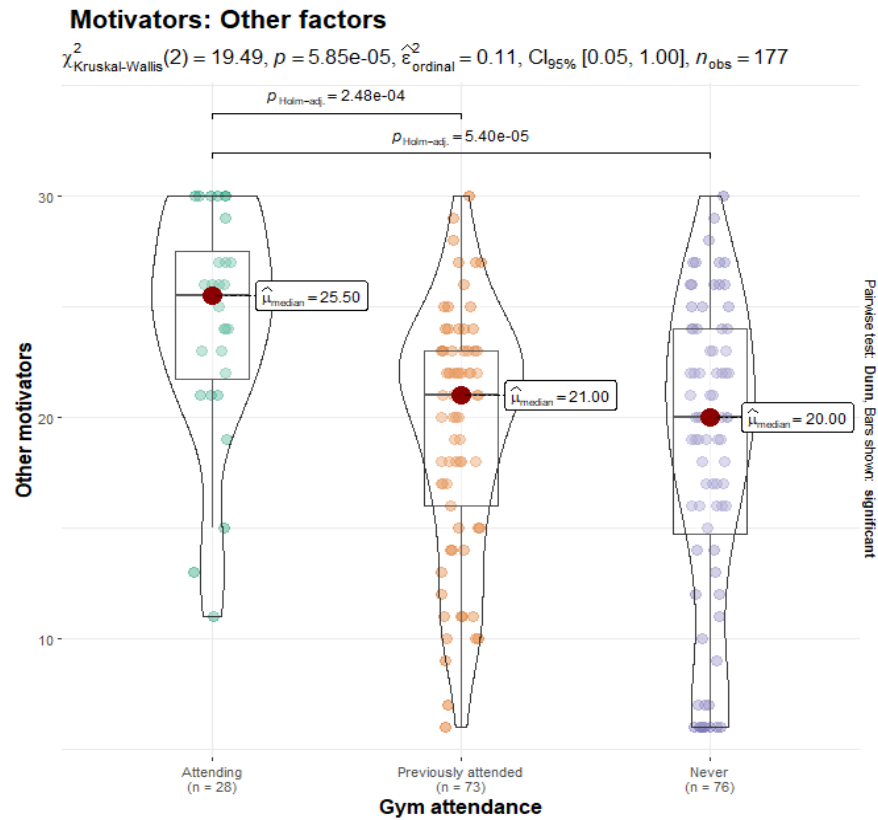


Figure 37: Other motivators in relation to gym attendance

Social factors

No significant differences were noted in social motivators when compared to gym attendance patterns, between all three groups, that being the attending, the previously attended and never attended groups, as the p-values were greater than the 0.05 level of significance, and as observed in the median scores, as presented in the following figure (figure 38). Although the p-value was greater than the 0.05 level of significance, there was borderline significance as the p-value is very close (0.06).

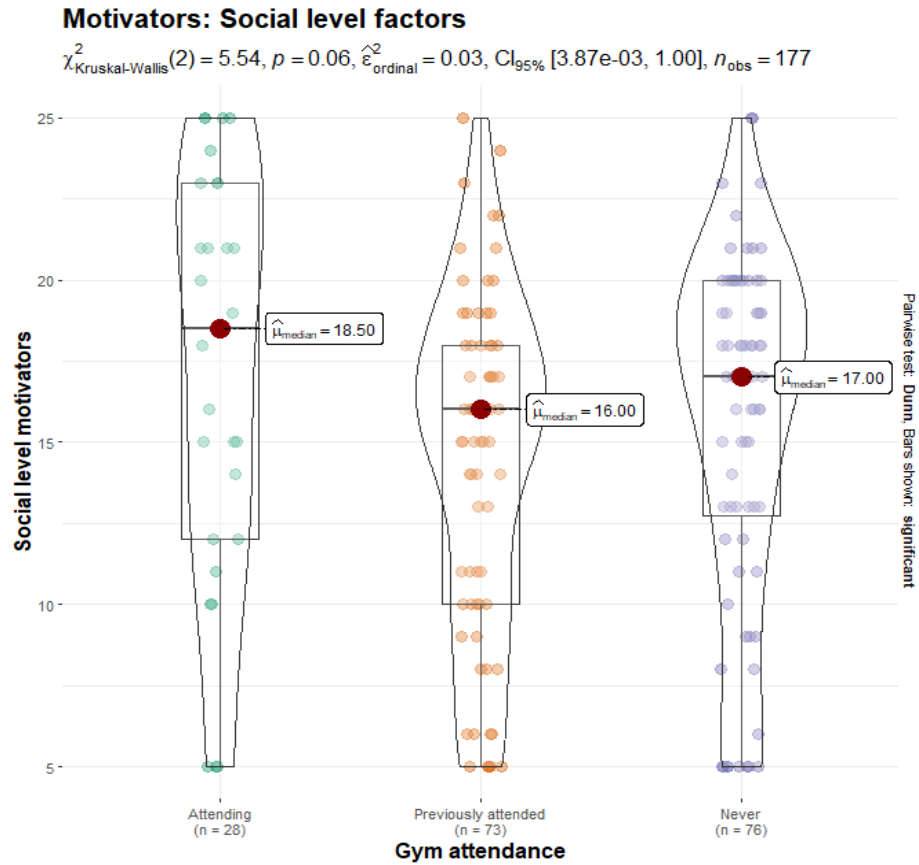


Figure 38: Social motivators in relation to gym attendance

Environmental factors

Significant differences in environmental motivators when compared to gym attendance were noted between those attending and those that never attended, as per the p-values and median scores presented in figure 39. No significant differences were noted between the previously attended and never attended groups, and between the attending and previously attended.

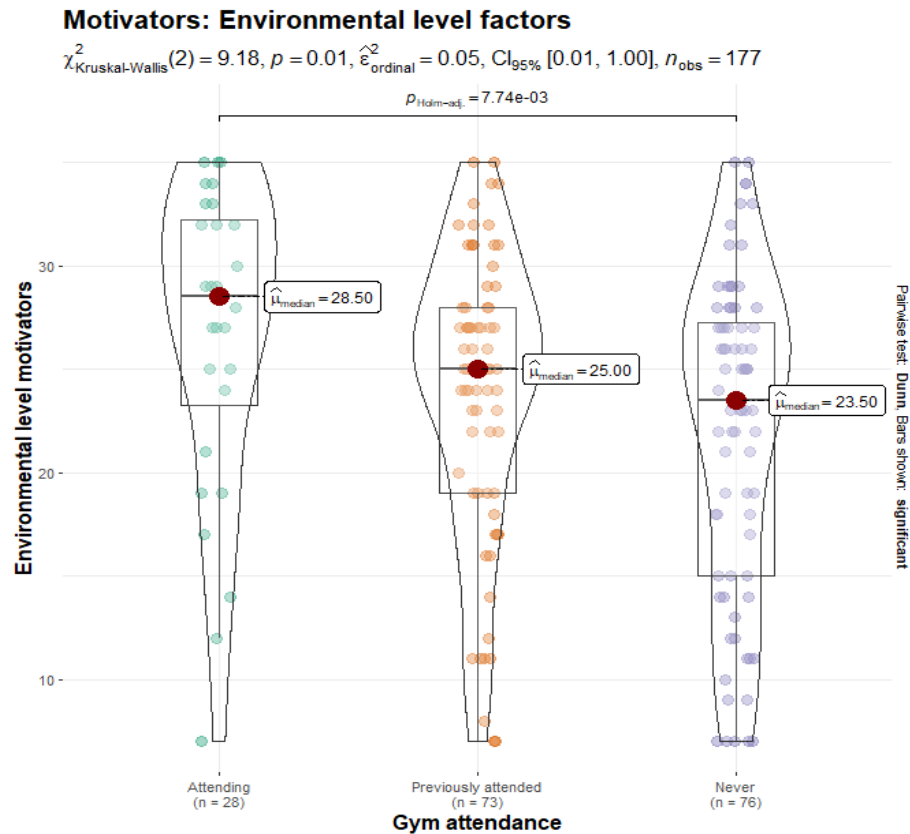


Figure 39: Social motivators in relation to gym attendance

4.11.2 Association between motivators and gender

The Wilcoxon signed-rank test was utilised to compare the different motivator categories (physical, psychological, other, social and environmental factors) to gender. Scores varied significantly between genders for physical factors, since the p-value was less than the 0.05 level of significance. In fact, the median score for physical factors was highest for females (25) when compared to males (22), indicating higher motivation towards gym attendance among women. On the other hand, scores varied marginally between genders, for psychological, other, social and environmental factors. The following table summarises this and the following violin plot figure with statistical annotations shows the physical category by gender.

Table 39: Association between motivators and gender

Motivators			
Subtotals	Male, n = 69 ¹	Female, n = 108 ¹	p-value ²
Physical Factors	22.0 (20.0, 25.0)	25.0 (20.0, 28.0)	0.033
Psychological Factors	21.0 (16.0, 24.0)	22.0 (18.8, 26.0)	0.14
Other Factors	21.0 (15.0, 24.0)	21.0 (16.0, 24.3)	0.48
Social level Factors	16.0 (13.0, 19.0)	16.0 (10.0, 20.0)	0.98
Environmental level Factors	25.0 (19.0, 28.0)	25.5 (19.0, 29.0)	0.27
¹ Median (IQR)			
² Wilcoxon rank sum test			

Physical factors

A significant difference in physical motivators when compared to gender was noted, as per the p-values and median scores presented in figure 40.

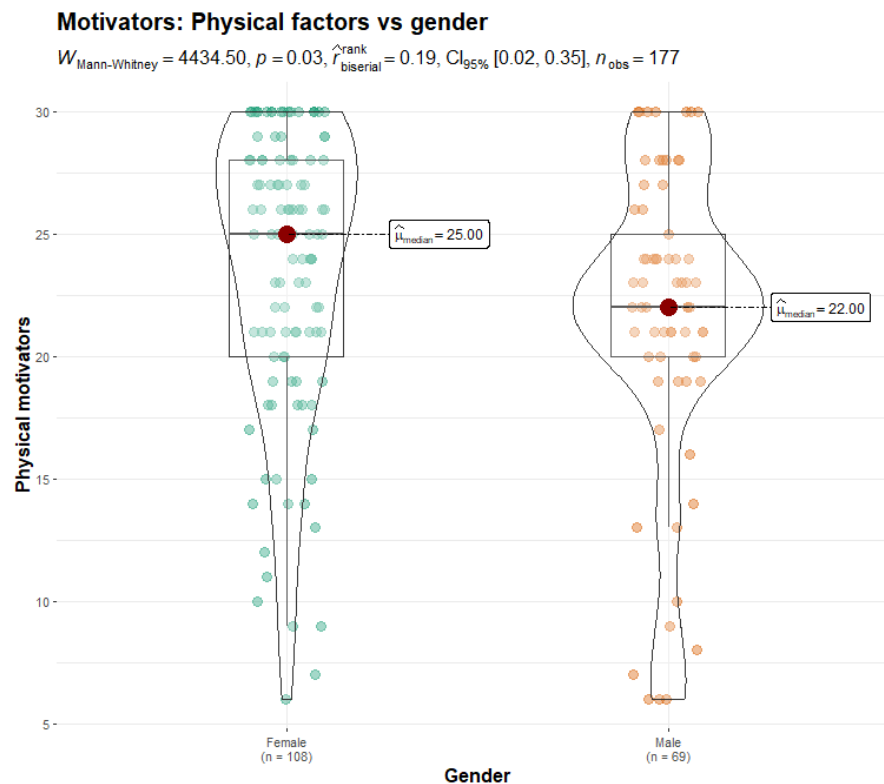


Figure 40: Physical motivators in relation to gender

4.11.3 Association between motivators and age

Following the Kruskal-Wallis test, scores varied marginally between age ranges for all motivator categories, since the p-value was greater than the 0.05 level of significance. As

for other motivators, the p-value was borderline (0.05). The following table summarises this and the following violin plot figure with statistical annotations shows the other category by age.

Table 40: Association between motivators and age

Motivators					
Subtotals	65-69 years, n = 95 ¹	70-74 years, n = 45 ¹	75-79 years, n = 26 ¹	≥80 years, n = 11 ¹	p-value ²
Physical Factors	24.0 (21.0, 28.0)	23.0 (19.0, 26.0)	22.5 (20.0, 25.8)	21.0 (11.5, 26.0)	0.10
Psychological Factors	22.0 (18.0, 26.0)	21.0 (17.0, 25.0)	21.0 (16.5, 26.0)	20.0 (13.5, 24.0)	0.53
Other Factors	20.0 (14.0, 23.0)	22.0 (19.0, 26.0)	22.0 (20.0, 25.8)	19.0 (16.5, 27.0)	0.050
Social level Factors	16.0 (10.0, 19.0)	18.0 (14.0, 20.0)	15.5 (13.0, 18.0)	20.0 (13.5, 21.5)	0.069
Environmental level Factors	25.0 (18.5, 29.0)	26.0 (19.0, 29.0)	25.5 (18.8, 27.0)	27.0 (20.5, 31.0)	0.44

¹ Median (IQR)
² Kruskal-Wallis rank sum test

Other factors

Borderline significant difference in other motivators when compared to age was noted, as per the p-value and median scores presented in figure 41.

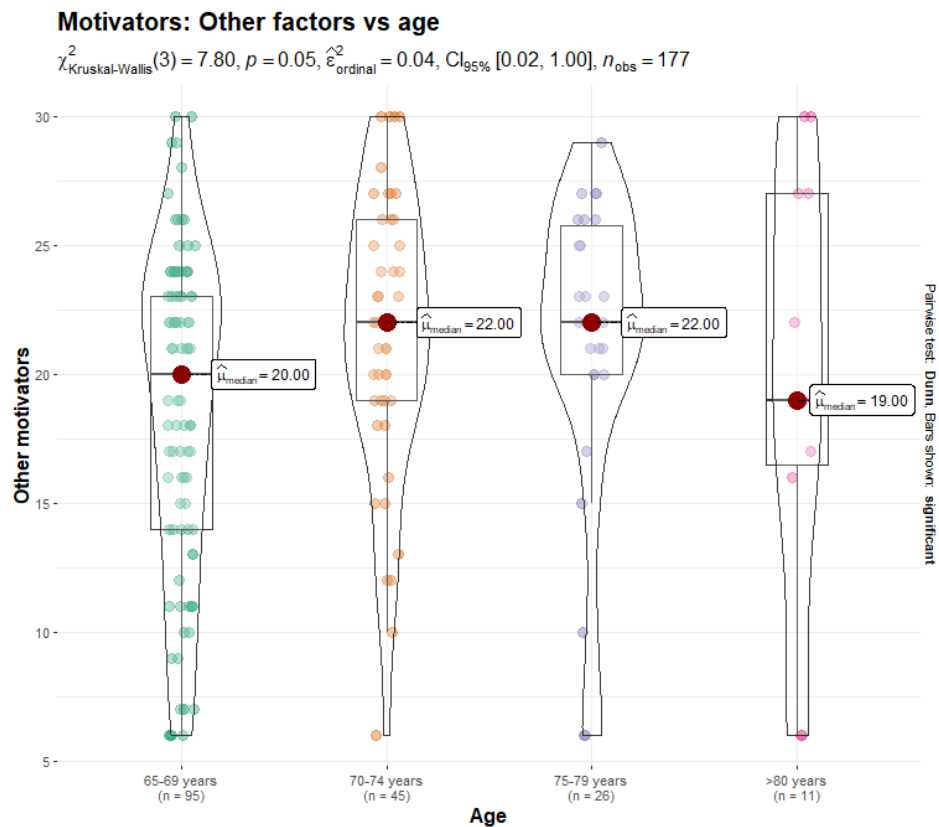


Figure 41: Other motivators in relation to age

4.11.4 Association between motivators and living status

The Kruskal-Wallis test was used to compare the different motivator categories to living status. Scores varied significantly between living status for psychological factors, since the p-value was less than the 0.05 level of significance. Scores varied marginally between living status, for physical, other, social and environmental factors. The following table summarises this and the following violin plot figure with statistical annotations shows the psychological category by living status.

Table 41: Association between motivators and living status

Motivators						
Subtotals	Live alone, n = 33 ¹	Live with spouse/ partner, n = 121 ¹	Live with children, n = 11 ¹	Live with spouse/ partner & children, n = 9 ¹	Live with other, n = 3 ¹	p- value ²
Physical Factors	24.0 (20.0, 28.0)	23.0 (20.0, 27.0)	24.0 (20.0, 28.0)	21.0 (20.0, 24.0)	30.0 (28.5, 30.0)	0.15
Psychological Factors	24.0 (16.0, 26.0)	21.0 (19.0, 25.0)	23.0 (14.0, 27.0)	12.0 (10.0, 15.0)	26.0 (25.0, 27.0)	0.009
Other Factors	22.0 (17.0, 25.0)	21.0 (16.0, 24.0)	24.0 (14.5, 26.5)	14.0 (10.0, 22.0)	22.0 (21.5, 23.0)	0.43
Social level Factors	17.0 (10.0, 18.0)	16.0 (13.0, 20.0)	16.0 (10.0, 19.5)	12.0 (10.0, 18.0)	15.0 (13.0, 16.5)	0.91
Environmental level Factors	25.0 (21.0, 28.0)	25.0 (19.0, 28.0)	27.0 (20.0, 32.0)	22.0 (17.0, 24.0)	29.0 (28.0, 29.0)	0.23
¹ Median (IQR)						
² Kruskal-Wallis rank sum test						

Psychological factors

Significant differences in psychological motivators when compared to living status were noted between:

- Those who live alone and those who live with spouse/ partner and children
- Those who live with other and those who live with spouse/ partner and children
- Those who live with spouse/ partner and those who live with spouse/ partner and children

The p-values and median scores are presented in figure 42.

Motivators: Psychological factors vs living status

$\chi^2_{Kruskal-Wallis}(4) = 13.60, p = 8.68e-03, \hat{\epsilon}^2_{ordinal} = 0.08, CI_{95\%} [0.05, 1.00], n_{obs} = 177$

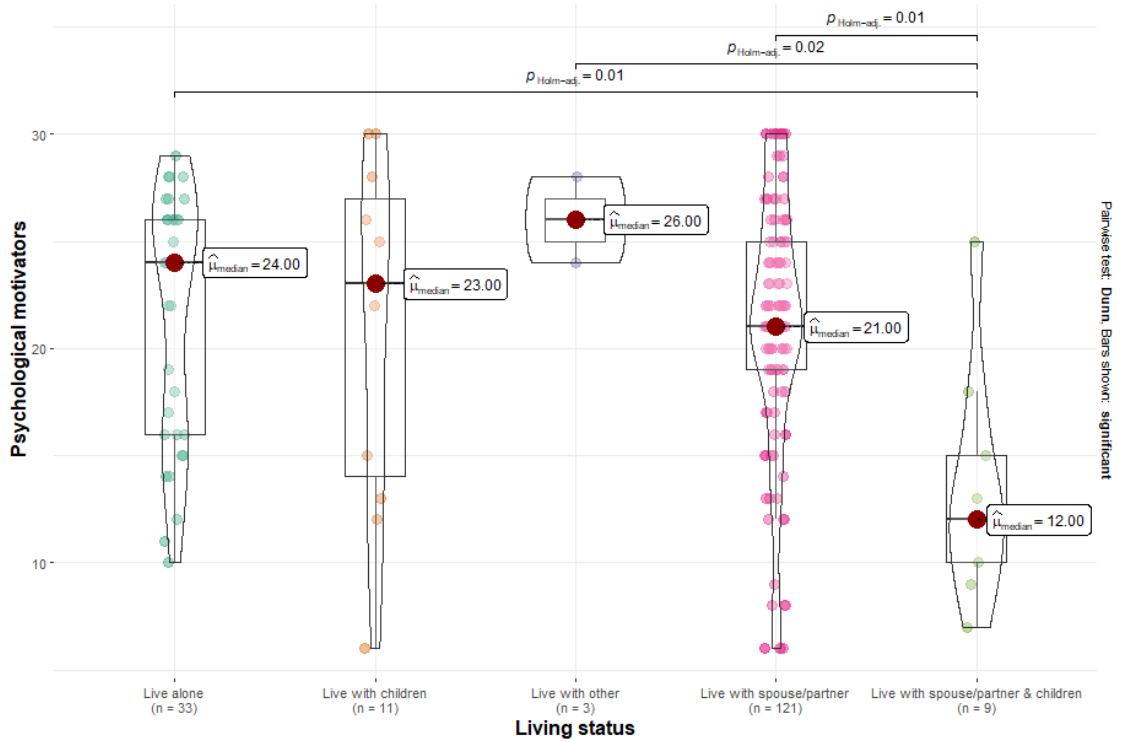


Figure 42: Psychological motivators in relation to living status

4.11.5 Association between motivators and district

When comparing the different motivator categories to district, scores varied significantly between districts was accepted for physical, psychological and other factors, following the Kruskal-Wallis test, since the p-value was less than the 0.05 level of significance. On the other hand, scores varied marginally between districts, for social and environmental factors. The following table summarises this and the following violin plot figures with statistical annotations show the physical, psychological and other categories by district.

Table 42: Association between motivators and district

Motivators							
Subtotals	Southern Harbour District, n = 21 ¹	Northern Harbour District, n = 60 ¹	South Eastern District, n = 42 ¹	Western District, n = 21 ¹	Northern District, n = 25 ¹	Gozo and Comino District, n = 8 ¹	p-value ²
Physical Factors	21.0 (17.0, 24.0)	24.0 (20.8, 28.0)	24.0 (21.0, 28.0)	22.0 (21.0, 27.0)	26.0 (22.0, 28.0)	18.5 (13.8, 21.5)	0.011
Psychological Factors	20.0 (15.0, 22.0)	22.5 (20.0, 26.3)	19.5 (13.5, 25.5)	21.0 (18.0, 24.0)	25.0 (21.0, 26.0)	15.5 (11.5, 17.8)	0.002
Other Factors	24.0 (16.0, 26.0)	21.5 (18.0, 24.3)	18.5 (13.3, 22.0)	21.0 (14.0, 23.0)	23.0 (20.0, 24.0)	16.5 (10.0, 19.5)	0.023
Social level Factors	18.0 (16.0, 20.0)	17.0 (13.8, 19.0)	16.5 (11.0, 19.8)	13.0 (10.0, 17.0)	15.0 (13.0, 20.0)	13.5 (9.8, 16.0)	0.077
Environmental level Factors	25.0 (22.0, 27.0)	26.5 (22.8, 29.0)	23.5 (15.5, 29.0)	25.0 (15.0, 28.0)	24.0 (17.0, 28.0)	19.5 (11.3, 27.0)	0.30

¹ Median (IQR)
² Kruskal-Wallis rank sum test

Physical factors

Significant difference in physical motivators when compared to district was noted, as per the p-value and median scores presented in figure 43.

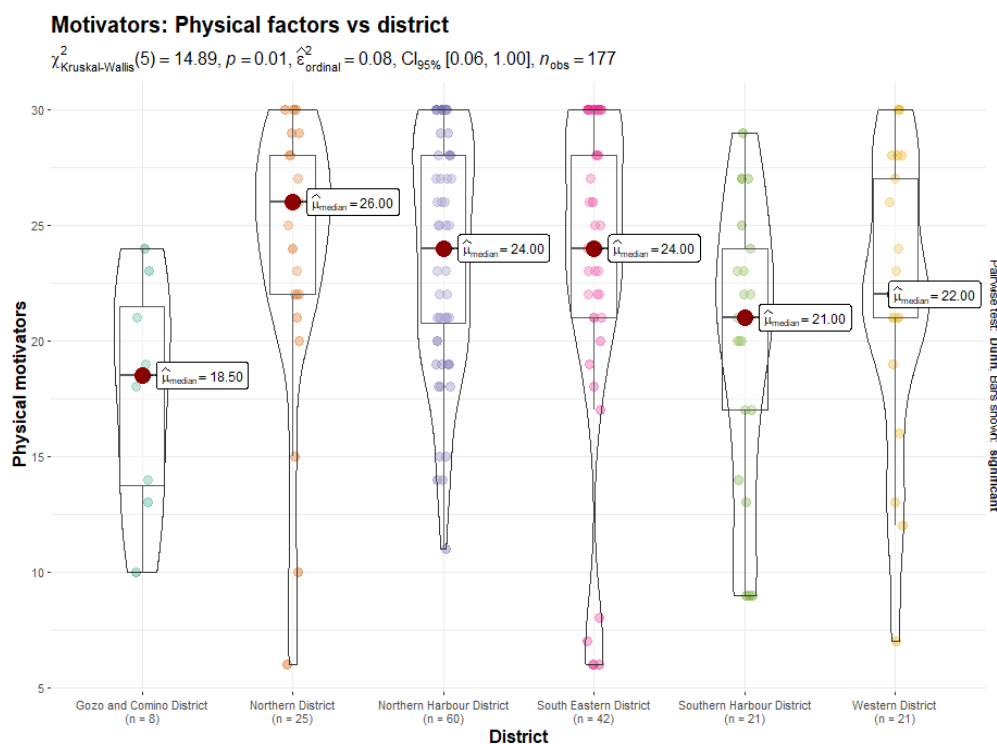


Figure 43: Physical motivators in relation to district

Psychological factors

Significant differences in psychological motivators when compared to district were noted between Gozo and Comino district and Northern district, and between Gozo and Comino district and Northern Harbour district. These can be seen as per the p-value and median scores presented in figure 44.

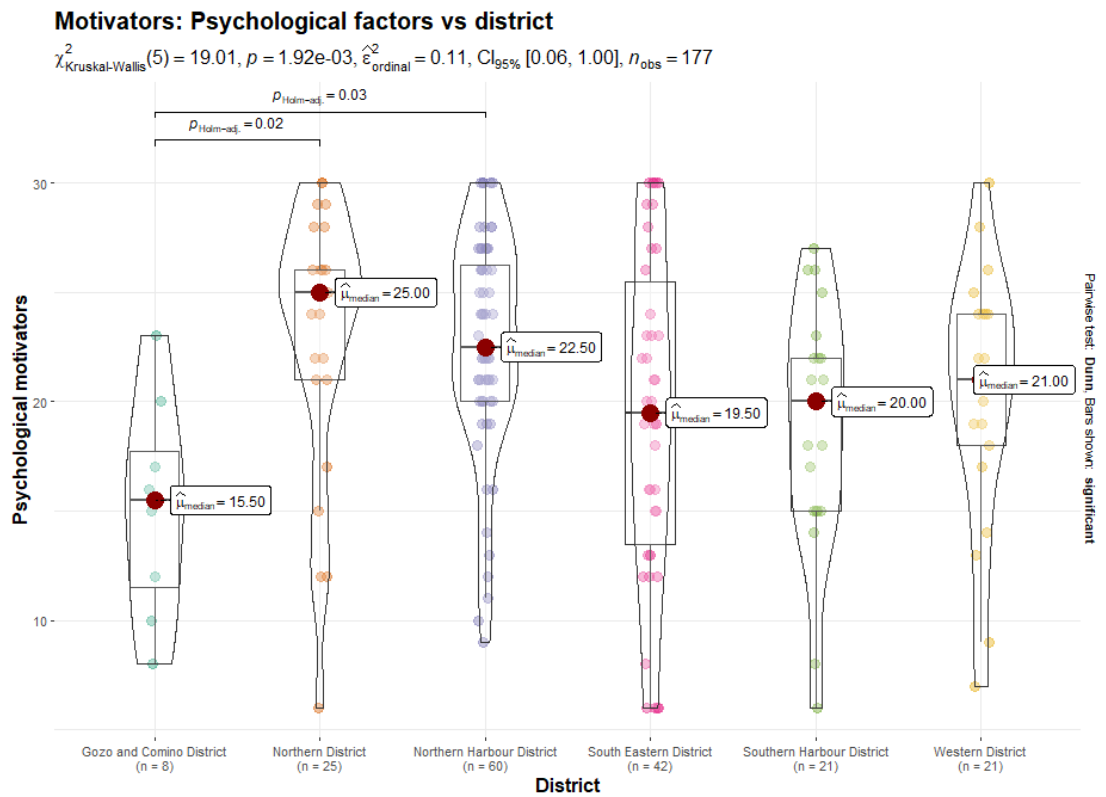


Figure 44: Psychological motivators in relation to district

Other factors

Significant difference in other motivators when compared to district was noted, as per the p-value and median scores presented in figure 45.

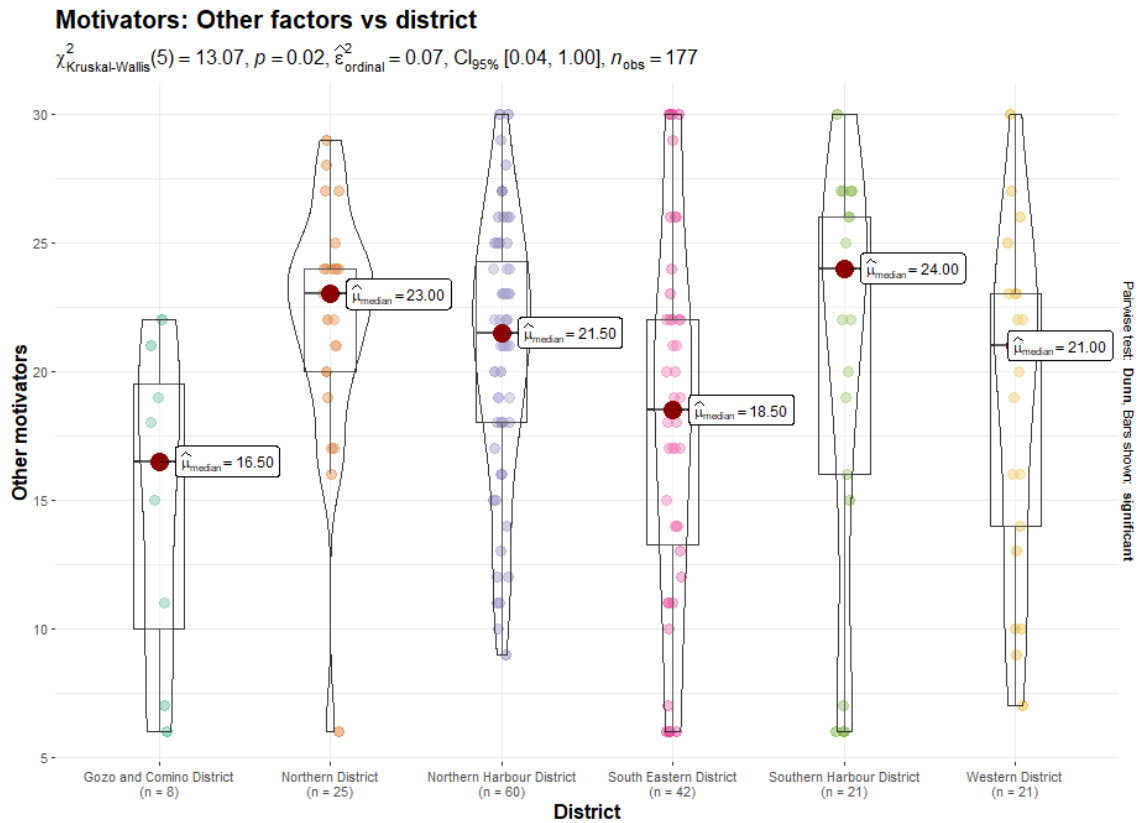


Figure 45: Other motivators in relation to district

4.11.6 Association between motivators and qualification

When comparing the different motivator categories to qualification, scores varied significantly between qualification groups was accepted for physical and psychological factors, following the Kruskal-Wallis test, since the p-value was less than the 0.05 level of significance. On the other hand, scores varied marginally between qualification groups, for other, social and environmental factors. The following table summarises this and the following violin plot figures with statistical annotations show the physical and psychological categories by qualification.

Table 43: Association between motivators and qualification

Motivators				
Subtotals	No schooling or Primary level, n = 35 ¹	Secondary/ Intermediate/ A-level, n = 74 ¹	Tertiary level, n = 68 ¹	p-value ²
Physical Factors	23.0 (13.0, 26.0)	22.5 (21.0, 28.0)	25.0 (21.0, 28.0)	0.016
Psychological Factors	18.0 (13.5, 24.0)	21.5 (16.0, 26.0)	23.0 (20.0, 26.0)	0.005
Other Factors	22.0 (16.5, 26.0)	20.0 (15.3, 23.0)	22.0 (17.0, 24.0)	0.34
Social level Factors	17.0 (13.0, 20.0)	16.0 (11.3, 19.0)	16.0 (11.0, 19.0)	0.87
Environmental level Factors	25.0 (14.0, 27.0)	25.0 (19.0, 29.0)	25.0 (18.8, 29.0)	0.54

¹ Median (IQR)
² Kruskal-Wallis rank sum test

Physical factors

Significant difference in physical motivators when compared to qualification between no schooling or primary level and tertiary level was noted, as per the p-value and median scores presented in figure 46.

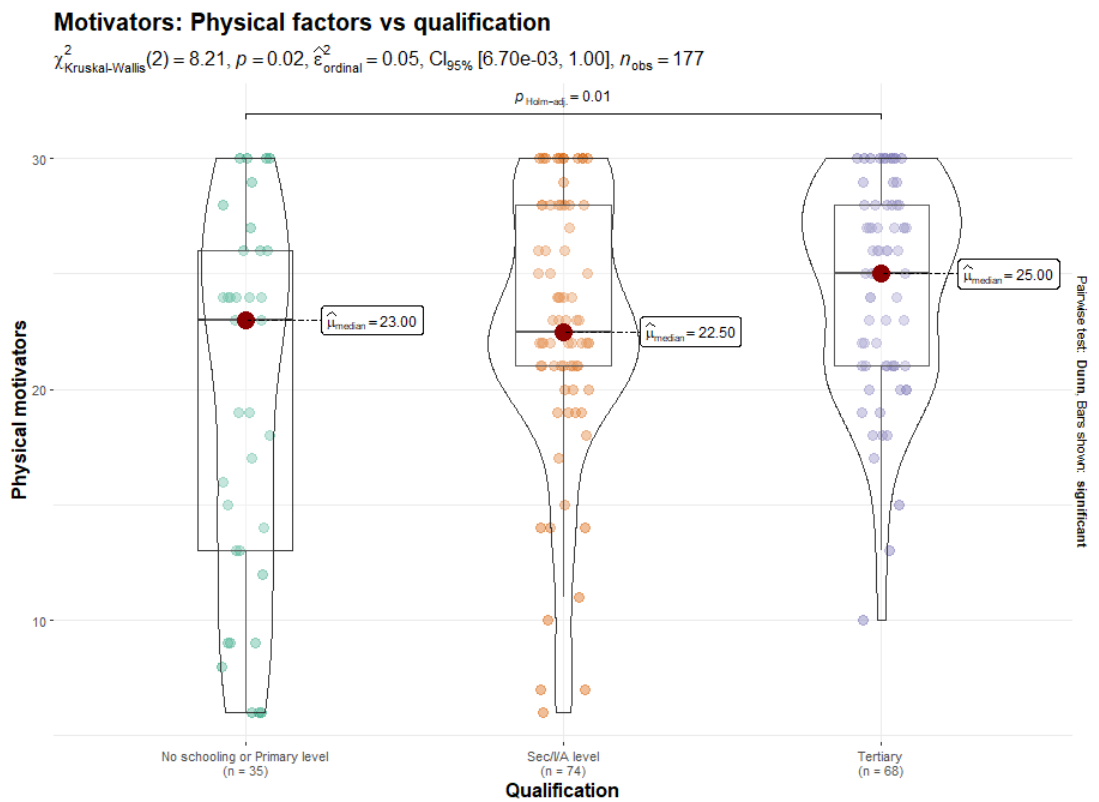


Figure 46: Physical motivators in relation to qualification

Psychological factors

Significant difference in psychological motivators when compared to qualification between no schooling or primary level and tertiary level was noted, as per the p-value and median scores presented in figure 47.

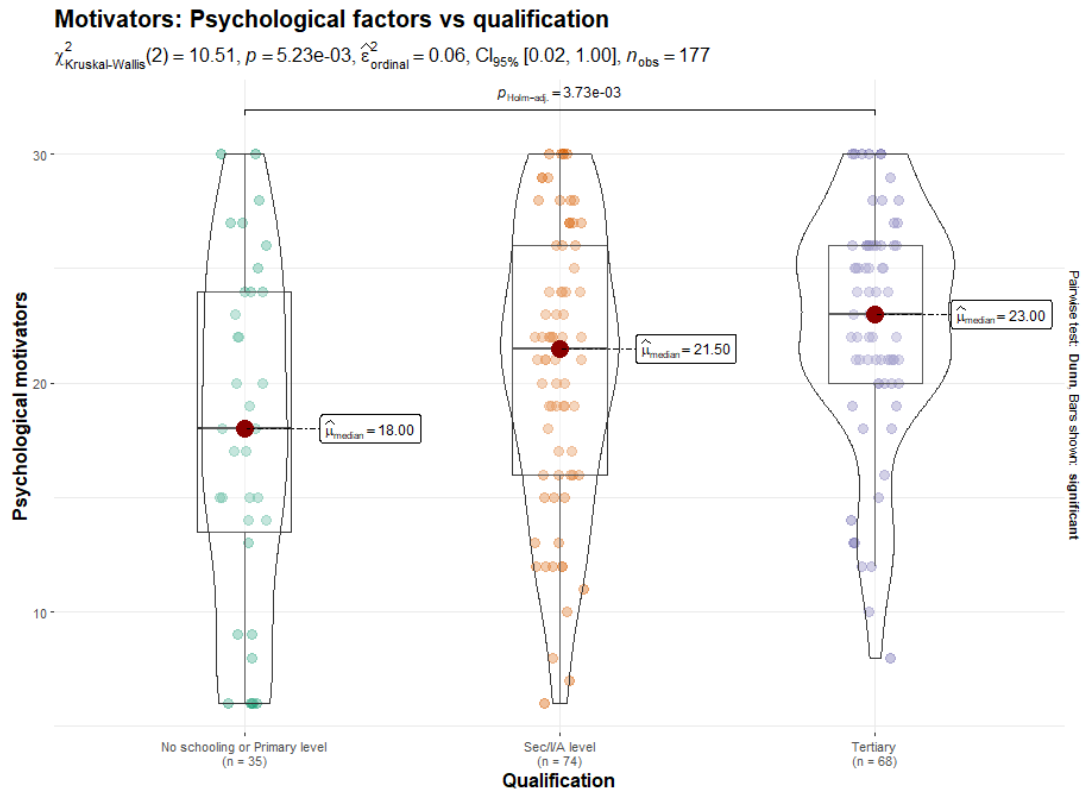


Figure 47: Psychological motivators in relation to qualification

4.12 Correlation matrix

4.12.1 Barriers

A correlation matrix is a statistical technique that is used to assess the association in a dataset between two variables. The correlation matrix between the barrier categories was investigated and no major significant associations were observed.

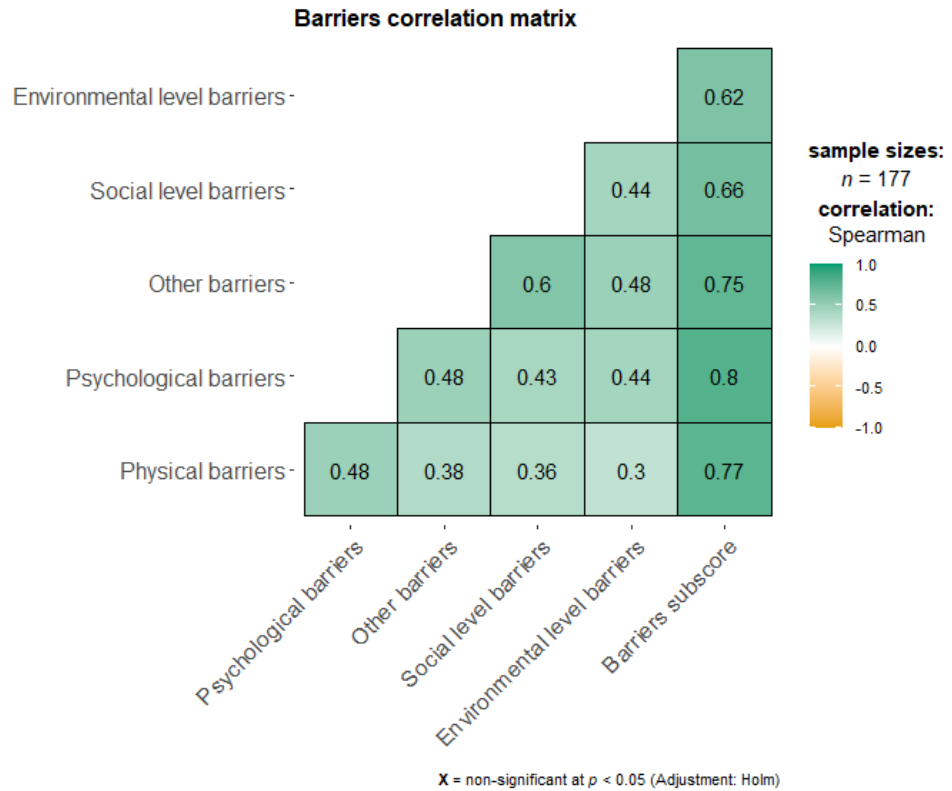


Figure 48: Correlation matrix showing the association between barriers

4.12.2 Motivators

Similar to the correlation matrix for barrier categories, the correlation matrix between motivator categories was investigated. A significant association was observed between physical motivators and psychological motivators.

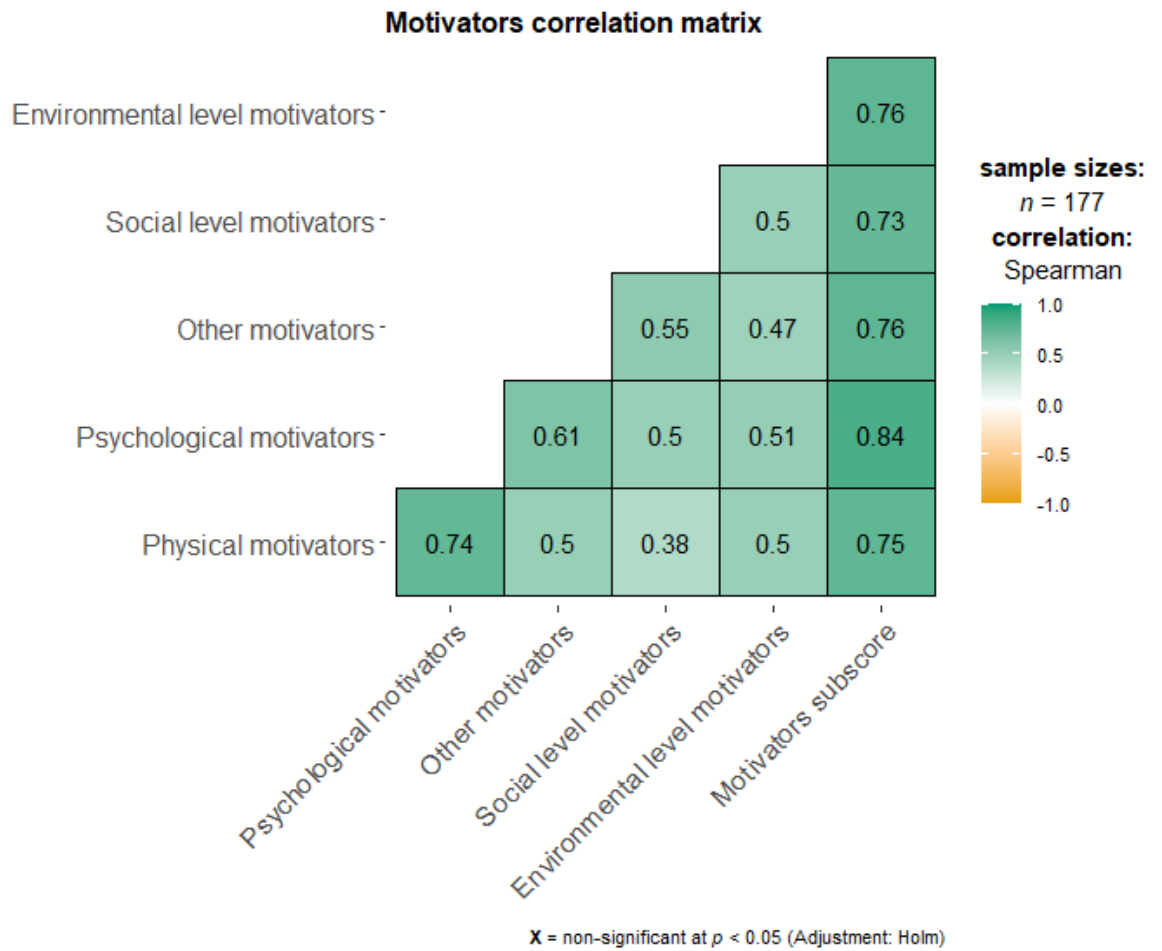


Figure 49: Correlation matrix showing the associations between motivators

4.12.3 Motivators and barriers

The following figure shows the correlation matrix between barrier and motivator categories. As described in the previous section, in this correlation matrix, the greatest association was also observed between physical and psychological motivators. This means that when there are physical and psychological motivators together, there is a higher likelihood for an individual to attend gym.

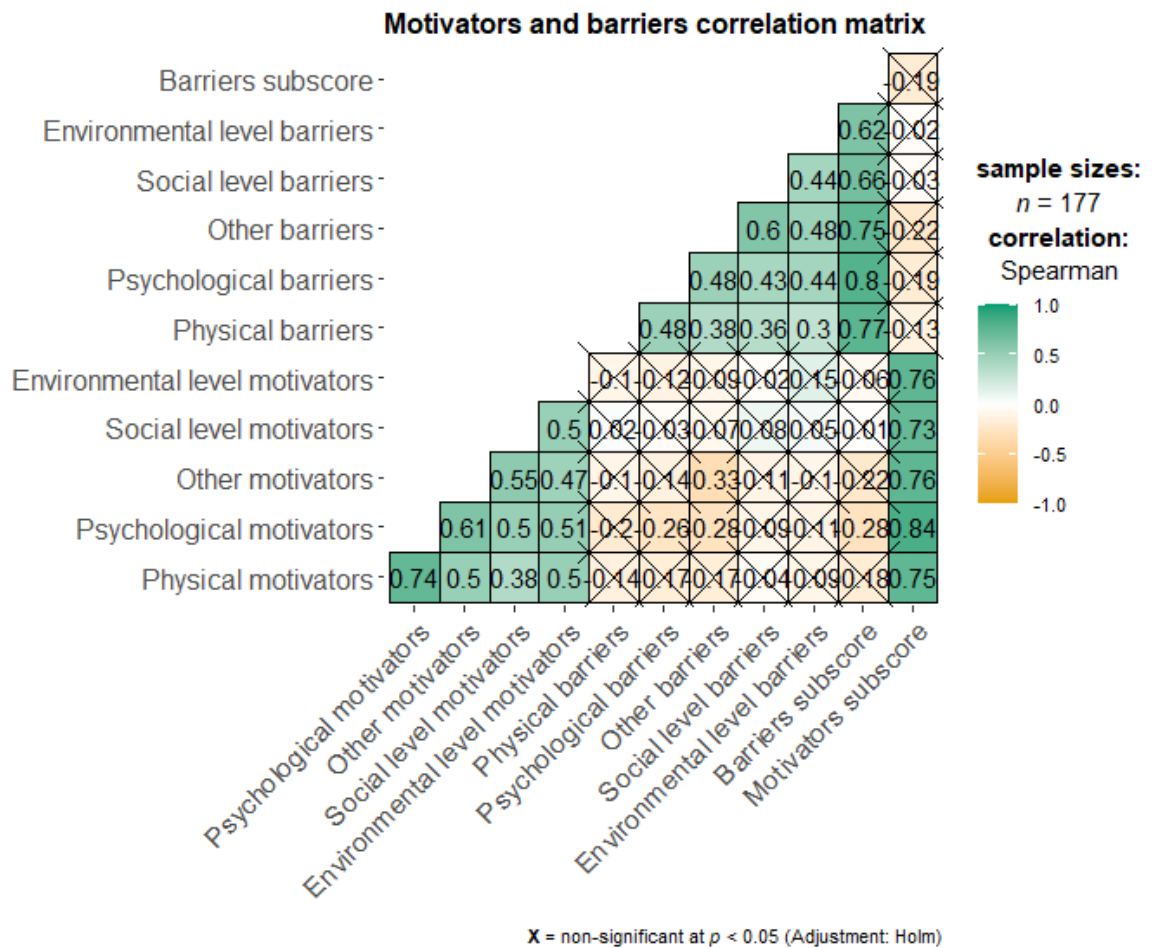


Figure 50: Correlation matrix showing the association between barriers and motivators

4.13 Regression analysis

Logistic regression refers to a technique used to estimate the probability of an outcome, when given the values of the independent variable, and is a technique used when the dependent variable is categorical. In this case a binary logistic regression analysis was carried out since the dependent variable has two categories. This regression analysis was carried out to predict who has a higher likelihood to attend a gym, based on participants' demographics. The following table shows the five regression models used to predict who is more likely to attend a gym. The first model was according to demographic data, the second model was according to barriers, the third model was according to motivators, the fourth model was according to barriers and motivators together, and the fifth model was according to demographics, barriers and motivators together.

Compared to those participants who have either no schooling or primary level education, those who have a SEC or A-level qualification have 30.6 times the odds of attending a gym. Those with a tertiary level education have 20.2 times the odds of attending a gym compared to those without schooling.

For every one-unit increase in the psychological barriers sub score, participants have 21% fewer odds of attending a gym.

For every one unit increase in the other motivator sub-score, participants have 25% higher odds of attending a gym.

From this regression analysis, when considering the barriers alone or the motivators alone, the most important motivators were the psychological motivators (Q21), and the most important barriers were the psychological barriers (Q26).

Table 44: Table showing the five regression models, used to predict who is more likely to attend a gym

Characteristics	Demographics			Barriers			Motivators			Motivators & Barriers			Demographics & Motivators & barriers		
	OR ¹	95% CI ¹	p-value	OR ²	95% CI ²	p-value	OR ²	95% CI ²	p-value	OR ²	95% CI ²	p-value	OR ²	95% CI ²	p-value
Qualification															
No schooling or Primary level	—	—											—	—	
Secondary/Intermediate/A-level	7.93	1.49, 147	0.050										30.6	4.00, 692	0.005
Tertiary level	8.04	1.50, 149	0.049										20.2	2.68, 449	0.013
Physical barriers[†]										0.90	0.81, 0.98	0.022			
Psychological barriers[†]				0.79	0.71, 0.87	<0.001							0.79	0.71, 0.88	<0.001
Social barriers[†]										0.76	0.61, 0.92	0.007			
Psychological motivators[†]							1.30	1.17, 1.48	<0.001	1.26	1.13, 1.44	<0.001			
Other motivators[†]													1.25	1.12, 1.43	<0.001
AIC	153			132			128			115			111		
Deviance	147			128			124			107			101		

¹ OR = Odds Ratio, CI = Confidence Interval, [†] Subtotal

4.14 Senior gym attraction

At the end of the survey, participants were asked whether they would be interested to attend, should there be a gym that is specifically dedicated for individuals who are 65 years or older. 130 (74.3%) reported that they would be interested, whereas 45 (25.7%) reported that should there be one, they would still not be interested to try it out. Two survey responses which were considered as 'complete' did not have an answer to question 32, regarding senior gyms, thus this section shall have a total of 175 responses.

The responses obtained were then further investigated in terms of the participants' gym attendance patterns. Out of those that were interested in attending a senior gym (130), 13 (10%) were attending a gym, 59 (45.4%) previously attended a gym, while 58 (44.6%) had never attended a gym. On the other hand, out of those that were not interested in attending a senior gym (45), 14 (31.1%) were attending a gym, 13 (28.9%) previously attended a gym, while 18 (40%) had never attended a gym. The main focus for this study would be to target the individuals who are currently not attending a gym, but previously attended and are interested in a senior gym, because a behavioural change towards increased physical activity would be more likely to be successful among these individuals.

These findings are presented in table 45 and figures 52 and 53.

Table 45: Interest in senior gyms in relation to participants' demographic data

Having a gym dedicated to elderly persons Q32				
Factor	Overall, N = 175¹	No, n = 45¹	Yes, n = 130¹	p-value²
Gender				0.32
Male	67 (38.3%)	20 (44.4%)	47 (36.2%)	
Female	108 (61.7%)	25 (55.6%)	83 (63.8%)	
Age				0.25
65-69 years	94 (53.7%)	21 (46.7%)	73 (56.2%)	
70-74 years	45 (25.7%)	14 (31.1%)	31 (23.8%)	
75-79 years	25 (14.3%)	9 (20.0%)	16 (12.3%)	
≥80 years	11 (6.3%)	1 (2.2%)	10 (7.7%)	
Living status				0.58
Live alone	33 (18.9%)	8 (17.8%)	25 (19.2%)	
Live with spouse/partner	119 (68.0%)	31 (68.9%)	88 (67.7%)	
Live with children	11 (6.3%)	2 (4.4%)	9 (6.9%)	
Live with spouse/partner & children	9 (5.1%)	2 (4.4%)	7 (5.4%)	
Live with other	3 (1.7%)	2 (4.4%)	1 (0.8%)	
District				0.45
Southern Harbour District	21 (12.0%)	5 (11.1%)	16 (12.3%)	
Northern Harbour District	58 (33.1%)	13 (28.9%)	45 (34.6%)	
South Eastern District	42 (24.0%)	12 (26.7%)	30 (23.1%)	
Western District	21 (12.0%)	6 (13.3%)	15 (11.5%)	
Northern District	25 (14.3%)	9 (20.0%)	16 (12.3%)	
Gozo and Comino District	8 (4.6%)	0 (0.0%)	8 (6.2%)	
Qualification				0.15
No schooling or Primary level	35 (20.0%)	11 (24.4%)	24 (18.5%)	
Secondary/Intermediate/A-level	72 (41.1%)	13 (28.9%)	59 (45.4%)	
Tertiary level	68 (38.9%)	21 (46.7%)	47 (36.2%)	
Gym attendance				0.002
Attending	27 (15.4%)	14 (31.1%)	13 (10.0%)	
Previously attended	72 (41.1%)	13 (28.9%)	59 (45.4%)	
Never	76 (43.4%)	18 (40.0%)	58 (44.6%)	
¹ n (%)				
² Pearson's Chi-squared test; Fisher's exact test				

**Does having a gym dedicated to persons over 65 years encourage your attendance?
The impact of education.**

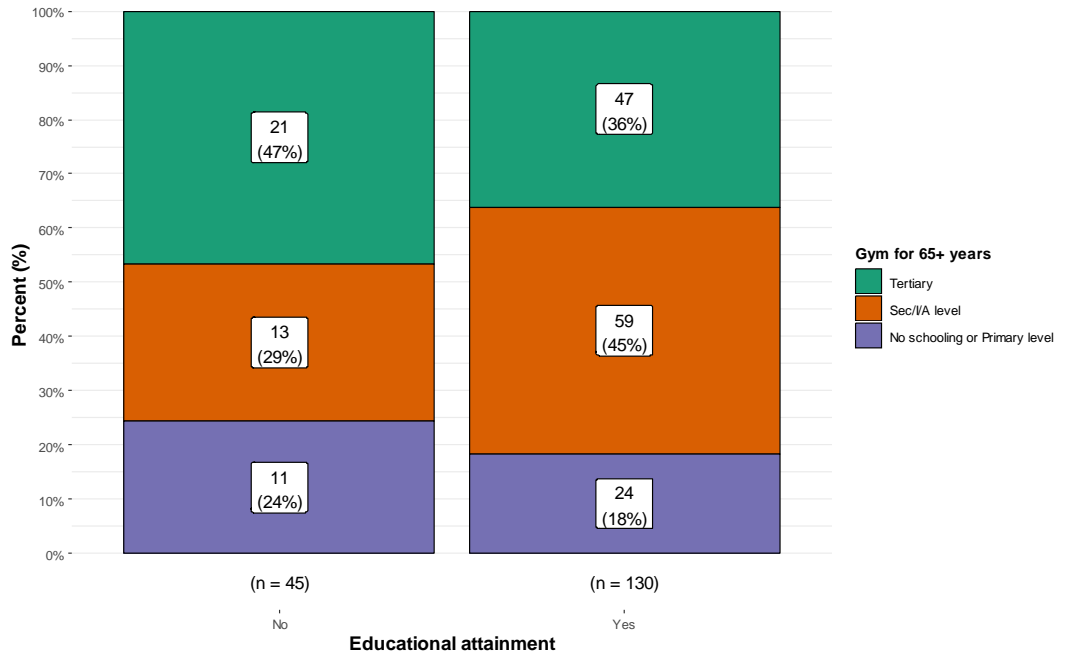


Figure 51: Senior gym attraction in relation to qualification

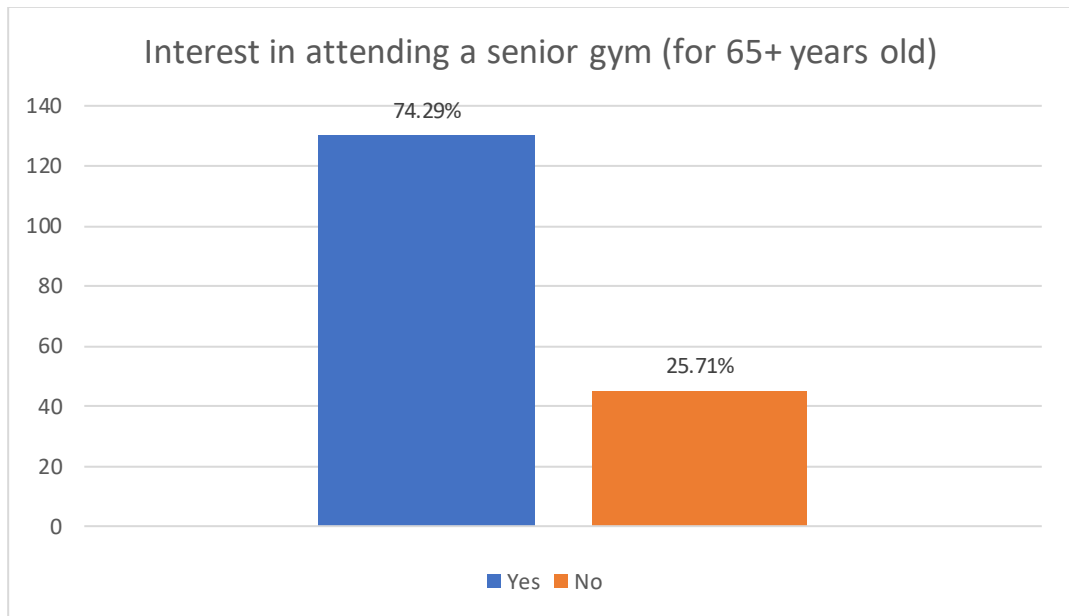


Figure 52: Senior gym attraction

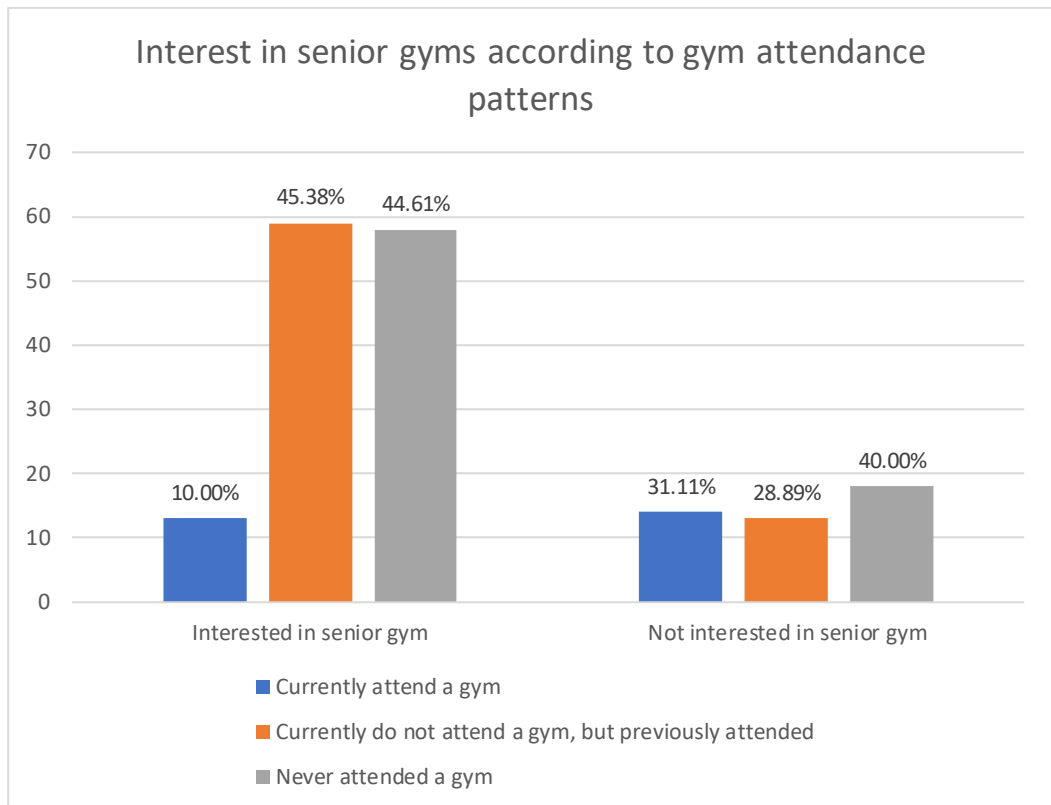


Figure 53: Interest in senior gyms according to gym attendance patterns

4.15 Summary of the key findings

Gym attendance

- 15.8% reported to attend a gym,
- 41.2% reported to have previously attended a gym,
- 42.9% reported that they have never been to a gym.

Likelihood of gym attendance

- Greater if the individual is younger (65-69 years),
- Greater if living with spouse/partner,
- Greater if living in the Northern Harbour District,
- Greater for those with a secondary/ intermediates/ A-levels or tertiary education level.
- Less likely if the individual is older (≥ 80 years),
- Less likely if living with children,

- Less likely if living in the Southern Harbour district or Gozo and Comino District,
- Less likely for those with no schooling or primary level education.

Barriers

The following indicate the greatest barriers towards gym attendance in older persons, on basis of the socio-ecological framework categories.

- Category: Physical: Poor health (2.98).
- Category: Psychological: Lack of willpower (3.01).
- Category: Other: Cost (3.12).
- Category: Social: Family/ work responsibilities (2.46).
- Category: Environmental: Lack of age-appropriate programs (3.07).

In order of barriers across all categories, the five greatest barriers are: cost (3.12), lack of age-appropriate programs (3.07), lack of willpower (3.01), poor health (2.98), and lack of positive attitude (2.80).

A trend was also observed between genders, where females experienced greater barriers when compared to males.

As for barriers according to age, the oldest age category experienced the greatest physical and environmental barriers, whereas the youngest age category experienced the greatest other and social barriers. The scores varied marginally for psychological barriers between the age groups.

When comparing barriers according to living status, those that live with spouse/ partner and those that live with other experienced the greatest physical barriers, whereas those that live alone, live with children and live with spouse/partner and children experienced the greatest psychological barriers. Those that live with spouse/partner and children and those that live

with other experienced the greatest other and social barriers. The greatest environmental barriers were experienced by those that live alone that those that live with spouse/partner. Greatest physical, psychological, other, social and environmental barriers were experienced by individuals living in the Southern Harbour district.

Greatest physical barriers were experienced by those who had no schooling or primary level. Those that had no schooling or primary level and those that had Secondary/Intermediate/A-level experienced the greatest psychological barriers. Those that had a tertiary level qualification experienced the greatest other barriers, while those who had a Secondary/Intermediate/A-level experienced the greatest social barriers. As for the environmental barriers, the greatest barriers were experienced by individuals who had no schooling or primary level.

Motivators

The following indicate the greatest motivators towards gym attendance in older persons, on basis of the socio-ecological framework categories.

- Category: Physical: Good health (4.18).
- Category: Psychological: Improved well-being (3.89).
- Category: Other: Time to focus on self (3.41).
- Category: Social: Increased social activity (3.24).
- Category: Environmental: Can exercise at own pace/ choose exercise (3.75).

In order of motivators across all categories, the five greatest motivators are: good health (4.18), physical functioning benefits (3.95), physical benefits (3.92), improved well-being (3.89), and health benefits (3.87).

Within the context of all motivator subtotals (physical, psychological, other, social and environmental) in comparison to the gym attendance patterns, it was noted that those

attending found the greatest motivators, those that previously attended found less motivators, and those that never attended found the least motivators.

Minimal to no differences were noted between genders for psychological, other, social and environmental motivators. However, as for physical motivators, it was noted that females experienced greater motivators, when compared to males.

As for motivators according to age, it was noted that younger older persons experienced greater physical and psychological motivators, when compared to the oldest persons. In terms of other, social and environmental motivators, these varied between age groups, however the greatest environmental motivators were experienced by the oldest group.

When comparing motivators according to living status, those that live with other experienced the greatest physical, psychological and environmental motivators, whereas those that live with children experienced the greatest other motivators. Those that live alone experienced the greatest social motivators.

When considering motivators according to district, the greatest physical and psychological motivators were found to be in those that live in the Northern District. As for other and social motivators, they were found to be greatest among older persons that live in the Southern Harbour District. The greatest environmental motivators were experienced by older persons living in the Northern Harbour District.

Greatest physical and psychological motivators were experienced by those who had tertiary level education. Those that had no schooling or primary level and those that had tertiary level education experienced the greatest other motivators. Those that had no schooling or primary level education experienced the greatest social motivators, whereas no differences were noted in environmental motivators, in comparison to qualification.

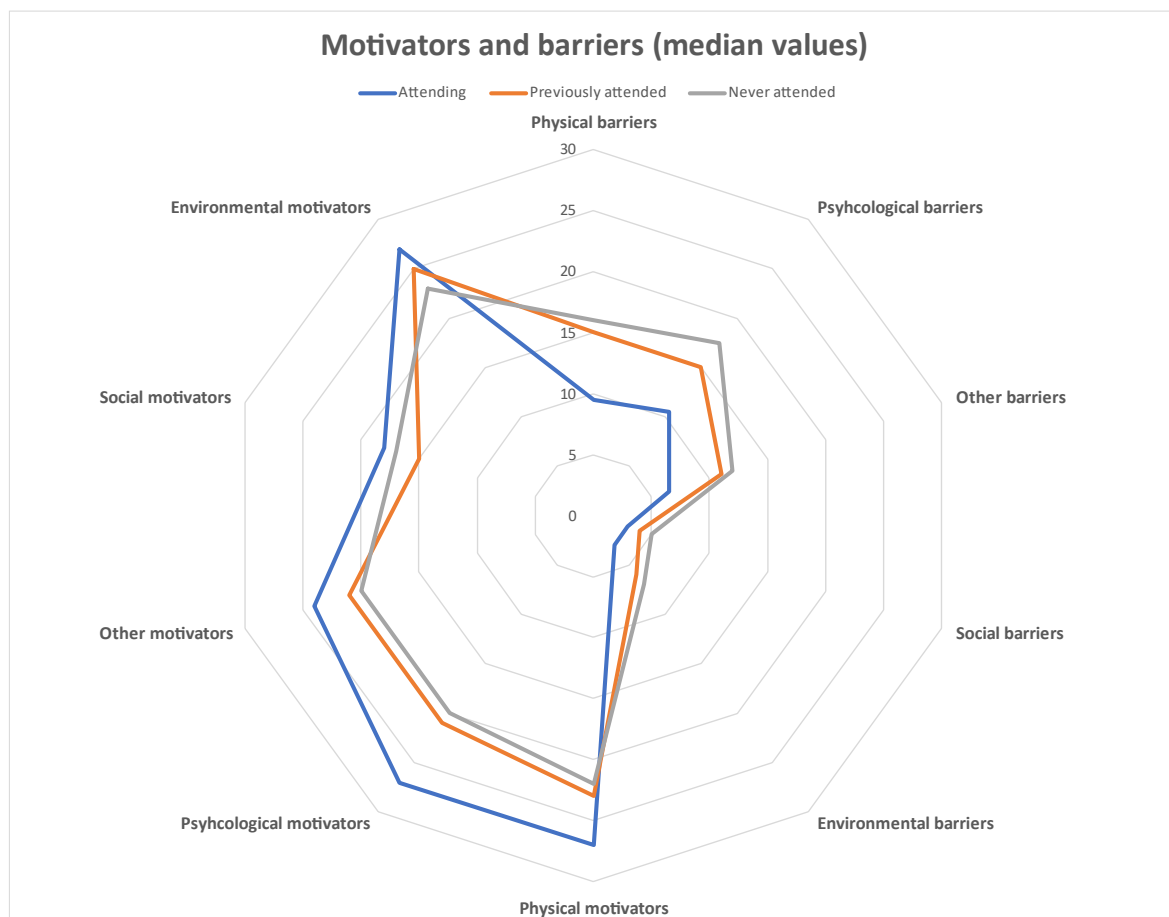


Figure 54: Radar plot, showing the median scores for all barrier and motivator categories

4.16 Conclusion

This chapter has presented the participants' beliefs towards gym attendance. This chapter has also delved into the motives and limitations to determine which factors contribute most as barriers and motivators, as well as the association between specific barriers and motivators with different independent variables.

Chapter 5: Results and Data Analysis – Phase 2 (Interviews)

Introduction to the chapter

This chapter presents the findings of the data collected in Phase 2, through the face-to-face interviews. The analysis of these experiences was also guided by the socio-ecological framework and the concept of the social determinants of health, taking a qualitative direction. The participants' lived experiences are examined and analysed in detail, by creating features and sub-features on which these experiences are based. In this chapter, these features are supported by direct quotations from the participants' interviews.

5.1 Findings

12 interviews were carried out at a place and time that was decided by the participant to ensure privacy and allow the participant to feel comfortable. These places varied from private homes to restaurants, depending on the participants' preferences. These were carried out in either English or Maltese, depending on the participants' preferences. Four were carried out in English, and eight were carried out in Maltese. The interviews lasted an average of 20 minutes per conversation. The following two tables (tables 46 & 47) describe the demographic data of each individual participant.

Table 46: Individual participant demographics

<i>Participant</i>	<i>Gender</i>	<i>Age</i>	<i>Living status</i>	<i>District</i>	<i>Qualification</i>	<i>Gym attendance</i>	<i>Interest in senior gym</i>
<i>P1</i>	Female	66 years	With husband	Southern Harbour	Bachelor's degree	Never attended	Yes
<i>P2</i>	Female	76 years	Lives alone	Northern Harbour	Secondary	Not attending, previously attended	Yes
<i>P3</i>	Male	66 years	With partner	Western	Intermediate/'A'	Not attending, previously attended	Yes
<i>P4</i>	Female	76 years	With husband	South Eastern	Primary	Never attended	No
<i>P5</i>	Male	76 years	With wife	South Eastern	Primary	Never attended	Yes
<i>P6</i>	Male	66 years	With wife	Northern Harbour	Secondary	Never attended	Yes
<i>P7</i>	Male	67 years	With wife	Northern Harbour	Masters degree	Not attending, previously attended	Yes
<i>P8</i>	Male	65 years	With wife	Northern Harbour	Intermediate/'A'	Not attending, previously attended	Yes
<i>P9</i>	Female	67 years	With husband	Western	Undergraduate diploma	Never attended	Yes
<i>P10</i>	Male	72 years	With wife	South Eastern	Undergraduate diploma	Not attending, previously attended	Yes
<i>P11</i>	Male	65 years	With wife	South Eastern	Secondary	Never attended	No
<i>P12</i>	Male	73 years	With wife	South Eastern	Secondary	Not attending, previously attended	No

Table 47: Participants' demographic data (Phase 2 – interviews)

<u>Factor</u>	<u>Number of individuals</u> <u>(N=12)</u>	<u>Percentage (%)</u>
Gender		
Male	8	66.7%
Female	4	33.3%
Prefer not to answer	0	0%
Age range		
65-69 years	7	58.3%
70-74 years	2	16.7%
75-79 years	3	25%
80-84 years	0	0%
85-89 years	0	0%
90+ years	0	0%
Living status		
Live alone	1	91.7%
Live with spouse/ partner	11	8.3%
Live with children	0	0%
Live with other	0	0%
District living in		
Southern Harbour District	1	8.3%
Northern Harbour District	4	33.3%
South Eastern District	5	41.7%
Western District	2	16.7%
Northern District	0	0%
Gozo and Comino District	0	0%
Qualification		
No schooling or Pre-primary level	0	0%
Primary level	2	16.7%
Secondary level: O-Level/SEC	4	33.3%
Intermediates/'A'-Levels/ Matriculation Certificate	2	16.7%
Undergraduate Diploma/ Certificate	2	16.7%
Bachelors level Degree	1	8.3%
Master levels Degree/ Post-Graduate Diploma/ Certificate	1	8.3%
Doctoral Degree	0	0%
Rather not answer	0	0%

5.1.1 Gym attendance

From the 12 individuals that took part in the interviews, none were attending a gym at the time of interviews. Six participants (50%) had previously attended a gym to carry out gym activities, the other half had never attended a gym before.

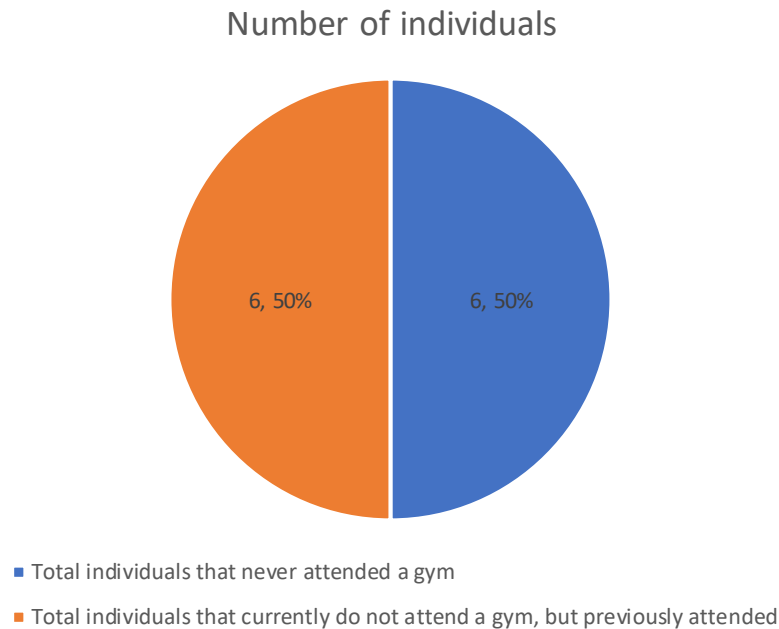


Figure 55: Individuals' responses to gym attendance patterns – currently do not attend (Phase 2 – interviews)

5.1.2 Gym attendance patterns

The gym attendance patterns of the six participants who previously attended, in terms of frequency, duration, activity type, program preparation and guidance, are depicted in table 48. Four out of six previously used to attend 4 times or less per week, while the other two used to attend for 5 times or more. Four out of six used to attend the gym for around 30 minutes to one hour, while the other two used to attend for more than one hour. All six previous gym attendants used to carry out cardiovascular and resistance training. In terms of guidance, four out of six used to always train alone, one used to occasionally train with a personal trainer, while another one used to mostly train with a personal trainer. With regards to program preparation, four participants reported that they used to prepare their

program themselves, while the other two reported that someone else used to prepare their program.

Table 48: Gym attendance patterns (Phase 2 – interviews)

<u>Individuals who currently do not attend a gym, but previously attended (n=6)</u>		
<u>Gym attendance patterns</u>	<u>Number of individuals</u>	<u>Percentage (%)</u>
Frequency		
4 times or less	4	66.7%
5 times or more	2	33.3%
Duration		
Under 30 minutes	0	0%
30 minutes to 1 hour	4	66.7%
More than 1 hour	2	33.3%
Activity type		
Cardiovascular & resistance training	6	100%
Other	0	0%
Guidance		
Always train alone	4	66.7%
Occasionally train with personal trainer	1	16.7%
Mostly train with personal trainer	1	16.7%
Program preparation		
Participant him/herself	4	66.7%
Other	2	33.3%

5.2 Analysis and thematic development

The Framework Analysis by Ritchie and Spencer (1994) was chosen as the thematic framework to filter and classify the data collected from the interviews. A number of a priori textual codes were agreed upon before the first iteration in reading the transcripts with the intention of developing/identifying emerging textual codes during the familiarisation and the identification of a thematic framework stages. These codes were divided into two categories, being individual factors and social factors. The indexing process as well as the description of these codes, whether a priori or emerging are presented in the tables below (tables 49-52) and this procedure was carried out both for the barriers and the motivators to gym attendance among older persons.

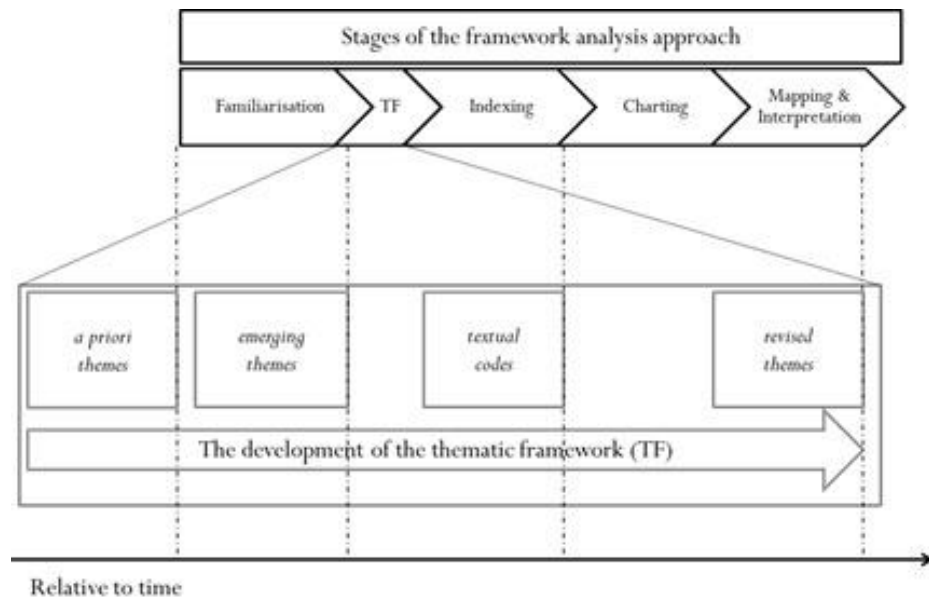


Figure 56: Framework analysis stages (Reproduced with permission from Dr Xerri de Caro)

Table 49: Description of codes (individual factors – barriers)

Barriers	
Individual factors	A priori code / Emerging code
1.1 Perceived Health Limitations	A priori
<ul style="list-style-type: none"> • 1.1.1 Perceived Medical Problems • 1.1.2 Perceived Physical Problems 	<ul style="list-style-type: none"> • Emerging • Emerging
1.2 Perceived Negative Mental Health	A priori
1.3 Perceived Pain	A priori
1.4 Advice from health care professionals to limit participation	Emerging
1.5 Other time-consuming commitments	Emerging
1.6 Preference for other sporting activities	Emerging
1.7 Too old perception	Emerging

Table 50: Description of codes (social factors – barriers)

Barriers	
Social factors	A priori code / Emerging code
2.1 Economic	A priori
2.2 Education	A priori
2.3 Healthcare access and quality	A priori
2.4 Neighbourhood and built environment	A priori
<ul style="list-style-type: none"> • 2.4.1 Inadequate gym environment and equipment • 2.4.2 Inadequate hygiene • 2.4.3 Long travelling distance • 2.4.4 Parking problems 	<ul style="list-style-type: none"> • Emerging • Emerging • Emerging • Emerging
2.5 Social and community context	A priori

Table 51: Description of codes (individual factors – motivators)

Motivators	
Individual factors	A priori code / Emerging code
3.1 Mental well-being	A priori
3.2 Perceived Health Benefits	A priori
<ul style="list-style-type: none"> • 3.2.1 Perceived Medical Benefits • 3.2.2 Perceived Physical Benefits 	<ul style="list-style-type: none"> • Emerging • Emerging
3.3 Physical appearance	A priori
3.4 Rate of Perceived Exertion	A priori

Table 52: Description of codes (social factors – motivators)

Motivators	
Social factors	A priori code / Emerging code
4.1 Economic	A priori
4.2 Education	A priori
4.3 Healthcare access and quality	A priori
4.4 Neighbourhood and built environment	A priori
<ul style="list-style-type: none"> • 4.4.1 Available parking • 4.4.2 Gym environment • 4.4.3 Gym location proximity 	<ul style="list-style-type: none"> • Emerging • Emerging • Emerging
4.5 Social and community context	A priori
4.6 Bespoke	Emerging
4.7 Professional assistance	Emerging

5.2.1 Emerging findings throughout the analytical process

Some factors emerged from the a priori factor, whereas some other features emerged during the process. During the familiarisation stage, four emerging features were identified, all of which emerged of an a priori factor: perceived medical problems, perceived physical problems, perceived medical benefits and perceived physical benefits. Other features emerged. Under barriers and individual factors, four features emerged: 1. advice from

health care professionals to limit participation, 2. other time-consuming commitments, 3. preference for other sporting activities and 4. too old perception. Among the social factors, four features emerged from the a priori factor of neighbourhood and build environment: 1. inadequate gym environment and equipment, 2. inadequate hygiene, 3. long travelling distance, and 4. parking problems. On the other hand, as motivators, no new features emerged from the text, apart from the two which were already identified at the familiarisation stage. Equally, some emerging features were identified in the social factors section. In fact, two were identified: Bespoke and Professional assistance, while another three were identified from an a priori feature of neighbourhood and built environment: 1. available parking, 2. gym environment, and 3. gym location proximity.

5.3 Data Charting

The fourth stage of the framework analysis as described by Ritchie & Spencer (1994) is charting. The specific pieces of data that were indexed in the previous stage were lifted from the original texts and placed according to different factors in this section. These were drawn during the thematic framework, to create order in the manner that is best perceived to report the research. Since a thematic approach was opted for, tables were created for each key subject area, with entries from different participants being presented in each table. Emphasis was also made to ensure that although data was lifted from their context, this was still identified clearly in a way that the case that made reference to these concepts was written down.

The following two tables give an overview of the concepts and data that was extracted from the interview transcripts, with table 53 being the one related to the barriers to gym attendance among older persons, whereas table 54 refers to the motivators to gym attendance among older persons. Following these, are textual extractions from the transcripts according to the different factors.

Table 53: Table showing data for the barriers as lifted directly from the text

Barriers	Data lifted from original content
Individual factors	
1.1 Perceived Health limitations	
<ul style="list-style-type: none"> • 1.1.1 Perceived Medical Problems • 1.1.2 Perceived Physical Problems 	<p>Cardiac, respiratory, general illness</p> <p>Shoulder problem, back problem, leg pain</p>
1.2 Perceived Negative Mental Health	Nervous, fear
1.3 Perceived Pain	Leg pain
1.4 Advice from health care professional to limit participation	Professional advice from doctor/physio
1.5 Other time-consuming commitments	Family commitments, work, leisure
1.6 Preference for other sporting activities	Walking, swimming
1.7 Too old perception	Embarrassment, not interested
Social factors	
2.1 Economic	Waste of money, dependency on pension, little/no incentives, cost-benefit mis-match, inflation
2.2 Education	/
2.3 Healthcare access and quality	/
2.4 Neighbourhood and built environment	
<ul style="list-style-type: none"> • 2.4.1 Inadequate gym environment and equipment • 2.4.2 Inadequate hygiene • 2.4.3 Long travelling distance • 2.4.4 Parking problems 	<p>Loud music, unavailability of machines</p> <p>Sweat, COVID-19</p> <p>Time away from home, time-consuming</p> <p>Parking</p>
2.5 Social and community context	Fear or embarrassment of being surrounded by a lot of younger people

Table 54: Table showing data for the motivators as lifted directly from the text

Motivators	Data lifted from original content
Individual factors	
3.1 Mental well-being	Good self-reported well-being, capability, psychology, stress-relief
3.2 Perceived Health Benefits	
<ul style="list-style-type: none"> • 3.2.1 Perceived Medical Benefits • 3.2.2 Perceived Physical Benefits 	<p>Better sleep, feeling healthy</p> <p>Improved mobility & functionality, capability, achieve goals</p>
3.3 Physical appearance	Looks, improved psychological well-being
3.4 Rate of Perceived Exertion	People of own age, understand limitations, knowledgeable personal trainers, tailored exercise program
Social factors	
4.1 Economic	Worthwhile, attractive cost
4.2 Education	/
4.3 Healthcare access and quality	/
4.4 Neighbourhood and built environment	
<ul style="list-style-type: none"> • 4.4.1 Available parking • 4.4.2 Gym environment • 4.4.3 Gym location proximity 	<p>Parking</p> <p>Quiet, few people, machine availability</p> <p>Short distance</p>
4.5 Social and community context	Seeing others, people of own age, groups, support, people with similar problems
4.6 Bespoke	Tailored exercise program, knowledgeable personal trainers, adaptation
4.7 Professional assistance	Guided progression, advice, physiotherapy advice

5.3.1 Individual factors (barriers)

A main a priori factor that was initially included was the perceived health limitations, of which two emerging factors came out: perceived medical problems and perceived physical problems. Medical problems as described by four participants were significant barriers to their attendance in gyms, including: cardiac and respiratory problems, as well as general illness. These were described in the following quotations:

“I have atrial fibrillation, which I have to be a little bit careful with, I’m on medication, but I do know my limits, I can tell when the heart says, right, it’s time for a rest, even when I’m walking, because I try and power-walk, so obviously I have to stop every so often, because the heart says, no that’s enough now. But that’s the main thing. The diabetes, I don’t think really affects it. It’s more the heart and of course, the problems with the joints and muscles that go with being older and the bursitis does occasionally come back, but I know how to cure that now, I go back to the original exercises and do those.” (P1)

“I’m coming out of an illness.” (P3)

“My breath mostly, but I get generally tired.” (P5)

“This is because of my cardiac problem; I’ve had a triple bypass I’ve recovered.” (P10)

Similarly, four individuals referred to their perceived physical problems as to why they do not attend a gym. Amongst these reasons were: musculoskeletal injuries and pain in various areas of the body. These can be understood in more detail from the insights provided by the participants.

“My shoulder at the moment.” (P2)

“Also, I had a back operation 2 years ago, so that’s another thing that kept me back.” (P3)

“Now I don’t feel I am capable of going.” (P4)

“Due to the fact that my legs hurt, my knees especially, even more because I fall quite often, I don’t feel capable of going.” (P4)

“I have a slipped disk.” (P8)

Another a priori factor that was considered to have an impact on the decisions that older persons take in view of gym attendance was perceived negative mental health. Two participants mentioned feeling nervous and fear as their barriers in relation to mental health. The participants showed good understanding and were knowledgeable about the benefits that gym attendance has, however they still found the following as limitations.

“It’s knowing that I’m not as fit as I want to be or should be, but I’m nervous to go to a gym anywhere, where I would be seeing people a lot fitter than me. That would discourage me. I would think I can’t do that.” (P1)

“You’d have to try, but I’m afraid.” (P5)

Pain, as perceived by the specific individual, commonly seen in various instances as a major limiting factor, was mentioned only once by a participant, as a barrier to gym attendance and was described as such:

“For me, it’s not important because nowadays my legs hurt, so I’m not keen of trying these things.” (P4)

Sometimes, such decisions are not always done due to personal opinions or beliefs, but depending on what one can or cannot do, because of a health problem. This emerging factor of advice from health care professionals to limit participation was mentioned by one participant on two instances:

“I’m still advised at the moment not to do strenuous exercise; you have to take everything in context.” (P10)

“I’ve had to reduce exercise because the doctor told me to, not because I want to.” (P10)

Another emerging factor in view of barriers to gym attendance among older persons, was regarding other time-consuming commitments. Some of these were related to family responsibilities, employment and other activities that are done for leisure.

“Since my wife and myself have got our conditions, I try not to stay too long away from home, therefore it has to be somewhere very close to get to and the

hour over there plus 15 minutes to get there and 15 minutes to get back, time element is important.” (P7)

“The times still affect me as I still work.” (P9)

“I don’t have time.” (P11)

“That I have time, in between the farming and other errands. Gym is difficult for me.” (P11)

A common preferred activity was identified through the results obtained in this section - walking. Many individuals preferred walking or swimming as alternatives to gym. Preference for other sporting activities was mentioned by five out of the twelve participants that engaged in the interviews, thus was identified as an emerging factor, and the quotations are presented here:

“Personally, I’m not too keen about going, I prefer going for a walk. It’s the form of exercise I enjoy doing mostly.” (P6)

“To be honest, once my wife and myself had the thought of attending a pool in the afternoon, but we didn’t end up going. I like the pool, especially in winter, as in summer I enjoy going to the beach.” (P6)

“I don’t think I would go back to using the gym I am going to go back to swimming.” (P7)

“Nowadays we go walk every single day. You feel that it’s essential. I don’t go to the gym, but at least I can say I do another form of exercise.” (P8)

“I don’t go because I prefer walking.” (P9)

“Instead of going to the gym, I go to the field on foot.” (P11)

Age might just be a number, however, five of the participants identified their perception of being too old as a limitation to their attendance in gyms. Some of them felt that their attendance was limited due to the embarrassment of being the odd one out, while others were just not interested at all.

“The main thing for me is age. Is the embarrassment of going to a gym at my age, when you know that 90% or more, probably 95% or 99% of the attendees there are young men and women and for me it’s probably the main barrier.” (P3)

“I am now old and I’m not interested.” (P4)

“Now I’m 76 years old... too old, no?” (P5)

“I’d find it as an obstacle that I as a 65-year-old, go to the gym and say I find kids, to put it that way. That isn’t something that I would enjoy.” (P8)

“Health, age, 73.” (P12)

5.3.2 Social factors (barriers)

Following the social determinants of health, economic issues were an a priori factor that was discussed widely by participants in this study. Five participants referred to this factor as a barrier to gym attendance. These mainly referred to waste of money, the dependency of older persons on pension, little to no incentives being offered, cost-benefit mismatch, as well as inflation.

“Money is one of the reasons.” (P5)

“With the pension, you can’t go to the gym, you can’t stay wasting money like that.” (P5)

“I think one of the conditions is cost. When you reach our age, you depend on the pension and the pension today is not enough to help you and encourage you to do other things that are costly and as you know today gyms are not cheap.” (P7)

“for example pool is good because today old people can go for free. It’s an incentive. There are no incentives for gyms even for tal-Qroqq gym it is against payment as well. So for the majority of the Maltese it could be that they can’t afford it, maybe they want to use the gym but maybe because of the cost, they cannot.” (P7)

“In my particular situation it’s kind of limited by the kind of exercises that you can do, the cost is not something that you can’t afford but it’s a waste for me, for example if I have an air walker, that’s good I would use an air walker but it’s not worth paying for all the other machines which I don’t use and that’s part of the problem.” (P10)

“In my particular situation it would be cost, because I regard it as a waste.” (P10)

“Cost. As you grow older, you make a decision of what makes more sense, if the cost balances the benefit, then it’s worthed, if not it’s a rip off.” (P10)

“Everyone has increased prices, I don’t really know why.” (P11)

“Nowadays the gym is expensive.” (P12)

“The price has to be an important factor.” (P12)

While education and healthcare access and quality were two a priori factors that could give more insight on their views regarding gym attendance, none of the participants made reference to these.

The neighbourhood and built environment a priori factor was considered a main a priori factor, of which four emerging factors came out: inadequate gym environment and equipment, inadequate hygiene, long travelling distance and parking problems. Inadequate gym environment and equipment was mentioned by three participants, who mainly mentioned loud music and unavailability of machines as the main drawbacks.

“The loud music bothers me in the gym, the loud sounds that we listen to almost throughout the day in the cars everywhere, and at my age, these things bother me.” (P2)

“It mustn’t be noisy, because some of them have for instance blaring music, full on, and that used to really annoy me.” (P3)

“Another thing is that the times in which I could attend most, was the commonest time for most people to attend the gym, as during those days, I was still working, and sometimes you have to stay waiting for the machines to be available and that is not the scope of going ... to stay waiting and maybe speak to someone.” (P8)

Considering the time during which these interviews were carried out, the COVID-19 pandemic was something which was still causing uncertainties and fear. This was the case for one individual who re-iterated the concern regarding this emerging factor of inadequate hygiene at the gym, and explained how this keeps him away from going to the gym.

“One big concern is hygiene. Unfortunately, people participating in the gym do not always clean up before and after they use the equipment and with COVID especially a person like myself and my age with chronic conditions, I would not and always because of the crowds, people are there sweating and breathing into you and that will keep me away from the gym.” (P7)

“It will keep me away from the gym definitely if there is no hygiene, for me it’s the most important factor.” (P7)

Another emerging factor that was mentioned multiple times was the long travelling distance. This was something that keeps some individuals from attending a gym, mainly due to its time-consuming nature as well as the time away from home. This is what the participants said in view of this:

“Travelling is not ideal for me.” (P1)

“Again, it’s travelling, limited time away from home.” (P1)

“Just in a reasonably travelling location, maybe within the south of Malta and possibly as far as Valletta, because I still find issues now with driving long distance. My leg doesn’t seem to appreciate being sat in a car seat and not really moving a lot for a long journey and often if I sit too long, when I stand up, I can’t initially move, it feels like frozen and I have to force myself.” (P1)

“Today as you know travelling is time consuming, traffic is bad, so I don’t want to arrive at a gym stressed out, or getting stressed out after, to come back.” (P3)

“Being far is a draw-back.” (P8)

“Distance does put you off because of all the preparation.” (P10)

The number of cars is increasing fast, not only causing more traffic, but also creating greater parking problems. Three participants referred to this problem, and although it might not be the only barrier, they mentioned it as another reason why they would not want to engage in gyms.

“There’s the problem of parking, that is one of the factors.” (P2)

“Even especially parking, because there’s way too many cars here.” (P11)

“Parking is a problem nowadays.” (P12)

The last social a priori factor was the social and community context. While there were three participants that spoke regarding this factor, it was important to note that almost none of them just said that they feel socially limited, but they felt limited due to the fear or embarrassment of being surrounded by a lot of young individuals, whose aims are different to theirs.

“To attend a public gym with people of all ages, I would probably be very scared of that, very fearful, wouldn’t really want to.” (P1)

“The main thing for me is age. Is the embarrassment of going to a gym at my age, when you know that 90% or more probably, 95% or 99% of the attendees there are young men and women and for me its probably the main barrier and walking into a gym after all these years, seeing young bodies and sort of not making a fool of yourself, but for me it’s also an embarrassment so takes courage for me to walk into a gym now at 66 when I know there are going to be people 40 years younger than me, working out. Probably my intention of going to the gym is different than their intention of going to the gym. So they’re after looking big and attractive, and for me it’s more about toning up and regaining my muscle strength and feeling good in general, so that is quite a barrier for me, knowing that you’re not going to see many people my age at the gym, if at all.” (P3)

“The embarrassment of being the odd-one out.” (P3)

“Yes, socially I feel limited. Not that I don’t like socialising, but if I had to choose, I prefer going for a walk on my own or with my wife.” (P6)

5.3.3 Individual factors (motivators)

Participants also recognised that engaging in gyms might make them feel motivated to attain a good state of mental well-being. Six participants referred to good self-reported well-being, being more capable of doing things like they used to before, and stress-relief as motivators to them engaging in gyms. These are presented here:

“When you are physically fit, you are mentally fit, according to myself.” (P2)

“Well-being is always better and since I’ve always been active before, I try to feel a bit of what I used to be before, that I haven’t stopped, that I am still capable of doing some tasks almost as I used to before.” (P2)

“In general, going to gym makes me feel good, makes me feel I value myself more and just makes me feel positive all around, just enhances the quality of life.” (P3)

“It’s all health-related, just psychologically makes me feel more positive about life.” (P3)

“I feel like it also used to refresh my mind and used to feel good.” (P6)

“Takes away all my stresses.” (P6)

“If I’m going through some stress, I try to go for a walk, do some exercise and if possible, even jog.” (P8)

“The gym, as they say, it rests the mind, but I have never experienced it.” (P11)

“Even health and the mentality.” (P12)

“There, you forget the problems that you have.” (P12)

Perceived health benefits were considered as an a priori factor through which two emerging factors came out: perceived medical benefits and perceived physical benefits. Medical benefits as described by three participants were considered as motivators to their attendance in gyms, including: better sleep and generally feeling healthy.

“A lot, and you sleep better, everything.” (P2)

“You slim down.” (P4)

“Maybe some pain, you feel it less.” (P4)

“I recognise exercise as a benefit and that’s why I feel healthy.” (P10)

“Yes, you do feel better, I like to walk because I know it helps with my blood pressure. I can see it in my blood pressure if I stop walking for a couple of weeks, I try and walk regularly.” (P10)

The second emerging factor ‘perceived physical benefits’ was a common factor discussed by the majority of the participants, mentioned by eight out of the twelve participants. The motivation that the participants found in gyms was that they would attain better mobility and functionality, feel more capable of carrying out different tasks, as well as to achieve their goals.

“It makes you feel more alive, it makes you feel more able to move, walk, reach things, bend, stretch, and all those things, associated with it.” (P1)

“I need the mobility; thus, I need to... how’d you say it... I must be physically fit.” (P2)

“Physically, I’d be more flexible, I can participate in walks that are organised for cultural walks... being fit.” (P2)

“In my case, what would help me is that I know that it will help me on my recovery of coming out from my illness and put me on the path of practicing sport again, because it is something I wish to do, to resume playing tennis again, so that is one of the main motivators for me, that I’ll be fit again, be able to resume playing sports.” (P3)

“I get a lot of shortness of breath, but it might help me in my health and general strength of my upper and lower limbs.” (P5)

“Definitely number one because you are doing your cardio exercises and number two when you are doing the weights you are keeping trim of your body.” (P7)

“The way it affects you is it makes you feel much, much better. Part of it is because you have physical benefits.” (P10)

“I think it would affect me a lot, because I lose some weight and be fitter.” (P11)

“It might be that you feel better because you reduce your weight and feel stronger.” (P11)

“To get better physically.” (P12)

“You function better in general.” (P12)

An a priori factor that was not mentioned much was physical appearance. Only one participant mentioned this, mainly going into looks and improved psychological well-being, as per this following quotation.

“When you are doing the weights, you are keeping trim of your body.” (P7)

Rate of Perceived Exertion was another a priori factor, which was delved into by six participants, who pointed out the main motivators in their opinion in view of gym attendance. They mentioned the importance of being surrounded by people of their own age, having people around them that understand their limitations, having knowledgeable personal trainers and being given a tailored exercise program which they can follow, as motivational factors to gym attendance.

“Because I would be surrounded with people of my own age, so they would understand my limitations, I would understand their limitations and there would also be instructors who particularly understand the older body and their limitations and the problems that we have once we pass 60. It would be really good because I would also make friends in my own age group, because I have lots of friends that are either older than me or younger than me and nobody is sort of around that age, so I would encourage or like to encourage friendships and participation, maybe meet outside of the gym and walk or swim, so yes, I would really think that would be perfect.” (P1)

“I feel like I need to do like those that are younger than me, but I can't, I try, but everything with its limits, especially the weights. But I compensate for this

with other things, for example with swimming and treadmill, but you can't exaggerate." (P2)

"And I know that over there, the programme and training would all be tailored for people my age, so I would feel definitely much, much, much more comfortable." (P3)

"At that age, you got to be, obviously very careful that you don't aggravate any existing conditions, so perhaps a more in-depth understanding is needed for people's needs and physical needs at that age." (P3)

"The more you do, but not exert yourself too much as well because obviously it has to be within limitations you don't want to cause yourself injury because you're using the gym, health-wise it is very important." (P7)

"You can't attempt everything that younger people do. Things that you do have to be adapted for yourself." (P11)

"You can't do things like you used to when you were younger." (P12)

5.3.4 Social factors (motivators)

As per the social determinants of health, economic motivators were considered as an a priori factor. Conversely to the barriers, this was mentioned only twice, by two participants, where they stated that for them to be motivated to engage in gyms, it has to be worthwhile, while the cost is attractive.

"As long as it's not massively expensive, then it's within my means, and I believe that spending some money on my health and my fitness, would be worthwhile, rather than sitting, feeling sorry for myself and eating cake, that would be a better use of my money." (P1)

"If the gym is for somebody senior, if the cost was attractive, I would probably end up going to the gym because the gym has other benefits apart from the machines." (P10)

Similar to what was seen in the barriers section, education and healthcare access and quality were two a priori factors, however, none of the participants referred to these.

Another main a priori factor was the neighbourhood and built environment factor. Three emerging factors came out: available parking, gym environment and gym location proximity. One participant stated that s/he would be motivated to attend a gym, should decent parking be available.

“The most important from my point of view is to find decent parking close by which is an important factor.” (P7)

Although it might not be perfect, one participant was motivated by the fact that there are things such as air conditioners and televisions, that ease the experience at the gym. Another participant stated that for him/her to feel motivated to attend, the environment should be quiet, not attended by many people at one go and have readily available machines.

“The gym environment is very good, and then you have the AC’s, the TV.” (P2)

“For me it’s got to be a quiet place, ideally not too many people all at one go and availability of machines, because that’s another thing that used to bug me, that I used to go and see that the machines are taken and used to stay waiting, and then it becomes stressful.” (P3)

Another emerging factor out of the neighbourhood and built environment factor was the gym location proximity. Participants were encouraged by venues which were close to them, thus avoiding extensive, long drives.

“Finding somewhere relatively close to home.” (P1)

“Having a gym close by is very important.” (P3)

“I don’t drive so the most important thing would be the distance, that it would be a short distance.” (P4)

“If I had to go again, first thing is that I want it to be close by, because if it’s close, that would motivate me to go, and I can go on foot.” (P8)

“That it’s close by.” (P8)

“That it would be in a location close to the community.” (P8)

“Maybe the area would not be far from the centre.” (P11)

An a priori factor that was strongly backed up was ‘Social and community context’. Ten participants spoke regarding this. Most participants mentioned the fact that they get motivated by being in groups or seeing other people of their age, possibly with similar problems, working out.

“The fact that I’m in a group, we’re all of the same mind, we all need mobility training and to build core muscles and various other muscles and it’s just being with other people, seeing what they’re doing and achieving, and that just keeps you going, because they can do it, so do I.” (P1)

“If I were with people of my own age, we’re all in the same boat.” (P1)

“I feel that being in a group really motivates me, encourages me. I can see other people who are struggling to do these things, and I think, yes, they can do it, so can I. So, it really is very much psychological, has an effect, well, social-competitive effects, I suppose.” (P1)

“I think the social support from the gym staff and the other participants would be good for me, because I don’t get a lot of support at home. My husband is not supportive. I think he thinks that he is disabled, so therefore it’s OK if I am, but I don’t feel that way. I don’t want to be limited. I don’t want to sit in a chair and vegetate. So, I think social support from instructors, physios and other participants would be brilliant for me.” (P1)

“Now that I’m retired, I don’t want to give up training, nor my social life.” (P2)

“If it wasn’t for my wife, I wouldn’t do anything.” (P5)

“I wouldn’t bother meeting others.” (P5)

“I would try because there would be people of similar age as myself.” (P5)

“Apart from going for yourself doing exercises, I think you also go to meet people and share your opinions on sport, and other interesting topics.” (P6)

“Going with friends is always a motivator.” (P7)

“Yes, social factors, going on your own I find things to be boring, going with someone, although you are not going to stay chatting but going with someone like swimming, for example you do 1 hour swimming, 3 km with someone you are always comparing so it gives you that encouragement like I can do better especially with someone who is your age.” (P7)

“No as long as it is under supervision. Tailor made. Even some people can do more cardio than weights and vice versa. To have someone to help people build up.” (P7)

“It’s like when you meet someone different. It helps a lot. There you can be with people not from your work and of other ages, thus this also helps mentally, physically, and socially. Everything helps.” (P8)

“I like meeting other people.” (P8)

“If you’re elderly, you meet with other elderly people, therefore you’re going to meet people with similar problems.” (P8)

“You meet with more people, so you make new friends, and motivate yourself more.” (P9)

“I enjoy meeting people and making new friends.” (P9)

“Social aspect and all those things they are beneficial.” (P10)

“At home I’ve always had good support from everybody. In general, when you talk to people it was always positive feedback. Whenever I’ve exercised, I always had support from home, from strangers, from everybody. When you get to the gym, you get support but it may be a bit different. It depends on your level and the trainers. It depends on the level of people you’re mixing with there; I mean for example if there is somebody who is very competent, you are mixing there.” (P10)

“You meet people, variety of ideas and variety of ages.” (P11)

“Until you meet the people at first, then you always find someone to continue with.” (P11)

“You mix with other people. Make new friends.” (P12)

A textual emerging code that was explored by six participants was the ‘Bespoke’ factor. The participants explained the importance that they see in having a tailored exercise program, having knowledgeable personal trainers, as well as adaptation in view of their motivation towards gym attendance.

“There would also be instructors who particularly understand the older body and their limitations and the problems that we have once we pass 60.” (P1)

“And I know that over there, the programme and training would all be tailored for people my age, so I would feel definitely much, much, much more comfortable.” (P3)

“So perhaps a more in-depth understanding is needed for people’s needs and physical needs at that age.” (P3)

“No as long as it is under supervision. Tailor made. Even some people can do more cardio than weights and vice versa. To have someone to help people build up.” (P7)

“That there are facilities which are adapted for the elderly, I believe even machines have to be set differently, and even the instructors have to be specialised to be able to help the elderly.” (P8)

“I would obviously need good advice on what I can and can’t do.” (P10)

“At my age I need to have people who understand about people my age, you need someone to give you advise. The older you get the more dangerous it gets.” (P10)

“The things you do have to be adapted for yourself.” (P11)

Another emerging theme was professional assistance, which some participants understand the critical need of such assistance when it comes to their engagement in gyms. In fact, they mentioned that this assistance can be of help for guided progression, through valued advice, as well as specific physiotherapeutic advice.

“No as long as it is under supervision. Tailor made. Even some people can do more cardio than weights and vice versa. To have someone to help people build up.” (P7)

“I would obviously need good advice on what I can and can’t do.” (P10)

“At my age I need to have people who understand about people my age, you need someone to give you advise. The older you get the more dangerous it gets.” (P10)

“It depends on what you get out of the gym if there is somebody who advises me properly, if there is a physiotherapist there who can tell me what I can do it’s a different cost analysis.” (P10)

“Seniors exercising requires people advising you because you have to accept that you need people who are knowledgeable.” (P10)

“You have to consult a specialist to see what kind of exercise you can do and what kind of level of development you are going to portray.” (P10)

5.4 Mapping and interpretation

The fifth stage of the Framework analysis assisted in the analysis by mapping out the findings and then interpreting them. Individual factors followed the Health Belief model, while the social factors followed the Social Determinants of Health. Seven barriers at individual level were identified. These were perceived health limitations (physical and medical), perceived negative mental health, perceived pain, advice from healthcare professional to limit participation, other time-consuming commitments, preference for other sporting activities and too old perception. Meanwhile, initially, five barriers at social level were identified. These were economic, neighbourhood and built environment, social and community context, education and healthcare access and quality. The latter two were a priori themes, however, these were not discussed by the participants during these interviews, bringing this down to three social barriers.

Four motivators at individual level were identified. These were mental well-being, perceived health benefits, physical appearance, and rate of perceived exertion. At a social level, seven motivators were identified. These were economic, neighbourhood and built environment, social and community context, bespoke, professional assistance, education and healthcare access and quality. The last two social motivators, similar to what was found in the social barriers section, were not mentioned by the interview participants, thus bringing this down to five social motivators.

Individual barriers were more significant to the participants in view of gym attendance than the social barriers, while the social motivators were more significant to the participants in view of gym attendance than the individual motivators. This suggests that when planning the way forward towards a more acceptable gym environment for older persons, it must be ensured that the individual barriers are targeted most, while the social motivators are encouraged more. The following figures represent the significance of the barriers and motivators (individual and social levels) to the participants in view of gym attendance. The difference in circle size reflects the significance of the barriers and motivators, with larger circles indicating greater significance to the participants.

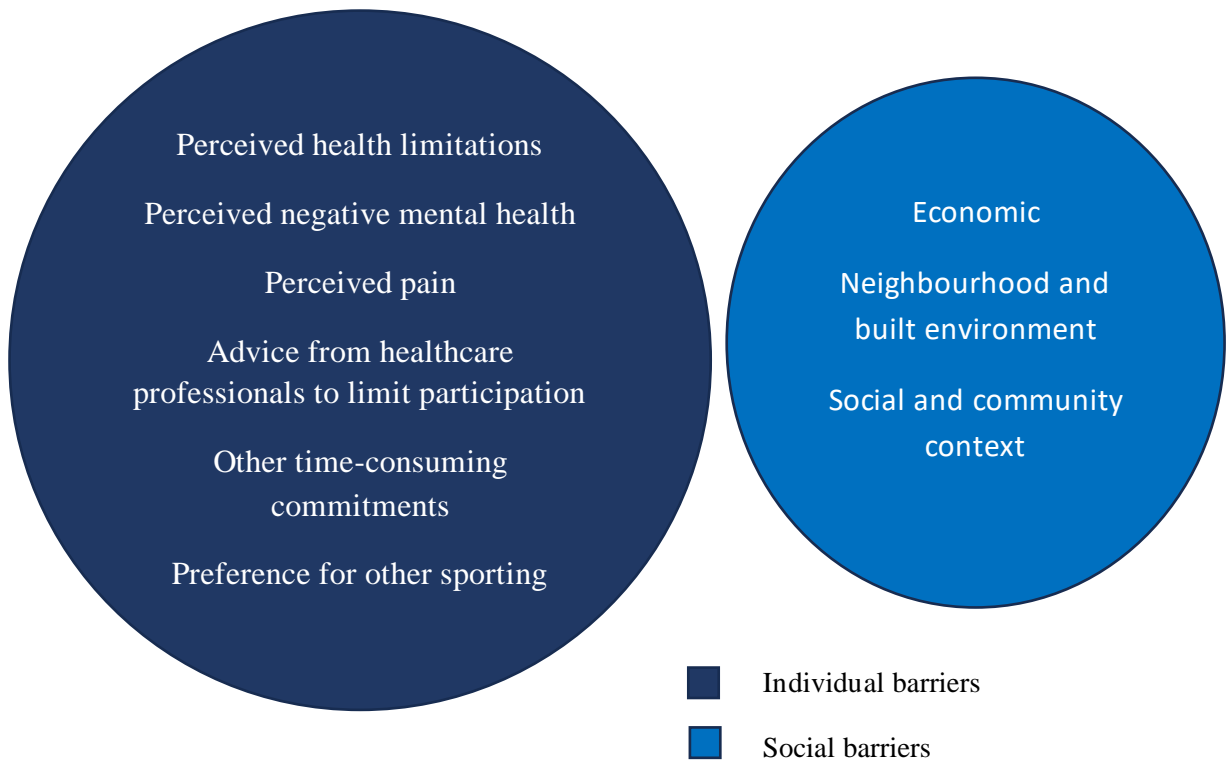


Figure 57: Barriers to gym attendance (individual vs social) - larger circle indicates greater significance for the participants

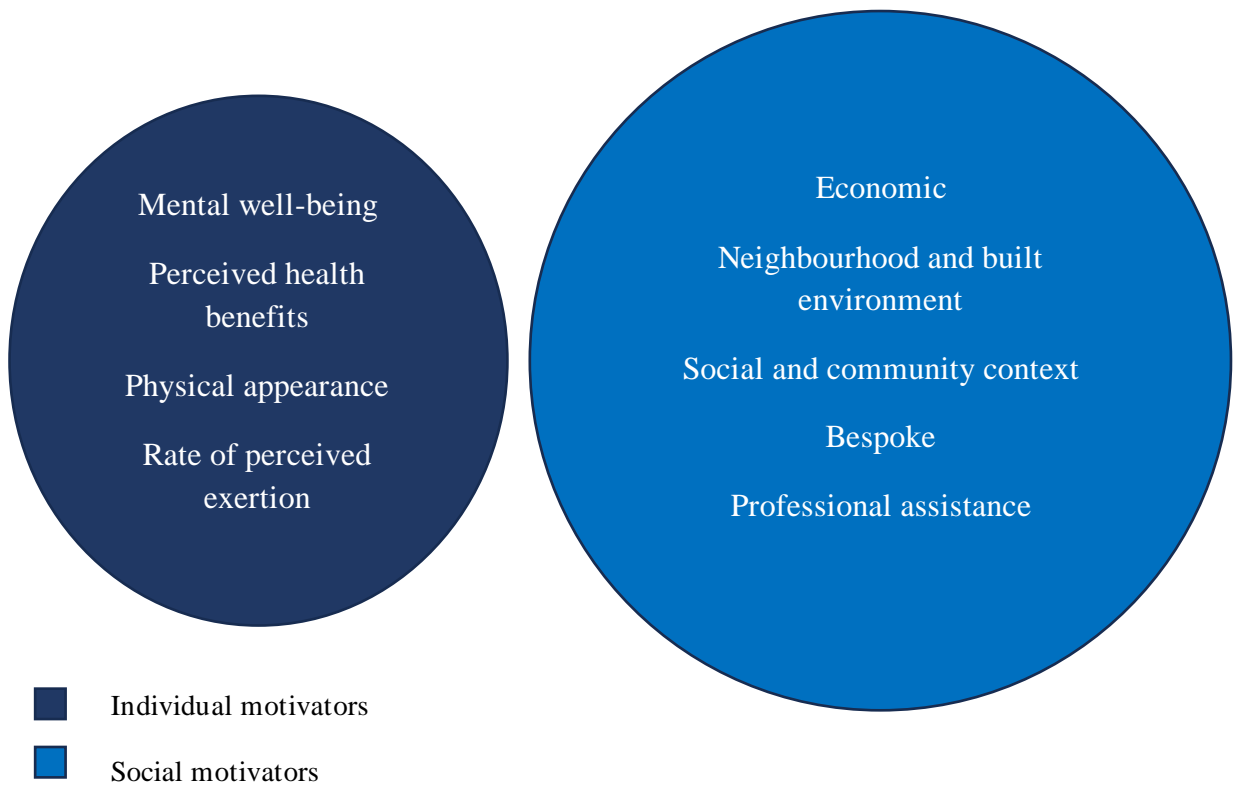


Figure 58: Motivators to gym attendance (individual vs social) - larger circle indicates greater significance for the participants

5.5 Conclusion

This chapter has presented the participants' experiences of gym going. A detailed understanding of the rationale of individual participants regarding their views of participating, via the textual data, coded into the different factors was possible through the information-rich characteristics of the face-to-face interviews. Through framework analysis, it was concluded that in view of gym participation among older persons, individual barriers were more significant than the social barriers, while the social motivators were more significant than the individual motivators.

Chapter 6: Discussion

Introduction to the chapter

This is the discussion chapter. It presents a discussion on the methods and methodology adopted for this study, a discussion of the findings, and the implications for practice. The final part of this chapter evaluates the study through the strengths and weaknesses.

6.1 Case study approach

The research question “What are the barriers and motivators to gym attendance in community-dwelling older persons?” was addressed using a case study research approach. This approach has been recognised as ideal to gather information via multiple sources of evidence (Crowe et al., 2011; Eisenhardt, 1989). The collection of data using survey questionnaires and semi-structured interviews enabled the gathering of data from multiple sources and from a large number of people. This allowed an exploration into the barriers and motivators across a larger sample, and since the number of respondents was 177 this allowed for an increased confidence in the findings being generalized to the population. The interviews enabled a deeper dive into the rationale for participants’ attendance to gyms. Sharing the survey on the social media platform Facebook had a positive impact of the number of respondents, particularly the paid advert boosting function, which allowed for reaching of the selective older adult population who fell within the inclusion criteria. The choice of case study methodology that led this study is based on an interpretivist approach, allowing findings to be developed directly from the participants’ own experiences (Creswell, 2003).

In the case of this study, the ‘case’ refers to the community-dwelling older persons who are being investigated, while the context refers to the barriers and motivators to gym attendance. Overall, while both methodologies aim to deepen understanding in research, they differ in their approach to data collection, analysis, sample size, generalizability, and flexibility. Case Study Methodology tends to focus on in-depth exploration of specific

cases, while Mixed Methods Methodology integrates both qualitative and quantitative approaches to provide a more comprehensive understanding of the research problem. A multi-method case study approach was therefore utilised in this study.

6.2 Discussion of the findings

To be able to reflect on the barriers and motivators to gym attendance among community-dwelling older persons, it was necessary to understand what the patterns of gym attendance are, and how these relate with different independent variables, including gym attendance, gender, age, living status, district and qualification.

6.2.1 Patterns of gym attendance

Despite the fact that older persons know the benefits of gym attendance, the barriers seem to still outweigh the benefits, as only 15.3% were at the time of completion of survey, attending a gym. These significant results correlate with the low numbers observed in previous studies (Hyson, 2023; Strain et al., 2016; White, Wójcicki & McAuley, 2009).

This was also reported by the WHO across individuals of over 75 years of age who engage in strength training. It is disconcerting that the recommendations of the WHO are not followed by most people who are 65 years and older and it would necessitate further action/research to understand the motivations.

Older persons with higher education levels were found to be more likely to attend the gym. The literature is not definite in this as Kari et al. (2020) showed that there were no associations, while Bethancourt et al. (2014) showed that people who have a higher educational level lead a lifestyle which is more physically active.

Another interesting observation was towards gym attendance and living status. The findings in this current study suggest that older persons living with a spouse/partner were more likely to be attending a gym. Puciato & Rozpara (2021) found that people who were single

had a greater tendency to lead a more physically active lifestyle. Clearly the specific attributes of attending the gym are not compared. Furthermore, those older persons who live with their children were found to attend a gym the least. This observation may indicate that gym attendance is encouraged through the social support given by the spouse/partner, or even motivated by attending together.

No significant differences and associations between gender and gym attendance were observed, like what was found by Strain et al. (2016).

A pattern was observed in gym attendance dependent on age. As age increased, gym attendance decreased. Findings indicate that the likelihood of an older person to attend a gym is highest in the younger old, and decreases with increasing old age. This correlates with the WHO (2020) guidelines for strength training and aerobic training, both of which were less likely to be met by the oldest age groups, when compared to the younger old.

Although not significant, a positive difference was nonetheless noted in gym attendance by persons that lived in the Northern Harbour District.

6.2.2 Barriers to gym attendance among older persons

Whether due to myths, beliefs or realities, individuals have personal reasons for which they perceive gym attendance as something that they would not like to take part in; that being if they previously attended or never attended. As people get older, rates of comorbid conditions increase, making older persons more susceptible to injury or illness (Barnett et al., 2012). Barriers to PA and ST among older persons in terms of on-going injuries or illness and specific health issues (Pettigrew et al., 2018; Burton et al., 2017c) correlate with the perceived health limitations that were identified through this study. Several physical barriers such as poor health, feeling tired/ fatigued, a risk of injury and the fear of injury, presented in order of significance from greatest to smallest barrier have been reported. These findings were corroborated in the interviews when several health issues, being

medical (such as cardiac or respiratory), or physical (such as a shoulder, back or lower limb problem) were reported. These may well be reasons for which gym attendance is seen as daunting or not the right environment to consider to ameliorate their medical and physical state. Individuals who perceive their health to be limited, thus avoiding gym attendance or exercise in general might be possessing misconceptions towards exercise. In a study by Furze et al. (2001), among people with angina, it was found that people would be more likely not to maintain a high exercise level if they believe that their hearts have been through a lot and have been strained, or even if they believe that the strain on their heart was caused by a lot of exercise. Another misconception is that the angina pain should be avoided no matter what. Contrary to what people often tend to believe, resting and reducing exercise level, causes decreased fitness and the oxygen demand in the muscles is increased, thus a lower activity threshold would be required for angina to be felt (Lewin, 1997). Furze et al. (2001) also state the need for teaching of gradual and safe exercise progression.

The Health Belief Model is a model which attempts to forecast health-related behaviour in terms of certain belief patterns. A health behaviour can be undertaken depending on an individual's motivation and can be divided into three sections:

Individual perceptions: including aspects that influence the perception of illness, susceptibility, and severity;

Modifying factors: including demographic factors, cues to action and the perceived threat;

Likelihood of action: Perceived benefits excluding perceived barriers of undertaking the health action that is recommended (Mckellar & Sillence, 2020).

Based on this health behaviour model it is believed that the perception of a threat to an individual's health behaviour is affected by at least three aspects: identification of a hazard to health, being cued to act, and if the perceived benefits outweigh the barriers, then that person is likely to carry out the preventive health action that was recommended (Mckellar

& Sillence, 2020). This can be associated with the findings in this study, where the fact that they identified the health limitations as a threat and they were not going to the gym, this is a reflection of their belief and could be a reason why they are not going to the gym. This could be a negative health belief with regards to the gym. These negative health beliefs should be targeted.

Despite wanting to try gym attendance some individuals were afraid or described the gym as something that would cause them to be nervous, because of their current state of fitness. Other individuals found similar psychological barriers such as: the lack of willpower, lack of positive attitude, lack of enjoyment, emotional problems that interfere with daily living and nervous/depressed as limitations to gym attendance. A review conducted by Blankley et al. (2020) among older adults that engage in PA found that older persons use PA to maintain a stable mental health status. In addition, Furze et al. (2001) refer to the importance of tackling misconceptions, and altering their behavioural patterns, or to prevent beliefs from causing unnecessary depression and anxiety.

Old age was a major limiting factor for which older persons would not like to attend a gym. It is interesting to note that some were actually demotivated from attending a gym, not particularly because they feel that they are too old, but because of the embarrassment of going to a gym at their age, knowing that the majority of the gym attendees are young men and women. While there are no age limits to go to the gym, a number of older persons find it difficult to either understand the benefits of attending a gym at their age or else, they understand the benefits but for some reason or another still think it is not right for them to be in such an environment (Faß, Pyun & Schlesinger, 2020). No matter what the age is, one can improve his/her fitness (Harvard Health Publishing, 2021). Similarly, Burton et al. (2017c) stated that one of the commonest barriers to strength training in a gym setting was being too old. This comes in conjunction with the concept of internalized ageism, where older persons discriminate themselves against something, based solely on age. This implies

the need for education campaigns to inform people of all ages that it is never too late to integrate oneself into a more physically active lifestyle.

Older persons found health professional advice as a barrier to gym attendance.

Occasionally, due to some medical conditions, people are advised to reduce their participation in strenuous exercise to avoid experiencing serious health problems. However, the National Institute on Ageing (2020) state that people at any age can and should do some kind of PA, irrespective of what chronic condition they have. The only factor that requires attention, is the intensity at which one exercises, and this is where health care professionals' assistance comes in. This shows the importance of understanding better the needs of older persons, taking into account their medical limitations.

Walking and swimming were preferred over any form of exercise. Among other exercises and sports, walking seemed to remain a favourite with older persons as it is of major importance and is an indicator of general well-being (Valenti, Bonomi & Westerterp, 2016). This implies that the concept of walking should be taken into account in the designing of a senior gym.

The findings suggest that family/work responsibilities and lack of time were barriers to gym attendance for older persons. Day-to-day commitments come with various responsibilities. Older adults can be of assistance to their family members in everyday activities, as well as with the upbringing of their grandchildren. They can also be of help to their spouse/partner, which consequently, might limit their time and possibility of engaging in gyms. Overall, older persons can also have numerous other roles to fulfil during the day, and they could lack the time to engage in any form of exercise (Costello et al., 2011; Withall, Jago & Fox, 2011). Extended working has been shown to have beneficial or neutral effects on the general health status and physical health for many employees according to a systematic review conducted by Baxter et al. (2021). This might be a reason why some older adults remain in employment, rather than hitting retirement age and just

stop. However, this could also be a reason for which little time is left for engagement in gyms.

Individual factors are of major importance in determining the ability or possibility of one to engage in gym attendance, however this is not all. Considerable limitations at a social and environmental level for older persons to engage in gyms were found. Social factors in terms of support given from people around them (older persons) is usually not a limiting factor to gym attendance. However, what can be considered as barriers are the fact that people often tend to want to be with someone else to engage in gyms (Burton et al., 2017c) and the fact that they would have to be in a gym with people of all ages.

Older persons found cost as a major barrier to gym attendance. They share a greater susceptibility to catastrophic health expenditures and financial strain, which in turn can leave a significant impact on their overall well-being and health (Huang, Ghose & Tang, 2020). Financial stress can also be observed in the findings of this present study, where the cost of gyms is seen as a limiting factor. This was also observed in the studies conducted by Dismore et al. (2020); Pettigrew et al. (2019); Burton et al. (2017c) and Withall, Jago & Fox (2011). Similarly, in the cross-sectional analysis conducted by Huang, Ghose & Tang (2020), it was reported that only around one fifth of the participants stated that they have enough money to meet their daily needs. Moreover, this brings about lower self-reported health, life satisfaction and quality of life. This could obviously be related to the pension received by that specific individual, as often older persons find themselves depending on the pension and opt to direct their money towards more 'important' things. A participant in the study conducted by Pettigrew et al. (2019) stated that yearly memberships should be removed and instead replaced by something where one only pays when attending. This implies that cost of participation was one factor that was limiting individuals from participating. This sparks the need for incentives and/or alterations in pricing systems for

gyms and fitness centres to be more attractive to all ages, but more importantly among older persons.

Individuals who fall under the low socioeconomic class, often tend to have greater issues with health, and have shorter life expectancies (Commission on Social Determinants of Health, 2008). Similarly, social inequalities and mortality rates also differ from one country to another within the European Union (Mackenbach et al., 2008). Despite multiple discussions and studies to analyse the way forward to limit these disparities, it is very difficult to tackle. In Malta, the gap in social inequalities due to the different socioeconomic classes is attempted to be bridged by the various social benefits and welfare services that are available. Life expectancy in Malta has increased gradually over the years, in line with other European countries. However, a difference can be noted in the life expectancy on basis of educational level, where highly educated men experience four and a half years more than those with the lowest education. Although still present, this is less evident in women (1.7 years between extremes of educational levels) (European Commission, 2016). Despite these available services together with free healthcare, social inequalities are still present, and this can also have an impact on the rates of people who attend to gyms at all ages, including people of older age.

In Malta, healthcare access is free of charge, therefore, irrespective of one's financial status, one can get the medical attention that is required, further assisting in the phenomenon of an ageing population. At the same time, with healthcare in Malta being free of charge, this could leave more money in older persons' hands, which could possibly be used to attend a gym. In this study, no individuals referred to healthcare access and quality as a barrier to gym attendance, thus implying that their decision of not attending a gym does not depend on the access and quality of healthcare, but purely on basis of personal decision.

While in this study, significant differences were observed between education levels and gym attendance, where older persons with higher education levels were associated with

more gym attendance, research by Kari et al. (2020) showed that there were no associations between the two. Bethancourt et al. (2014) showed that people who have a higher educational level, lead a lifestyle which is more physically active. Despite these results, older persons in this study did not report education as a barrier to gym attendance.

The findings in this study suggest that environmental factors can also act as barriers to limit gym attendance among the elderly, namely through lack of exercise facilities, inadequate gym environment and equipment; inadequate hygiene; long travelling distance and parking problems. Older persons described the inadequate gym environment as a noisy environment, having lack of hygiene and decreased availability of machines. These were similarly noted in the studies conducted by Dismore et al. (2020) Pettigrew et al. (2019), Pettigrew et al. (2018), and Bethancourt et al. (2014). Others also expressed their dislike of large centres and perceived the gym environment itself as daunting (Dismore et al., 2020). It is imperative for these factors to be taken into consideration, when aiming to attract more older persons towards a gym environment.

Lack of age-appropriate programs was described by the older persons as a significant barrier to their attendance in gyms. Similarly, Cavill & Foster (2018) stated that exercise providers need to provide age-appropriate services for older adults, not only by having specific programs, but also by ensuring to have competent staff who are specifically trained and knowledgeable about the normal changes in performance of regular training or resistance training by older adults. These shall be accompanied by suitable prescription and progression of exercise according to what was found on assessment and according to one's health status.

Those factors that scored the least significant amongst the barriers in terms of physical, psychological, other, social and environmental factors, were found among the active, currently attending persons. Those that previously attended a gym found more barriers than those that reported their current attendance, but those that never attended found the most

barriers. The fact that those who attend a gym note less barriers than those that never attended a gym, implies that experience or exposure to gyms is significant in getting people to go to a gym. This was similarly found by Burton et al. (2017c) where the commonest barriers among inactive older persons were pain, on-going injury or illness, feeling too old, health issues, fear or injury, inconvenient locations and being too busy. Costello et al. (2011) also found that boredom and intimidation to the gym environment were more specific barriers to inactive individuals. Two barriers that were found by Costello et al. (2011) to be common in both active and inactive individuals were potential for injury and lack of time. The data obtained in this section serves to identify which portion of the older population needs to be targeted to possibly note an incline towards gym attendance. These findings imply that the aim should be to target the group of older persons who previously attended, given that a behavioural change would be more likely to be successful among these people, and much harder to note among those that never attended.

Through this study, for all the factors (physical, psychological, other, social, environmental), males found less barriers to attend a gym, when compared to females, irrespective of their gym attendance patterns. Burton et al. (2017c) identified on-going injury or illness, pain, not being interested and feeling too old (all of which form part of individual factors) as barriers to strength training within a gym setting among male older persons. In addition, a higher percentage of females reported pain, non-suitable class times, the cost and nobody to do it with, as barriers. While males found less barriers than females, scores varied marginally, thus it would be ideal to treat both genders similarly in the case of gym attendance promotion strategies.

As for barriers in relation to age, there was a statistically significant finding for social barriers in relation to age, where the younger individuals found more social limitations when compared to the older counterparts. Despite no significant difference, a similar pattern was observed for other barriers, where the younger older adults found more

limitations. As for physical, psychological and environmental barriers, these were greatest among the oldest persons. At the same time, less 'oldest old' were found to attend a gym. These findings imply that when addressing the aim of increasing gym attendance, the oldest old should be taken more into consideration, but also target older persons of all ages as barrier scores varied throughout all the ages.

With regards to barriers based on living status, those that live with spouse/ partner and those that live with other experienced the greatest physical barriers. Those that live alone, live with children and live with spouse/partner and children experienced the greatest psychological barriers, while those that live with spouse/partner and children and those that live with other experienced the greatest other and social barriers. The greatest environmental barriers were experienced by those that live alone that those that live with spouse/partner. Less older persons that live with children attended a gym, thus should be the ones that need most targeting, however, since no association or patterns were found between barriers and living status, it would be ideal to tackle and target all older persons irrespective of their living status.

This study found that the greatest physical, psychological, other, social and environmental barriers were experienced by individuals living in the Southern Harbour district. This could be related to a number of reasons, possibly related to individual and social factors, but possibly greatly influenced by environmental factors, such as the number of gyms in the area.

Despite no significant differences, the greatest physical barriers were experienced by those who had no schooling or primary level. Those that had no schooling or primary level and those that had Secondary/Intermediate/A-level experienced the greatest psychological barriers. Those that had a tertiary level qualification experienced the greatest other barriers, while those who had a Secondary/Intermediate/A-level experienced the greatest social barriers. As for the environmental barriers, the greatest barriers were experienced by

individuals who had no schooling or primary level. Although significant differences were observed between education levels and gym attendance, with more older persons with higher education levels attending a gym, these results imply that barriers to gym attendance can affect less qualified older persons as much as it can affect more qualified older persons.

6.2.3 Motivators to gym attendance among older persons

To reach goals, one must be motivated to elicit change and engage in a particular behaviour. This can be from within or extrinsically. In this section, motivators to engage in gym attendance among older persons, at an individual level shall be discussed. Most older persons recognised the importance and benefits of gym attendance, both medically and physically. Good health, physical functioning benefits, physical benefits, health benefits, to reduce/control pain and injury, improvements in sleep patterns, pain relief and general health improvements (including better regulation of the blood pressure) were considered as motivators to gym attendance. Gym attendance, like PA in any setting is a means of getting physically fitter and healthier in general, allowing the body to be capable of carrying out tasks better, while having a better quality of life (Marquez et al., 2020). Similarly, participants in the review by Blankley et al. (2020) considered maintenance of healthy well-being as the commonest motivator. In addition, other studies group up all motivators together (medical and physical benefits) in terms of prevention of health issues, management of chronic conditions, weight loss and improvements in specific physical factors, namely: strength, balance, cardiovascular fitness (Killingback, Tsofliou & Clark, 2017; Bethancourt et al., 2014; Costello et al., 2011), all of which have an influence on an individual's independence in later life (Killingback, Tsofliou & Clark, 2017).

The least significant motivator to gym attendance among older persons was physical appearance. Meanwhile, although it may not be the main reason for which older persons would want to engage in gyms, participants in the studies by Pettigrew et al. (2018) and

Henwood et al. (2011) identified worries about appearance or body image as motivators to strength training participation in gyms.

Physical well-being is required to be able to carry out daily tasks and activities, however good mental health has been shown to be as important for successful ageing (Randall et al., 2012). The findings suggest that older persons were motivated by the fact that exercising at a gym could be a way through which they can relieve their stresses, improve their well-being, attain mental health benefits, mental function benefits, enjoy exercising, readiness for exercise, and awareness and efficacy using gym equipment. Good mental health among older persons is important to promote good quality of life (de Mendonça Lima & Ivbijaro., 2013) and longevity (Guyen & Saloumidis, 2014). Similarly, Blankley et al. (2020) found that older persons find motivation to attend a gym to preserve meaningfulness in their lives and feel accomplished, and to maintain good mental health.

Rate of Perceived Exertion (RPE) is a subjective measure of effort in exercise research (Bevan, Vidoni & Watts, 2020). This was described by older persons in this study as a motivator as they would be surrounded with people of their own age, so they would understand their limitations. Costello et al. (2011) stated that being able to pace their progress according to their own self-reported RPE, and being surrounded by people of their age would be a motivator for them to participate in gyms. This shows that older persons greatly value when exercise is appropriately paced for them, thus allowing them to be comfortable doing the right thing at their own leisure.

Reference was made to other motivators at individual level, including time to focus on self, enough time, creates routine, means of getting out, scheduled time for exercise, and past experience with exercise. These results were similarly discussed in the results found in the study by Biedenweg et al. (2014), where participants stated that personal motivators for older persons to engage in PA include the positive effect of being with others, desire for a routine, to learn something new and to get out of the house.

“Humans are inherently social” (Young, 2008, p.391), and despite some individuals preferring a more solitary life, socialising is inevitable in certain circumstances, while a large percentage of individuals love to engage with others. Older persons referred to increased social activity, social support and encouragement, social benefits, sense of belonging, and observing others being active as motivators. Similarly, participants in the studies carried out by Bethancourt et al. (2014) and Costello et al. (2011) described the desire and need for social contact and interaction, the encouragement of others and the companionship, to be important determinants to gym attendance in older persons.

There were suggestions by older persons in this study, that when comparing the cost and benefits, gym attendees expect the benefits to outweigh the costs, to motivate them to attend. Other opportunities to increase the rate of older persons to attend a gym could be the allocation of reserved times for older persons to feel comfortable around people of their own age, with possibly incentivised prices, if not for free. Contrary to the economic barriers discussed earlier, as described by Dismore et al. (2020); Pettigrew et al. (2019); Burton et al. (2017c) and Withall, Jago & Fox (2011), and similar to the results obtained in this study, economic motivators for older persons to engage in gyms were suggested to be the lack of fees (Biedenweg et al., 2014), and having reasonable prices, being free or low-cost (Costello et al., 2011).

Given that in Malta, healthcare access is free of charge, when compared to other countries’ hospital bills, this could possibly leave more money in older citizens’ pockets, which could possibly motivate them to use such money to attend a gym. In this study, however, no older persons referred to healthcare access and quality as a motivator to gym attendance, thus implying that their decision of whether or not to attend a gym does not depend on the access and quality of healthcare.

Similar to what was described in the barriers section, older persons in this study did not report education as a motivator to gym attendance. Research suggested that people who have a higher educational level, lead a lifestyle which is more physically active.

Motivation can also be manipulated according to the enjoyment or dislike of being in a particular environment, thus having a well-equipped and lively atmosphere in a gym setting is imperative to spark the 'want' to engage, among people of all ages, but more importantly among older persons. The findings in this study suggest the importance of available parking, availability of AC's and TV's, quiet environment and atmosphere, close proximity to the location and access to exercise facility and/or equipment as the commonest motivators. Research suggests that such gyms should be in a convenient location with easily accessible facilities, also in terms of convenience and safety (Killingback, Tsofliou & Clark, 2017; Bethancourt et al., 2014; Costello et al., 2011).

The one-size-fits-all approach is often not the case with gym attendance. Older persons in this present study referred to the importance of having good instructors who understand the older body and their limitations, the importance of tailor-made programs for their age, the importance of having facilities that are adapted for the elderly, having the opportunity to exercise at own pace, and having organised exercise opportunities as major motivators for them to engage in gyms. Thus, to prevent injuries and damage, programs need to be bespoke for every individual, especially with older persons. One important factor to be able to attain such state is by explaining the roles that instructors play in affecting these outcomes, and ensuring proper knowledge on the progression rates that older persons should proceed with (Harvey & Griffin, 2020). Thus, attention to such details could be a means by which more older persons are motivated into attending a gym.

Professional assistance through high quality service, knowledge and education and tailor-made programs (Killingback, Tsofliou & Clark, 2017; Bethancourt et al., 2014) can be in the form of professional advice from a medical background through a doctor or

physiotherapist (Burton et al., 2017c) or from a proficient instructor who understands the older body. Despite this being discussed under the motivators section, really and truly speaking, professional assistance in itself is neither a barrier nor a motivator. Older persons in this study recognised the importance of having professional assistance at the gym. If there is no assistance, they are not saying that they will definitely not go and on the other hand, if there is, they are not saying that they will go. What they are saying is that if there is, it incentivises them to go or if they already attend, to keep going.

Similar to the barriers, the significance of the motivators varied according to different participant demographics, according to gym attendance, gender, age, living status, district and qualification. A similar pattern was observed in terms of significance of motivators according to gym attendance, as was seen in the barriers section. Within the context of all motivator subtotals (physical, psychological, other, social and environmental) according to gym attendance, those who were attending a gym found the greatest motivators, those that previously attended found less motivators, and those that never attended found the least motivators. Again, this proves that when individuals have previous experience with gyms, they would be more motivated to attend. The main motivators that were discussed in the study by Costello et al. (2011) among active older persons were health concerns, socialisation and accessibility of facilities (convenience, cost and safety). Most inactive older persons reported that they would be more likely to attend a gym if the facilities were closer, if they were accompanied by their friends, or if advised by a health professional to start (Burton et al., 2017c). Benefits such as to feel good physically and mentally, to feel fit, to prevent falls and to prevent injuries were also known benefits to participation in both active and inactive older persons, hence considered as motivators that would encourage inactive older persons to initiate participation and active older persons to continue participating (Burton et al., 2017c). Essentially, most motivators were mentioned by a lot of older persons, irrespective of their gym attendance patterns, implying that motivators could

be identified by most individuals, thus the actual decision for engagement in gyms was purely based depending on behaviour. These findings continue to show that the ultimate aim should be to target the right audience in view of gym attendance among older persons. It is important to target individuals who used to previously attend a gym, as while those that currently attend are already converted, those that previously attended would be more likely to show a behavioural change towards gym attendance, when compared to those that never attended.

Results from this study found minimal to no differences between genders for most factors, namely: psychological, other, social and environmental motivators, thus implying that motivators were as significant to males as they were for females. While in this study physical motivators were important for both genders, a significant difference was noted, that females experienced greater motivators, when compared to males. To feel good physically and mentally and to feel fit were considered as motivators by both male and female older persons. On the other hand, falls prevention, to feel strong, for socialisation and enjoyment were motivators to strength training in gyms that were associated more to the female gender, as found in the study by Burton et al. (2017c). Therefore, this implies that older persons of both genders need to be targeted when promoting gym attendance among older persons.

Through the results of this study, as for motivators according to age, it was noted that younger older persons experienced greater physical and psychological motivators, when compared to the oldest persons. In terms of other, social and environmental motivators, these varied between age groups, however the greatest environmental motivators were experienced by the oldest group. Similarly, results from the study by Burton et al. (2017c) found physical factors such as weight loss and feeling strong as two commonly identified motivators, mainly among the younger older persons. In addition, health professional

advice, feeling fit, feeling physically and mentally good and being social were considered as motivators for all age groups (Burton et al., 2017c).

With regards to motivators according to living status, while no significant differences were found for most factors, those that live with other experienced the greatest physical, psychological and environmental motivators, whereas those that live with children experienced the greatest other motivators. Those that live alone experienced the greatest social motivators. Since no major patterns were found, it would be ideal to understand the motivators, as described by all older persons, irrespective of their living status.

When considering motivators to gym attendance according to district, the greatest physical and psychological motivators were found to be among those that live in the Northern District. As for other and social motivators, they were found to be greatest among older persons that live in the Southern Harbour District. The greatest environmental motivators were experienced by older persons living in the Northern Harbour District. Given how the significance of most factors varied among districts, one cannot generalize a specific area which requires more targeting in terms of gym attendance. What can be deduced is that older persons living in the Northern Harbour District attend most, thus it would be ideal to target more audience that lives in the other districts.

The results from this study show that greatest physical and psychological motivators were experienced by those who had tertiary level education. Those that had no schooling or primary level and those that had tertiary level education experienced the greatest other motivators. Those that had no schooling or primary level education experienced the greatest social motivators, whereas no differences were noted in environmental motivators, in comparison to qualification. Again, this shows that motivators to gym attendance are evident in people of all qualification levels, thus input is required in older people of all education levels. However, since more older persons with higher education levels attend a gym, it would be wiser to target older persons of lower education levels.

6.2.4 Interest in senior gym

The concept of senior gyms revolves around the accessibility to gyms which takes into consideration the barriers and motivators identified by older persons serving to present an environment in which older persons can feel comfortable. Lübcke, Martin & Hellström (2012), provided information about the main motivators to senior gym attendance among older persons in Sweden. This current study found that for Maltese older persons, a senior gym should be characterised by the presence of individuals who are specifically trained in the needs of older persons, creating bespoke programs, allowing the training to take place at a pace that meets the specific needs of the older person, without feeling uncomfortable or embarrassed by being surrounded by young persons with different motivations. Similarly, in the study by Lübcke, Martin & Hellström (2012) it was reported that the main motivators for older persons attending the gym were: exercising at one's own pace, confidence in one's ability, finding peers, accessible machines, and competent staff. While most older persons recognise the benefits of attending a gym, some still prefer not to commit themselves to this. In fact, 75% of those interviewed in this study stated that they would be interested in attending a senior gym especially if this was situated in close proximity to their residence. Similar findings were recorded through the surveys, where 75% reported that they would be interested in attending a senior gym. It was interesting to note that the interest to attend specific older adult gyms amongst those that were already attending was split at 50%. This increased to 82% showing interest amongst those persons who previously attended a gym. This could be pivotal in searching for more positive attitudes towards gym attendance, leading to behavioural change if gyms were dedicated to senior citizens.

6.3 Implications in practice

Worldwide, people are living longer leading to a continual increase in the number of older persons. Meanwhile, it is also known that the incidence of comorbid conditions in the general population is spiking up in older age (Barnett et al., 2012). The importance of

regular general PA, including gym attendance to maintain a healthy well-being, having a good quality of life, and prolonging independent living (Burton et al., 2017a; Burton et al., 2017c) cannot be stated enough. Despite the known benefits of staying active, both physically and mentally, to be more functional, and reduce the risks of NCDs, rates of adherence to PA are on the lower side. In fact, PA rates were 26% in individuals aged 65-74 years and just 10% aged 85+ years old (White, Wójcicki & McAuley, 2009). For this reason, this study aimed at understanding the barriers and motivators to gym attendance among older persons and to identify the likelihood of older persons to engage in gym use, so that through these insights, light could be directed towards ways on how to further improve the factors that already motivate the older population in this regard, such as through incentives and adaptations. At the same time, a better understanding of what is bothering or hindering these individuals from attending can be explored and focus could be targeted at the reduction or elimination of these barriers. Advocation through policies with the central and regional relevant authorities can assist in targeting this. These positive and negative factors lead towards the idea of a senior gym, characterised by addressing the barriers and motivators, as well as taking on suggestions of what would make the gym an ideal place for them. Should this lead to more older persons attending gyms, this could mean that there would be more older persons with a healthier well-being and a better quality of life. This could also mean that there would be less need for use of health services, having less hospitalisations and less individuals moving into a residential home at an early stage (Burton et al., 2017b), also leading to reduced healthcare expenditures associated with NCDs (Bethancourt et al., 2014; Colditz, 1999).

6.4 Strengths and limitations

This research has explored an area that investigated the barriers and motivators to gym attendance amongst the older population residing in their own dwelling. It did not intend to explore the activities carried out within the gym setting. One of the strengths of this study is

that the methodology was based on an interpretivist approach, aimed at generating and constructing thoughts throughout the research process itself, through the perspectives of the older persons themselves. Secondly, the methodology utilised, allowed for both quantitative and qualitative sources of information. In addition, this study investigated a current important topic of ageing and PA. Another strength is that this study was based on a multi-method approach, not only taking into account the numbers, but also looking into the experiences of the people that attend or do not attend the gym. The number of survey responses (177) was large, despite not reaching the power sample of 350-400 participants. Another strength is that the questionnaire was translated into the Maltese language, allowing the participants chance to respond in the language that they preferred.

This study has some limitations. A limitation in the survey was that the participants were not given the option to imply that a specific factor was not a barrier or a motivator for them. There was a small sample size during the qualitative phase (Phase 2) with limited participants covering all demographic groups, namely, one participant that lives alone, while no participants were 80 years old or older, thus it was not representative of every demographic group. Another limitation was related to the data collection tool for Phase 2. The fact that the participants were aware that the interview was being audio-recorded might or might not have influenced their responses to answer in a way that is socially desirable instead of truly giving their own experiences and beliefs. Another limitation is that the study was conducted in a post-COVID era, and this could have impacted on the findings. Although 177 responses were received, this was not enough to allow maximum generalizability. Despite these limitations, valuable data emerged from the results, shining light on what needs to be done to improve the rates of attendance in gyms among the older population.

6.5 Conclusion

This chapter sought to analyse and interpret the participants' experiences and beliefs within the context of gym attendance and the theoretical frameworks of the socio-ecological framework and the social determinants of health.

Whilst most older persons understand the benefits of gym attendance, this attendance is dependent on a number of factors that may impact a decision to pursue such goals. By advocating this through policies with the central and regional relevant authorities and through measures which limit the mentioned barriers and facilitate the motivators, autonomous motivation towards gym attendance can be nurtured among older persons to achieve their goals of staying healthier and stronger for longer. This chapter concluded with the implications in practice, and the strengths and limitations of this study.

Chapter 7: Conclusion

Introduction to the chapter

This conclusion chapter provides a synopsis of the main findings of this study, which answer the research questions proposed in Chapter 1. It proposes a series of recommendations for future research to further develop the understanding of the barriers and motivators to gym attendance among older persons.

7.1 Key findings

The research questions revolve around the experiences, beliefs, and attitudes of older persons towards gym attendance, the likelihood of gym attendance and their views about senior gyms. This section provides a summary of the main findings.

7.1.1 Quantitative findings

Results from the surveys showed that 15.8% were at the time of completion of survey attending a gym, 41.2% reported their previous attendance while 42.9% reported that they had never been to a gym before.

From the findings, the likelihood of attending a gym is greater if the individual is younger, lives with spouse/partner, lives in the Northern Harbour District and has a secondary/intermediates/A-levels or tertiary education level. The likelihood of not attending a gym is greater if the individual is older, lives with children, lives in the Southern Harbour district or Gozo and Comino District, and has no schooling or primary level education.

The greatest five barriers irrespective of the categories of the socio-ecological framework, as scored by the survey participants were: cost (3.12), lack of age-appropriate programs (3.07), lack of willpower (3.01), poor health (2.98), and lack of positive attitude (2.80).

Meanwhile, the greatest physical barrier to gym attendance in older persons was 'poor health' (2.98), the greatest psychological barrier was 'lack of willpower' (3.01), the greatest other barrier was 'cost' (3.12), the greatest social barrier was 'family/ work responsibilities'

(2.46), and the greatest environmental barrier was ‘lack of age-appropriate programs’ (3.07). On the other hand, the greatest five motivators irrespective of the categories of the socio-ecological framework, as scored by the survey participants were: good health (4.18), physical functioning benefits (3.95), physical benefits (3.92), improved well-being (3.89), and health benefits (3.87). Meanwhile, the greatest physical motivator was ‘good health’ (4.18), the greatest psychological motivator was ‘improved well-being’ (3.89), the greatest other motivator was ‘time to focus on self’ (3.41) the greatest social motivator was ‘increased social activity’ (3.24) and the greatest environmental motivator was ‘can exercise at own pace/ choose exercise’ (3.75).

When considering all barrier subtotals based on gym attendance patterns, least barriers were found among those currently attending, those that previously attended found more barriers, while the most barriers were experiences by those that had never attended a gym before. Throughout this study, although to a small extent, it was noted that females experienced greater barriers when compared to males. In terms of age differences, the oldest age categories experienced the greatest physical and environmental barriers, while their younger counterparts experienced the greatest other and social barriers. The scores varied marginally for psychological barriers between the age groups. Based on living status, those that live with spouse/ partner and those that live with other experienced the greatest physical barriers, while those that live alone, live with children and live with spouse/partner and children experienced the greatest psychological barriers. The greatest other and social barriers were experienced by those that live with spouse/partner and children and those that live with other. The greatest environmental barriers were experienced by those that live alone that those that live with spouse/partner. In terms of location and district, all barrier subtotals (physical, psychological, other, social and environmental barriers) were greatest among individuals living in the Southern Harbour district. Those who had no schooling or primary level experienced the greatest physical barriers, while those that had no schooling

or primary level and those that had Secondary/Intermediate/A-level experienced the greatest psychological barriers. Those that had a tertiary level qualification experienced the greatest other barriers, while those who had a Secondary/Intermediate/A-level experienced the greatest social barriers. As for the environmental barriers, the greatest barriers were experienced by individuals who had no schooling or primary level.

When considering all motivator subtotals based on gym attendance patterns, the greatest motivators were found among those that currently attend a gym, those that previously attended found less motivators, and those that never attended found the least motivators. Minor differences were noted between genders for psychological, other, social and environmental motivators, except for physical motivators, where females were noted to experience greater motivators, when compared to males. As for motivators based on age differences, it was noted that younger older persons experienced greater physical and psychological motivators, when compared to the oldest persons. In terms of other, social and environmental motivators, these varied between age groups, however the greatest environmental motivators were experienced by the oldest group. Motivators also varied, based on living status. Those that live with other experienced the greatest physical, psychological and environmental motivators, whereas the greatest other motivators were experienced by those that live with children. Those that live alone experienced the greatest social motivators. The greatest physical and psychological motivators were found to be in those that live in the Northern District, while the greatest other and social motivators, were found among older persons that live in the Southern Harbour District. The greatest environmental motivators were experienced by older persons living in the Northern Harbour District. In terms of qualification, the greatest physical and psychological motivators were experienced by those who had tertiary level education. Those that had no schooling or primary level and those that had tertiary level education experienced the greatest other motivators. Those that had no schooling or primary level education

experienced the greatest social motivators, whereas no differences were noted in environmental motivators among older persons with different qualification levels.

7.1.2 Qualitative findings

Results from the qualitative interviews show that none of the twelve participants, were at the time of interview engaging in gyms, with only half of them (six) ever being to a gym to carry out gym activities. From the insights obtained from the interviews, older persons were motivated to engage in a gym, according to their recommendations if it fits a set of criteria. These were: having a cheap, incentivised or free membership, having a clean and quiet environment, equipped with air conditioners, and televisions, and found at a short distance and in close vicinity to the participants, with adequate availability of parking. The participants also referred to the importance of the gym having mostly individuals of the participants' own ages, where they can train at their own pace, accompanied with friends of own age and instructed by trainers who are specifically knowledgeable about the needs and rates of progression of older persons, who are able to offer a tailor-made exercise program. Ultimately, they emphasised the importance of being offered professional assistance. The results from this study showed that it would be ideal to tackle the barriers at individual level, while promoting and encouraging motivators at a social level.

7.1.3 Interest in senior gym

Participants in this current study reported that in their opinion, a gym that would be ideal for them should have trained individuals about the needs of older persons who are responsible for creating individualised, tailor-made programs, and being allowed to train at own pace, without feeling judged or embarrassed by younger people around them. In this study, 75% of the interview participants and 74.3% of survey participants reported their interest, while 25% of the interview participants and 25.7% of the survey participants reported that they would still not be interested should there be a gym specifically dedicated

to older persons locally. Among those that reported their current attendance at the time of completion of survey, 13 were interested in the idea behind a senior gym, while 14 were not interested. Among those that had previously attended a gym, 59 were interested to attend a senior gym, while 13 were not interested. Among those that had never attended a gym, 58 were interested to attend a senior gym, while 18 were not interested.

These findings imply that the aim should be to target the right audience in view of gym attendance among older persons. Individuals who already attend might not be the best population to address in view of the idea of a senior gym, as they would be considered as 'converted'. It would be best to target individuals who previously attended a gym, given that a behavioural change would be more likely to be successful among these people, in view of a more positive outlook towards this concept, and it would be much harder to observe a change among those that never attended.

7.2 Recommendations for future research

Recommendations for future research are targeted at further improving knowledge about the needs of older persons to facilitate their experience in relation to gyms.

Future research could similarly explore the barriers and motivators to gym attendance among older persons by conducting research on a larger scale by having a larger sample size, allowing for better generalizability of findings and a representative sample in all participant groups.

Studies could also be repeated to investigate the barriers and motivators according to specific demographic groups, for example specific ages, genders or by region.

Studies could also investigate the negative health beliefs regarding gym attendance and an action point to work on.

A longitudinal study could also be conducted by using the same methodological approach and investigate the change in behavioural patterns of older persons in relation to gym attendance along a period of time.

Another suggestion would be to conduct a study by investigating the viewpoints of personal trainers towards assisting older persons in gyms.

End note

Active ageing may be greatly influenced by the dimensions of physical fitness. Improving one's own physical fitness is important to prevent disease, and also to promote wellness, including strength and balance. These two are essential parameters to allow freedom of movement. It was for this reason that this research journey was conducted, so as to explore older person's attitudes towards gym attendance. This was done by identifying the barriers that limit and motivators that encourage attendance in gyms, as well as identifying the likelihood of older persons to attend in gyms. Through these results, one can advocate this through policies with the central and regional relevant authorities, hoping to entice the creation of workout places that are specifically designed for, and intended to the needs of older persons.

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Appendices

Appendix A: Ethical approval and permission letters

Appendix A1: URECA form



Research Ethics and Data Protection Form

University of Malta staff, students, or anyone else planning to carry out research under the auspices of the University, must complete this form. The UM may also consider requests for ethics and data protection review by External Applicants.

Ahead of completing this online form, please read carefully the University of Malta [Research Code of Practice](#) and the University of Malta [Research Ethics Review Procedures](#). Any breach of the Research Code of Practice or untruthful replies in this form will be considered a serious disciplinary matter. It is advisable to download a full digital version of the form to familiarise yourself with its contents (<https://www.um.edu.mt/media/um/docs/research/urec/URECAReplica.docx>). You are also advised to refer to the FAQs (<https://www.um.edu.mt/research/ethics/faqs>).

Part 1: Applicant and Project Details

Applicant Details

Name: Wayne
Surname: Cutajar
Email:
Applicant Status: Student
Please indicate if you form part of a Faculty, Institute, School or Centre: * Faculty of Health Sciences
Department: * Physiotherapy
Principal Supervisor's Name: * Dr John Xerri de Caro
Principal Supervisor's Email: * john.xerri-decaro@um.edu.mt
Co-Supervisor's Name: Dr Stephen Lungaro Mifsud
Course and Study Unit Code: * M.Sc. Physiotherapy PHT5030
Student Number: *

Project Details

Title of Research Project: * Barriers and motivators to gym participation by older persons

Project description, including research question/statement and method, in brief: *

This explorative research will adopt a case study research approach and is divided into two phases. Phase 1 involves a cross-sectional study via a web survey and phase 2 involves an in-depth qualitative study through the use of interviews.

Research questions:

1. What are the barriers to gym participation in community-dwelling older persons?
2. What are the motivators to gym participation in community-dwelling older persons?
3. How do the barriers and motivators vary according to different participant demographics (age range, gender, gym participation patterns)?
4. How likely are community-dwelling older persons to participate in gyms?

Will project involve collection of primary data from human participants? Yes / Unsure

Explain primary data collection from human participants:

a. Salient participant characteristics (min-max participants, age, sex, other): *

Inclusion criteria:

1. Individuals who are 65 years or older
2. Community-dwelling (living in the community, excluding ones in residential homes)

Sample size (approximately):

- 350-400 participants (phase 1)
- 20 participants (phase 2)

b. How will they be recruited: *

Snowball technique shall be employed in phase 1 to recruit community-dwelling older adults who are 65 years of age or older. The survey shall be available in both languages (English and Maltese). The primary platform to disseminate the survey/questionnaire shall be via Facebook. The link to this anonymous survey will be shared on the researcher's Facebook profile news feed, through which anyone who is seeing the post (individuals who are 65 years and older) and is interested to participate, can click on the link to the survey (2 links shall be available for both English and Maltese). There will also be a link for the information letter (in English and Maltese) on the Facebook post, as well as a hyperlink on the welcome screen of the survey. Anyone who is not interested to participate is free to ignore the post.

Phase 2 shall employ voluntary response sampling, where individuals who fill-in the survey can obtain the researcher's contact details from the information letters (hyperlinked on survey) and contact the researcher out of their own will to be participants for the interviews.

c. What they will be required to do and for how long: *

During phase 1, a researcher-created survey and questionnaire, based on the tailor design method (Dillman, Smyth & Christian, 2014) shall be utilised, to seek information pertaining to demographic data, gym participation patterns and respondents' views on gym participation. It will take approximately 10 minutes to complete. The online survey includes the 'skip logic' function so that those who participate and those who do not participate in gyms can move automatically from one question to another, respective to their previous answer. The online survey can be submitted by clicking the 'Done' button at the end of the survey.

In phase 2, face-to-face, semi-structured interviews shall be used to generate qualitative, in-depth information. In this phase, participants will be asked to sign a consent form when they meet with the researcher for data collection. These interviews shall be audio-recorded if permission is granted by participants. The participants will be asked for their demographic data, gym participation patterns and their views on gym participation. The interview shall last for approximately 20 minutes and shall be carried out at a place and time that is convenient for the participant. Given that no intervention will be carried out, there is no need for a specific venue to be identified for all interviews to be carried out at.

d. If inducements/rewards/compensation are offered: *

There will be no inducements used or thank you gifts being given for participation in this study.

e. How participants/society may benefit *

The society can benefit from this study because this research project would help us gain a better understanding about the perceptions of older persons regarding gym participation. This shall seek the limiting and motivational factors to gym participation among community-dwelling older persons, with the aim of being addressed and possibly notice a rise in gym participation among the older population.

f. If participants are identifiable at any stage of the research: *

During phase 1 (surveys), participants are completely anonymous. If participants are interested to be part of phase 2 (interviews), they can contact the researcher on the contact details provided in the information letter (hyperlinked).

During phase 2, participants shall meet the researcher for a one time face-to-face interview that shall be carried out at a place and time that is convenient for the participant.

g. The manner in which you will manage and store the data: *

Confidentiality will be maintained throughout the study and the participants' identity and personal information will not be revealed in any publications, reports or presentations arising from this research. Data obtained from phase 1 will be managed and stored anonymously. Survey responses will be stored in an encrypted format on the researcher's personal computer that is password protected.

During phase 1, the anonymous data may be accessed by the researcher, the academic supervisor and examiners if necessary.

Following completion of the study, this anonymous data from phase 1 will be retained in anonymous form.

During phase 2, all data collected will be pseudonymised meaning that the data will be assigned codes and that this data will be stored securely and separately from any codes and personal data. The consent forms in hard copy shall be managed with the same coding strategy as the data collected during the interviews and shall be stored in a locked cupboard.

In phase 2, all data may only be accessed by the researcher, while the academic supervisor and examiners will typically have access to coded data only.

There may be exceptional circumstances which allow the academic supervisor and the examiners to have access to personal data too, for verification purposes. The coded data files will be stored on the researcher's personal computer that is password protected and in an encrypted format.

On completion of this study, any material in hard copy (including the consent forms) and personal data from phase 2 will be destroyed while the coded data will be retained in anonymous form (because once the participants' personal data are destroyed, there cannot be a link between the participants and the data that they provided).

Part 2: Self Assessment and Relevant Details

Human Participants

1. Risk of harm to participants: No / N.A.
2. Physical intervention: No / N.A.
3. Vulnerable participants: No / N.A.
4. Identifiable participants: No / N.A.
5. Special Categories of Personal Data (SCPD): No / N.A.
6. Human tissue/samples: No / N.A.
7. Withheld info assent/consent: No / N.A.
8. 'opt-out' recruitment: No / N.A.
9. Deception in data generation: No / N.A.
10. Incidental findings: No / N.A.

Unpublished secondary data

11. Human: No / N.A.
12. Animal: No / N.A.
13. No written permission: No / N.A.

Animals

14. Live animals, lasting harm: No / N.A.
15. Live animals, harm: No / N.A.
16. Source of dead animals, illegal: No / N.A.

General Considerations

17. Cooperating institution: No / N.A.

18. Risk to researcher/s: No / N.A.
19. Risk to environment: No / N.A.
20. Commercial sensitivity: No / N.A.

Other Potential Risks

21. Other potential risks: No / N.A.
22. Official statement: Do you require an official statement from the F/REC that this submission has abided by the UM's REDP procedures?
Yes / Unsure

Part 3: Submission

Which F/REC are you submitting to? * Faculty of Health Sciences

- Attachments:**
- Information and/or recruitment letter*
 - Consent forms (adult participants)*
 - Consent forms for legally responsible parents/guardians, in case of minors and/or adults unable to give consent*
 - Assent forms in case of minors and/or adults unable to give consent*
 - Data collection tools (interview questions, questionnaire etc.)
 - Data Management Plan
 - Data controller permission in case of use of unpublished secondary data
 - Licence/permission to use research tools (e.g. constructs/tests)
 - Any permits required for import or export of materials or data
 - Letter granting institutional approval for access to participants
 - Institutional approval for access to data
 - Letter granting institutional approval from person directly responsible for participants
 - Other

Please feel free to add a cover note or any remarks to F/REC

Declarations: *

- I hereby confirm having read the University of Malta Research Code of Practice and the University of Malta Research Ethics Review Procedures.
- I hereby confirm that the answers to the questions above reflect the contents of the research proposal and that the information provided above is truthful.
- I hereby give consent to the University Research Ethics Committee to process my personal data for the purpose of evaluating my request, audit and other matters related to this application. I understand that I have a right of access to my personal data and to obtain the rectification, erasure or restriction of processing in accordance with data protection law and in particular the General Data Protection Regulation (EU 2016/679; repealing Directive 95/46/EC) and national legislation that implements and further specifies the relevant provisions of said Regulation.

Applicant Signature: * Wayne Cutajar

Date of Submission: * 02/03/2022

If applicable: Date collection start date

Administration

REDP Application ID FHS-2022-00030

Current Status Draft

Appendix A2: Approval from Dr. Pace Parascandalo on behalf of FREC



Wayne Cutajar

FHS-2022-00030 Wayne Cutajar

Rita Pace Parascandalo <rita.pace-parascandalo@um.edu.mt>

2 March 2022 at 20:11

To: Wayne Cutajar

Cc: John Xerri de Caro

ethics.healthsci@um.edu.mt>

Research Ethics HEALTHSCI <research-

Dear Wayne,

your latest amendments have been reviewed. Approval for your study is granted oBo FREC. You may proceed with your study and collect the data accordingly. Should any changes to this approved study be necessary, kindly make a request for the necessary amendments.

Good luck

Regards
Dr Rita PP



Dr Rita Pace Parascandalo PhD (UCLan)

BSc(Hons) (Med), MSc(Med), RM

Senior Lecturer, Department of Midwifery

Chairperson, Faculty Research Ethics Committee

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[Quoted text hidden]

Appendix B: Information letters

Appendix B1: Information letter (English version)



Participants` Information Sheet

Dear Participant,

My name is Wayne Cutajar and I am currently reading for a Master of Science in Physiotherapy at the University of Malta. As part of my course requirements, I am conducting a research study entitled, 'Barriers and motivators to gym attendance by older persons'. The aim of this study is to identify factors that influence gym attendance in older persons. The objectives of this study are to: identify the barriers and motivators to gym attendance in community-dwelling older persons; and investigate how these apply to different attendance demographics, as well as exploring the likelihood of community-dwelling older persons to attend in gyms. Your participation in this study would help us gain a better understanding about the perception of older persons regarding gym attendance. Results from this study might be used for future studies.

This study shall be divided into two phases: Phase 1 involving an online survey, and phase 2 involving an interview. Participation in any phase of this study is completely voluntary. You may opt to participate in one or both phases or none.

You are being invited to participate in a study which will investigate the barriers and motivators to gym attendance among the older population. If you agree to participate, you will fill in an online survey, at a time that is convenient for you, for approximately 8 minutes.

During this survey, you will only be asked to share data that is necessary for the research. This includes providing your:

1. background information (gender, age range, living status, district, highest qualification)
2. gym attendance patterns
3. views on motivators and barriers to gym attendance

You are not obliged to participate in this study or to answer all the questions. Filling in and submitting the survey constitutes giving consent for data to be managed. Following submission of the survey, you cannot withdraw from the study, since there is no way one can identify your response since this will be retained in a completely anonymous format. Confidentiality will be maintained throughout the study and your identity and personal information will not be revealed in any publications, reports or presentations arising from this research. The data collected will be managed and stored anonymously. Survey responses will be stored in an encrypted format on the researcher's personal computer that is password protected computer. Following completion of the study, data from this survey will be retained in anonymous format.

The anonymous data may be accessed by the researcher and by the academic supervisor and examiners if necessary.

If you wish to participate in phase 1, this link will direct you to the survey: https://www.surveymonkey.com/r/gym_participation_UMPTD_en

During phase 2, you are being invited to participate in an interview exploring your experiences with gym attendance. This phase is also on a voluntary basis and you are free to accept or refuse to take part without giving a reason. Should you wish to participate, you can contact the researcher on the contact details provided in this information letter. The interview will take approximately 20 minutes and will be held at a place and time most suitable for you. If you agree to participate in phase 2, you shall be asked to sign a consent form when you meet the researcher for data collection.

During this meeting, you will only be asked to share data that is necessary for the research. This includes providing your:

1. background information (gender, age range, living status, district, highest qualification)
2. gym attendance patterns
3. views on motivators and barriers to gym attendance.

You are not obliged to answer all the questions and may withdraw from the study at any time without giving a reason. Furthermore, withdrawal from the study will not have any negative repercussions on you and any data collected will be erased.

Unless you have any objections, this interview will be audio-recorded. I can assure you that confidentiality will be maintained throughout the study and that your identity and personal information will not be revealed in any publications, reports or presentations arising from this research. All data collected will be pseudonymised meaning that the transcripts will be assigned codes and that this data will be stored securely and separately from any codes and personal data.

This data may only be accessed by the researcher, while the academic supervisor and examiners will typically have access to coded data only. There may be exceptional circumstances which allow the academic supervisor and the examiners to have access to personal data too, for verification purposes. The coded audio-recordings, and transcripts will be stored on the researcher's personal computer that is password protected and in an encrypted format. Any material in hard-copy form will be placed in a locked cupboard. Following completion of the study, personal data from phase 2, will be destroyed while the coded data will be retained in anonymous form (because once your personal data are destroyed, there cannot be a link between you and the data that you provided).

There will be no personal benefits associated with participation in this study. A copy of the information sheet and consent form will be provided for future reference. As a participant, you have the right, under the General Data Protection Regulation (GDPR) and national legislation that implements and further specifies the relevant provisions of said regulation, to

access, rectify and where applicable ask for the data concerning you to be erased. Once the study is completed and the results are published, the data will be retained in anonymous form. This study has been approved by the Research Ethics Committee of the Faculty of Health Sciences at the University of Malta.

Thank you for your time and consideration. Should you have any questions or concerns do not hesitate to contact me on: _____ or by e-mail on: _____ or my supervisor Dr. John Xerri de Caro on: _____ or by e-mail on: _____

Yours Sincerely,



Wayne Cutajar

Researcher



Dr. John Xerri de Caro

Research Supervisor

Appendix B2: Information letter (Maltese version)



L-Università
ta' Malta

Formula ta' Informazzjoni għall-Parteċipanti

Għażiż/a Parteċipant/a,

Jiena Wayne Cutajar, fil-preżent qed insegwi l-kors M.Sc. fil-Fiżjoterapija, fl-Università ta' Malta. Bħala parti mir-rekwiżiti tal-kors, qed nagħmel riċerka bit-titlu, *'Barriers and motivators to gym attendance by older persons'*. L-għan ta' dan l-istudju hu li jiġu identifikati fatturi li jinfluwenzaw l-attendenza tal-anzjani 'l fuq minn 65 sena fil-gyms. L-oġettivi ta' dan l-istudju huma biex: jiġu identifikati l-motivaturi u l-ostakli lejn l-attendenza fil-gyms fl-anzjani li jgħixu fil-komunità; jiġi investigat kif daww japplikaw għal nies b'informazzjoni ġenerali differenti, kif ukoll tiġi esplorata l-probabbiltà li persuni anzjani fil-komunità jużaw il-gyms. Is-sehem tiegħek f'dan l-istudju jista' jgħin biex ikollna aktar għarfien dwar il-perċezzjoni tal-anzjani rigward l-attendenza fil-gym. Riżultati li joħorġu minn dan l-istudju jistgħu jintużaw għal studji fil-futur.

Dan l-istudju se jkun maqsum f'żewġ fażijiet: Fażi 1 se tinvolvi sħarriġ online, filwaqt li fażi 2 se tinvolvi intervista. Il-parteċipazzjoni tiegħek f'xi waħda mill-fażijiet hija kompliment volontarja. Tista' tagħzel li tipparteċipa f'waħda mill-fażijiet, jew fit-tnejn, jew fl-ebda.

Bħala parteċipant/a inti se tintalab tiegħu sehem f'dan l-istudju sabiex ninvestigaw il-motivaturi u l-ostakli lejn l-attendenza fil-gym fl-anzjani. Jekk taċċetta li tiegħu sehem inti tintalab sabiex timla sħarriġ online li jieħu madwar 8 minuti, f'hin konvenjenti għalik.

Waqt dan l-istħarriġ, inti se tkun mistoqsi biex taqşam biss informazzjoni li hija neċessarja għal din ir-riċerka. Dan jinkludi li tagħti:

1. informazzjoni ġenerali dwarek (ġeneru, firxa ta' età, mod ta' għajxien, distrett, l-oġhla kwalifika)
2. informazzjoni dwar l-attendenza tiegħek fil-gyms
3. fehmiet fuq il-motivaturi u ostakli lejn l-attendenza fil-gyms

M'intix obligat/a li tipparteċipa jew li twieġeb il-mistoqsijiet kollha. Jekk timla u tissottometti l-istħarriġ, ifisser li qed tagħti kunsens biex id-data tiġi użata. Wara li tissottometti l-istħarriġ, ma tistax tneħhi r-risposti, minħabba li m'hemm l-ebda mod li bih wiehed jista' jidentifika ir-risposti tiegħek, minħabba l-fatt li dawn se jkunu miżmumin b'mod anonimu. Nassigurak li se tinzamm il-kunfidenzjalità matul l-istudju kollu u l-identità tiegħek u kull informazzjoni personali miġbura mhuma se jiġu żvelati mkien fit-teżi, ir-rapporti, il-preżentazzjonijiet u/jew il-pubblikazzjonijiet li jistgħu jirriżultaw minnha. Kull tagħrif miġbur se jiġi miżmum b'mod anonimu. Ir-risposti tal-istħarriġ se jiġu miżmuma fuq il-kompjuter personali tar-Riċerkatur permezz ta' kodifikazzjoni tad-data (data encryption) u li

hi protetta b'password. Wara li jitlesta l-istudju, id-data miġbura se tiġi maħżuna f'forma anonima.

Id-data anonima tista' tiġi aċċessata mir-riċerkatur, mis-superviżur akkademiku u mill-eżaminaturi jekk ikun neċessarju.

Jekk tixtieq tipparteċipa f'fażi 1, din il-link iddahhlek fl-istharrig:
https://www.surveymonkey.com/r/gym_participation_UMPTD_mt

Waqt fażi 2, bħala parteċipant/a inti se tintalab tieġu sehem f'intervista sabiex ninvestigaw il-motivaturi u l-ostakli lejn l-attenzenza fil-gym fl-anzjani li jgħixu fil-komunità. Din il-fażi hija wkoll fuq bażi volontarja, u inti ħieles/ħielsa li taċċetta jew tirrifjuta li tieġu sehem. Jekk taċċetta li tieġu sehem, tista' tikkuntattja lir-riċerkatur fuq id-dettalji ta' kuntatt li huma provduti fuq l-ittra ta' informazzjoni. L-intervista se ssir f'post u ħin li jkun konvenjenti għalik. Din il-laqgħa se tieġu madwar 20 minuta. Jekk taqbel li tipparteċipa f'fażi 2, se tintalab biex tiffirma formola ta' kunsens meta tiltaqa' mar-riċerkatur għall-ġbir tad-data.

Waqt din il-laqgħa, inti se tkun mistoqsi biex taqdam biss informazzjoni li hija neċessarja għal din ir-riċerka. Dan jinkludi li tagħti:

1. informazzjoni ġenerali dwarrek (ġeneru, firxam ta' età, mod ta' għajxien, distrett, l-oġġla kwalifika)
2. informazzjoni dwar l-attenzenza tiegħek fil-gyms
3. fehmiet fuq il-motivaturi u ostakli lejn l-attenzenza fil-gyms.

M'intix obligat/a li twieġeb il-mistoqsijiet kollha u tista' twaqqaf l-istudju fi xhin trid mingħajr ma tagħti l-ebda raġuni. Dan mhux ħa jkollu riperkussjonijiet negattivi fuqek u l-informazzjoni li tingabar mingħandek tithassar.

Sakemm m'għandek l-ebda oġġezzjoni, ir-risposti tiegħek se jiġu rrekordjati bl-awdjio. Nassigurak li se tinzamm il-kunfidenzjalità matul l-istudju kollu u l-identità tiegħek u kull informazzjoni personali miġbura mhuma se jiġu żvelati mkien fit-teżi, ir-rapporti, il-prezentazzjonijiet u/jew il-pubblikazzjonijiet li jistgħu jirriżultaw minnha. Kull tagħrif miġbur se jiġi psewdonomizzat, jiġifieri d-data kollha se tkun protetta permezz ta' sistema ta' kodiċi u miżmuma separatament mill-informazzjoni personali.

Ir-riċerkatur biss ser ikollu aċċess għall-informazzjoni miġbura, filwaqt li s-superviżur akkademiku u l-eżaminaturi se jkollhom biss aċċess għal data kkodifikata. Is-superviżur akkademiku u l-eżaminaturi jista' jkollhom bżonn aċċess għall-informazzjoni miġbura għal skop ta' verifika. L-awdjio rrekordjat u d-data kollha se jinħażnu fuq il-kompjuter personali tar-riċerkatur permezz ta' kodifikazzjoni tad-data (data encryption) u li hi protetta b'password. Barra minn hekk, il-materjal stampat se jinqafel f'post sigur. Wara li jitlesta l-istudju, data personali minn fażi 2 se tiġi meqruda, filwaqt li data kkodifikata se tinħażen f'forma anonima (għax meta d-data personali tiegħek tiġi meqruda, ma jkunx hemm konnessjoni bejn u d-data li tkun provdejt).

Mhux ser ikun hemm benefiċċji personali assoċjati mal-parteeipazzjoni f'dan l-istudju. Se tingħata kopja tal-ittra ta' informazzjoni u tal-formola ta' kunsens sabiex tkun tista' taċċessahom fil-futur. Barra minn hekk, skont ir-Regolamenti Ġenerali dwar il-Protezzjoni

tad-Data (GDPR) u l-leġiżlazzjoni nazzjonali li timplimenta u tispeċifika aktar il-provvedimenti rilevanti tar-regolamenti msemmija, inti għandek id-dritt li taċċessa, tirretifika, u fejn japplika titlob sabiex tithassar id-data li tikkonċerna lilek. Meta jintemm l-istudju u r-riżultati jkunu ppubblikati, id-data se tiġi maħżuna f'forma anonima.

Dan l-istudju ġie approvat mill-Kumitat għall-Etika fir-Riċerka fi ħdan il-Fakultà tax-Xjenzi tas-Saħħa fl-Università ta' Malta.

Grazzi ħafna tal-ħin u s-sehem tiegħek f'dan l-istudju. F'każ li jkollok xi mistoqsijiet jew tixtieq tiċċara xi ħaġa, tista' ċċempilli fuq: jew tibgħatli email fuq: .
Tista' wkoll tikkuntattja lis-Supervizur Dr. John Xerri de Caro fuq: jew billi tibgħat email fuq:

Dejjem tiegħek,



Wayne Cutajar

Riċerkatur



Dr. John Xerri de Caro

Supervizur tar-Riċerka

Appendix C: Consent forms

Appendix C1: Consent forms (English version)



Participants` Consent Form

Barriers and motivators to gym attendance by older persons

I, the undersigned, give my consent to take part in the study conducted by Wayne Cutajar. The purpose of this document is to specify the terms of my participation in this research study.

1. I have been given written and verbal information about the purpose of the study and all questions have been answered.
2. I understand that I have been invited to participate in an interview, in which the researcher will ask questions to identify the barriers and motivators to gym attendance in community-dwelling older persons; and investigate how these apply to different participant demographics, as well as exploring the likelihood of community-dwelling older persons to participate in gyms. I also understand that only data that is necessary for this research will be asked.
3. I am aware that the interview will take approximately 20 minutes. I understand that the interview is to be conducted at a place and time that is convenient for me.
4. I am aware that this interview will be audio recorded and transcribed (written down as it has been spoken).
5. I am aware that the data collected will be pseudonymized meaning that the transcripts will be coded and that this data will be stored securely and separately from any codes and personal data.
6. I am aware that only the researcher has access to this data, while the academic supervisor and examiners will typically have access to coded data only. There may be exceptional circumstances which allow the academic supervisor and the examiners to have access to personal data too, for verification purposes.
7. I am also aware that the coded audio-recordings and transcripts will be stored on the researcher`s personal computer that is password protected and in an encrypted format. Any material in hard-copy form will be placed in a locked cupboard and kept until results are published.
8. I am aware that my identity and personal information will not be revealed in any publications, reports or presentations arising from this research.
9. I also understand that I am free to accept, refuse or stop participation at any time without giving any reason. This will have no negative repercussions on myself and that any data collected from me will be erased.
10. I also understand that my contribution will serve to gain a better understanding about the perception of older persons regarding gym attendance.

11. I understand that under the General Data Protection Regulation (GDPR) and national legislation that implements and further specifies the relevant provisions of said regulation, I have the right to access, rectify, and where applicable ask for the data concerning me to be erased.
12. I also understand that once the study is completed and results are published personal data from phase 2, will be destroyed while the coded data will be retained in anonymous form (because once my personal data are destroyed, there cannot be a link between me and the data that I provided).
13. I understand that there will be no personal benefits associated with participation in this study. There will be no inducements or thank you gifts being given for participating in this study.
14. I will be provided with a copy of the information letter and consent form for future reference.
15. I have read and understood the points and statements of this form. I have had all the questions answered to my satisfaction, and I agree to participate in this study.

Participant: _____

Signature: _____

Date: _____



Wayne Cutajar

Researcher



Dr. John Xerri de Caro

Research Supervisor



Formula ta' Kunsens tal-Parteċipanti

Barriers and motivators to gym attendance by older persons

Jien, hawn taht iffirmat/a, nagħti l-kunsens tiegħi biex nieħu sehem fl-istudju mmexxi minn Wayne Cutajar. L-għan ta' dan id-dokument hu li jiġu speċifikati t-termini tal-parteċipazzjoni tiegħi f'dan l-istudju ta' riċerka.

1. Jien ingħatajt informazzjoni miktuba u verbali dwar l-għan tal-istudju u l-mistoqsijiet kollha twiegħbu.
2. Nifhem li se nkun qed nipparteċipa fi studju, fejn ir-Riċerkatur ħa jinvestiga l-motivaturi u l-ostakli lejn l-attendenza fil-gyms fl-anzjani li jgħixu fil-komunità; jiġi nvestigat kif dawk japplikaw għal nies b'informazzjoni ġenerali differenti, kif ukoll tiġi esplorata l-probabbiltà li persuni anzjani fil-komunità jużaw il-gyms. Nifhem ukoll li se jiġu mistoqsija biss domandi dwar data li hija neċessarja għal dan l-istudju.
3. Naf li l-istudju se jieħu madwar 20 minuta. Nifhem, li l-laqgħa se ssir f'post u ħin konvenjenti għalija.
4. Jien konxju/a li r-risposti tiegħi se jkunu qed jiġu rrekordjati permezz ta' tagħmir awdjo u se jinkitbu r-risposti fuq formuli apposta.
5. Naf ukoll li d-data miġbura se tiġi psewdonomizzata, jiġifieri d-data kollha se tkun protetta permezz ta' sistema ta' kodiċi u din se tinżamm separatament mill-informazzjoni personali.
6. Naf ukoll li r-riċerkatur biss se jkollu aċċess għal din l-informazzjoni, filwaqt li s-superviżur akkademiku u l-eżaminaturi se jkollhom biss aċċess għal data kkodifikata. Is-superviżur akkademiku u l-eżaminaturi jista' jkollhom bżonn aċċess għall-informazzjoni miġbura għal skop ta' verifika.
7. Barra min hekk, naf li l-awdjo rrekordjat u d-data se jinħażnu fuq il-kompjuter personali tar-Riċerkatur permezz ta' kodifikazzjoni tad-data (data encryption) u li hi protetta b'password. Barra minn hekk, naf li l-materjal stampat se jitqiegħed f'post sikur u se jinżamm sakemm joħorġu r-riżultati.
8. Naf li l-identità tiegħi u l-informazzjoni personali mhuma se jinkixfu mkien fit-teżi, fir-rapporti, fil-preżentazzjonijiet u/jew fil-pubblikazzjonijiet li jistgħu jirriżultaw minnha.
9. Nifhem ukoll li jien liberu/a li naċċetta, nirrifjuta jew inwaqqaf il-parteċipazzjoni f'kull ħin bla ma nagħti raġuni. Dan mhux ħa jkollu riperkussjonijiet negattivi fuqi. Nifhem ukoll li la darba nirtira minn dan l-istudju, l-informazzjoni miġbura se titħassar.
10. Nifhem ukoll li l-kontribuzzjoni tiegħi ser isservi biex tiġi mifhuma aħjar il-perċezzjoni tal-anzjani rigward l-attendenza fil-gym.
11. Nifhem ukoll, li skont ir-Regolamenti Ġenerali dwar il-Protezzjoni tad-Data (GDPR) u l-leġiżlazzjoni nazzjonali li timplimenta u tispeċifika aktar il-

- provvedimenti rilevanti tar-regolamenti msemija, jiena għandi d-dritt li naċċessa, nirretifika, u fejn japplika nitlob sabiex titħassar id-data li tikkonċernani.
12. Naf ukoll li meta jintemm l-istudju u r-riżultati jkunu ppubblikati, id-data personali minn fażi 2 se tiġi meqruda, filwaqt li data kkodifikata se tinħażen f'forma anonima (għax meta d-data personali tiegħi tiġi meqruda, ma jkunx hemm konnessjoni bejni u d-data li nkun provdejt).
 13. Nifhem, li mhux ser ikun hemm benefiċċji personali assoċjati mal-partecipazzjoni f'dan l-istudju. Nifhem ukoll li mhux se jkun hemm incentivi jew rigali ta' ringrazzjament assoċjati mal-partecipazzjoni f'dan l-istudju.
 14. Fl-aħħar nett, naf ukoll li se ningħata kopja tal-ittra ta' informazzjoni u tal-formula ta' kunsens sabiex inkun nista' naċċessahom fil-futur.
 15. Jien qrajt u fhimt il-punti u d-dikjarazzjonijiet f'din il-formula. Inħossni sodisfatt/a bit-twegibiet li ngħatajt għall-mistoqsijiet li kelli, u qed naċċetta minn jeddi li nipparteċipa f'dan l-istudju.

Partecipant/a: _____

Firma: _____

Data: _____



Wayne Cutajar

Riċerkatur



Dr. John Xerri de Caro

Supervizur tar-Riċerka

Appendix D: Research tools

Appendix D1: Survey piloting questions

Would you kindly provide feedback on the following, indicating on a scale from 1 to 5 (1 being least and 5 being most):

1. The clarity of the survey questions and that they are easy to understand
2. The ease to answer questions


How long did it take you, more or less, to complete the survey?

Jekk jogħġbok, agħti 'feedback' fuq dawn li ġejjin, fejn tqis fuq skala bejn 1 u 5 (1 jindika l-inqas u 5 jindika l-iktar):

1. Iċ-ċarezza tal-mistoqsijiet u l-facilità biex tifhem il-mistoqsijiet
2. Il-facilità biex twieġeb il-mistoqsijiet

Bejn wieħed u ieħor, kemm ħadt ħin biex lestejt l-istħarriġ?

Appendix D2: Survey questions as presented on SurveyMonkey software (English version)

 L-Università ta' Malta | Department of
Faculty of Health Sciences | Physiotherapy

Barriers and motivators to gym participation by older persons

Welcome!

The aim of this study is to identify factors that influence gym participation by persons aged 65 and over. All data collected from this research shall be managed confidentially and anonymously. Access to research data shall be limited to the research team.

Follow this link to access the [Information Letter](#).

**Thank you for your time. Should you require further please contact either me directly on +356
, or via email at , or the research supervisor Dr. John Xerri
de Caro on +356 , or via email at**

Barriers and motivators to gym participation by older persons

Demographic data

* 1. Gender

- Male
 Female
 Prefer not to answer

* 2. Age range

- 65-69 years
 70-74 years
 75-79 years
 80-84 years
 85-89 years
 90+ years

* 3. Living status

- Live alone
 Live with spouse / partner
 Live with children
 Live with other

* 4. Which district do you live in?

- Southern Harbour District (Birgu, Bormla, Fgura, Floriana, Senglea, Kalkara, Luqa, Marsa, Paola, Santa Lucia, Tarxien, Valletta, Xgħajra, Żabbar)
- Northern Harbour District (Birkirkara, Gzira, Ħamrun, Msida, Pembroke, Pietà, Qormi, St. Julian's, San Gwann, Santa Venera, Sliema, Swieqi, Ta' Xbiex)
- South Eastern District (Birzebbuga, Ghaxaq, Gudja, Kirkop, Marsaskala, Marsaxlokk, Mqabba, Qrendi, Safi, Żejtun, Żurrieq)
- Western District (Attard, Balzan, Dingli, Ikin, Lija, Mdina, Mtarfa, Rabat, Siġġiewi, Zebbuġ)
- Northern District (Għargħur, Mellieħa, Mġarr, Mosta, Naxxar, San Pawl il-Baħar)
- Gozo and Comino District (Fontana, Ghajnsielem, Għarb, Għasri, Kerċem, Munxar, Nadur, Qala, San Lawrenz, Sannat, Xagħra, Xewkija, Rabat, Zebbuġ)

* 5. What is the highest qualification (or education level) that you have successfully attained?

- No schooling or Pre-primary Level
 Primary level
 Secondary level: O - Level/SEC
 Intermediates/ 'A' - Levels/Matriculation Certificate
 Undergraduate Diploma/ Certificate
 Bachelors level Degree
 Master levels Degree/ Post-Graduate Diploma/ Certificate
 Doctoral Degree
 Rather not answer

Barriers and motivators to gym participation by older persons

Gym Participation

* 6. Do you currently attend a gym to carry out gym activities?

Yes

No

Barriers and motivators to gym participation by older persons

Gym participation

* 7. How often do you attend a gym to carry out gym activities in a regular week?

- 4 times or less
 5 times or more

* 8. How long does each session last on average?

- Under 30 minutes
 30 minutes to 1 hour
 More than 1 hour

* 9. What kind of activity do you carry out at the gym?

- Cardiovascular training (e.g. treadmill, bike, rowing)
 Weight / resistance training
 Other (please specify)

* 10. Would you normally be guided by a personal trainer?

- No, I always train alone
 Yes, I occasionally engage a personal trainer
 Yes, more often than not, I work with the guidance of a personal trainer

* 11. Who prepares your program in the gym?

- Myself
 Other (please specify)

* 12. Did the COVID-19 pandemic change / influence your gym participation patterns?

- Yes
 No

Comment

Barriers and motivators to gym participation by older persons

Gym participation

* 13. Have you ever attended a gym before to carry out gym activities?

Yes

No

Barriers and motivators to gym participation by older persons

Gym participation

* 14. How regularly did you attend a gym to carry out gym activities per week?

- 4 times or less
 5 times or more

* 15. On average how long did a session last?

- Under 30 minutes
 30 minutes to 1 hour
 More than 1 hour

* 16. What kind of activity did you carry out at the gym?

- Cardiovascular training (e.g. treadmill, bike, rowing)
 Weight / resistance training
 Other (please specify)

* 17. Would you normally have been guided by a personal trainer?

- No, I always trained alone
 Yes, I occasionally engaged with a personal trainer
 Yes, more often than not, I worked with the guidance of a personal trainer

* 18. Who used to prepare your program in the gym?

- Myself
 Other (please specify)

* 19. What were the reasons you stopped?

- | | |
|--|---|
| <input type="checkbox"/> Health reasons (e.g. illness/ injury) | <input type="checkbox"/> Peer pressure (e.g. other gym goers too young) |
| <input type="checkbox"/> Issues with body image | <input type="checkbox"/> COVID-19 pandemic |
| <input type="checkbox"/> Decreased social support (referring to supportive resources which can be emotional, informational or companionship) | <input type="checkbox"/> Didn't feel comfortable |
| <input type="checkbox"/> Environmental issues (e.g. geographical location, transport) | |
| <input type="checkbox"/> Other (please specify) | |

Barriers and motivators to gym participation by older persons

Factors that motivate / may motivate gym attendance

For each of the following factors rate the significance of each statement in determining your decision, both if you attend, or had to attend a gym.

Tick **ONE** column for each statement.

1 indicates least motivator and **5** indicates greatest motivator to you.

* 20. Individual level: Physical Factors

(1 indicates least motivator and 5 indicates greatest motivator to you)

	1	2	3	4	5
Physical benefits (strength, endurance, flexibility, balance, coordination)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health benefits (improved energy, sleep, appetite)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical functioning benefits (walking ability, ease of daily activities, independence)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce/ control pain and injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Appearance benefits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 21. Individual level: Psychological Factors

(1 indicates least motivator and 5 indicates greatest motivator to you)

	1	2	3	4	5
Mental function benefits (improved alertness, concentration, relieves stress)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mental health benefits (mood, confidence, self- esteem, sense of accomplishment)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved well-being	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Readiness for exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enjoy exercising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Awareness and efficacy using gym equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 22. Individual level: Other Factors

(1 indicates least motivator and 5 indicates greatest motivator to you)

	1	2	3	4	5
Scheduled time for exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creates routine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Means of getting out	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Past experience with exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enough time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time to focus on self	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 23. Social level Factors

(1 indicates least motivator and 5 indicates greatest motivator to you)

	1	2	3	4	5
Social benefits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social support and encouragement (from peers, staff, spouse, family, friends, health professionals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased social activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sense of belonging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Observing others being active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 24. Environment level Factors

(1 indicates least motivator and 5 indicates greatest motivator to you)

	1	2	3	4	5
Organised exercise opportunity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to exercise facility and/or equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Current location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Travel distance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can exercise at own pace/ choose exercises	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gym atmosphere	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff/ instructor characteristics (including staff access, knowledge, interaction, competence, supervision and attention)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Barriers and motivators to gym participation by older persons

Factors that discourage / may discourage gym attendance

For each of the following factors rate the significance of each statement in determining your decision **NOT** to attend a gym, both if you attend, or had to attend a gym.

Tick **ONE** column for each statement.

1 indicates least barrier and **5** indicates greatest barrier to you

*** 25. Individual level: Physical Factors**

(1 indicates least barrier and 5 indicates greatest barrier to you)

	1	2	3	4	5
Poor health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk of injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tired/ fatigue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*** 26. Individual level: Psychological Factors**

(1 indicates least barrier and 5 indicates greatest barrier to you)

	1	2	3	4	5
Lack of willpower	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of positive attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of enjoyment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too old	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emotional problems that interfere with daily living	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous/ depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*** 27. Individual level: Other Factors**

(1 indicates least barrier and 5 indicates greatest barrier to you)

	1	2	3	4	5
Lack of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inconvenient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 28. Social level Factors

(1 indicates least barrier and 5 indicates greatest barrier to you)

	1	2	3	4	5
Family/ work responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of social support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 29. Environment level Factors

(1 indicates least barrier and 5 indicates greatest barrier to you)

	1	2	3	4	5
Lack of exercise facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of age-appropriate programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Barriers and motivators to gym participation by older persons

Comments

30. Do you have any other comments regarding what might encourage you to go to a gym?

31. Do you have any other comments regarding what might prevent you from going to a gym?

* 32. Would attending a gym exclusively dedicated to persons over 65 years encourage your attendance?

Yes

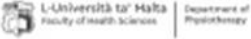
No

Barriers and motivators to gym participation by older persons

Submitting the survey constitutes giving consent for data to be managed.

Thank you for participating. We really appreciate your time.

Appendix D3: Survey questions as presented on SurveyMonkey software (Maltese version)



Il-motivaturi u l-ostakli lejn il-parteeċipazzjoni fil-gyms fl-anzjani

Merħba!

L-għan ta' dan l-istudju huwa li jiġu identifikati fatturi li jinfluwenzaw il-parteeċipazzjoni tal-anzjani 'l fuq minn 65 sena fil-gyms. L-informazzjoni miksuba f'din ir-riċerka se tintuża b'mod kunfidenzjali u anonimu. L-aċċess għall-informazzjoni se jkun limitat biss għat-tim tar-riċerka.

Segwi din il-link għall-Ittra ta' Informazzjoni.

Grazzi għall-hin tiegħek. Jekk teħtieġ aktar informazzjoni, jekk jogħġbok ikkuntattjani direttament fuq: +356 [redacted], jew b'email fuq: [redacted] jew ikkuntattja lis-superviżur tiegħi, Dr. John Xerri de Caro fuq: +356 [redacted] jew b'email fuq: [redacted]

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Informazzjoni ġenerali

* 1. Ġeneru

- Raġel
- Mera
- Nippreferi ma nispeċifikax

* 2. Firxa ta' età

- Bejn 65-69 sena
- Bejn 70-74 sena
- Bejn 75-79 sena
- Bejn 80-84 sena
- Bejn 85-89 sena
- Il fuq minn 90 sena

* 3. Mod ta' għajxien

- Nghix waħdi
- Nghix mar-raġel/ mara/ siehebi/ siehba
- Nghix mat-tfal
- Nghix ma' oħrajn

* 4. F'lema distrett toqgħod?

- Distrett tal-port tan-nofsinar (Birgu, Bormla, Fgura, Floriana, Senglea, Kalkara, Luqa, Marsa, Paola, Santa Lucia, Tarxien, Valletta, Xgħajra, Żabbar)
- Distrett tal-port tat-tramuntana (Birkirkara, Gżira, Ħamrun, Msida, Pembroke, Pieta, Qormi, San Giljan, San Gwann, Santa Venera, Sliema, Swieqi, Ta' Xbiex)
- Distrett tax-Xlokk (Birżebbuġa, Ghaxaq, Gudja, Kirkop, Marsaskala, Marsaxlokk, Mqabba, Qrendi, Safi, Żejtun, Żurrieq)
- Distrett tal-Punent (Attard, Balzan, Dingli, Iklid, Lija, Mdina, Mtarfa, Rabat, Siġġiewi, Żebbug)
- Distrett tat-Tramuntana (Għargħur, Mellieħa, Mġarr, Mosta, Naxxar, San Pawl il-Baħar)
- Distrett ta' Għawdex u Kemmuna (Fontana, Ghajnsielem, Għarb, Għasri, Kerċem, Munxar, Nadur, Qala, San Lawrenz, Sannat, Xagħra, Xewkija, Rabat, Żebbug)

* 5. X'inhi l-ogħla kwalifika (jew livell ta' edukazzjoni) li temmejt b'suċċess?

- M'attendejtx skola jew livell ta' qabel il-primarja
- Livell primarju
- Livell sekondarju: O - Level/SEC
- Livell Intermedju/ Awvanzat
- 'Undergraduate' Diploma/ Certifikat
- Baċcellerat
- Livell ta' Master Degree/ Post-Graduate Diploma/ Certifikat
- Dottorat
- Nippreferi ma nirispondix

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Partecipazzjoni fil-gym

* 6. Bhalissa, tattendi gym biex tagħmel attivitajiet tal-gym?

Iva

Le

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Partecipazzjoni fil-gym

* 7. Kemm-il darba tattendi gym biex tagħmel attivitajiet tal-gym f'gimgha regolari?

- 4 darbiet jew inqas
 5 darbiet jew iktar

* 8. Bejn wieħed u ieħor, kemm iddum kull sessjoni?

- Inqas minn nofs siegħa
 Minn nofs siegħa sa siegħa
 Iktar minn siegħa

* 9. X'tip ta' attività tagħmel fil-gym?

- Eżerċizzju kardjovaskulari (e.ż. 'treadmill', rota, qdif)
 Eżerċizzju bil-piż/ reżistenza
 Ohrajn (jekk jogħġbok, speċifika)

* 10. Normalment, tkun gwida/a minn trejner personali?

- Le, dejjem nittrenja wahdi
 Iva, għali jkoll trejner personali
 Iva, hafna drabi, nahdem bil-gwida ta' trejner personali

* 11. Min jipprepara l-programm tiegħek fil-gym?

- Jien
 Ohrajn (jekk jogħġbok, spjega)

* 12. Il-pandemija COVID-19 bidlet jew affettwat il-partecipazzjoni tiegħek fil-gym?

- Iva
 Le

Kumment

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Partecipazzjoni fil-gym

* 13. Ġieli attendejt gym qabel biex tagħmel attivitajiet tal-gym?

Iva

Le

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Partecipazzjoni fil-gym

* 14. Kemm-il darba kont tattendi gym biex tagħmel attivitajiet tal-gym f'gimgha regolari?

- 4 darbiet jew inqas
 5 darbiet jew iktar

* 15. Bejn wiehded u ieħor, kemm kienet iddum kull sessjoni?

- Inqas minn nofs siegħa
 Minn nofs siegħa sa siegħa
 Iktar minn siegħa

* 16. X'tip ta' attivitá kont tagħmel fil-gym?

- Eżerċizzju kardjovaskulari (e.ż. treadmill, rota, qdli)
 Eżerċizzju bil-piż/ reżistenza
 Ohrajn (jekk jogħġbok, speċifika)

* 17. Normalment, kont tkun gwida ta' minn trejner personali?

- Le, dejjem kont nitrenja waħdi
 Iva, ġieli kien ikoll trejner personali
 Iva, hafna drabi, kont nahdem bil-gwida ta' trejner personali

* 18. Min kien jipprepara l-programm tiegħek fil-gym?

- Jien
 Ohrajn (jekk jogħġbok, spjega)

* 19. X'kienu r-raġunijiet għaliex waqaft?

- | | |
|--|---|
| <input type="checkbox"/> Raġunijiet ta' saħħa (e.ż. mard/ korrimient) | <input type="checkbox"/> Pressjoni minn haddieħor (e.ż. parteċipanti oħra tal-'gyms' ikunu ta' eżà ferm iżgħar) |
| <input type="checkbox"/> Kwistjonijiet ta' dehra fiżika | <input type="checkbox"/> Il-pandemija COVID-19 |
| <input type="checkbox"/> Tnaqqis fl-appoġġ soċjali (b'referenza għal riżorsi l'appoġġ li jistgħu jkunu emozzjonali, infomattivi u ta' kumpanija) | <input type="checkbox"/> Ma hassejtnix komdu/a |
| <input type="checkbox"/> Kwistjonijiet dwar l-ambjent (e.ż. lokazzjoni ġeografika, trasport) | |
| <input type="checkbox"/> Oħrajn (jekk jogħġbok, speċifika) | |

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Fatturi li jimmotivaw / jistgħu jimmotivaw l-attenzenza fil-gym

Għal kull wieħed minn dawn il-fatturi li ġejjin, qis is-sinifikat ta' kull wieħed minnhom fl-għażla tiegħek biex tattendi gym, kemm jekk diġà tattendi jew kellek tattendi gym.

Immarka kolonna WAHDA biss għal kull ringiela.

1 huwa l-inqas motivatur u 5 huwa l-akbar motivatur għalik.

* 20. Fatturi fiżiċi fuq livell individwali

(1 huwa l-inqas motivatur u 5 huwa l-akbar motivatur għalik)

	1	2	3	4	5
Benefiċċji fiżiċi (sahha, reżistenza, flessibilità, bilanċ, koordinazzjoni)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Benefiċċji ta' saħħa (ihtar enerġija, irqad u aptit ahjar)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Benefiċċji fil-funzjonalità fiżika (abilità tal-mixi, feċilità biex tagħmel attivitajiet ta' kuljum, indipendenza)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Saħħa tajba	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tnaqqis/ kontroll tal-uġiġh u korriment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Benefiċċji ta' apparenza	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 21. Fatturi psikologiċi fuq livell individwali

(1 huwa l-inqas motivatur u 5 huwa l-akbar motivatur għalik)

	1	2	3	4	5
Benefiċċji għall-funzjoni tas-saħħa mentali (viġilanza u koncentrazzjoni aħjar u nuqqas ta' stress)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Benefiċċji għas-saħħa mentali (burdata, kunfidenza, stima tiegħek innifsek u sens ta' kisba)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Benesseri aħjar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lest/a li tagħmel l-eżerċizzju	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gost tagħmel l-eżerċizzju	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Għarfien u effettività fl-użu ta' tagħmir tal-gym	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 22. Fatturi oħrajn fuq livell individwali

(1 huwa l-inqas motivatur u 5 huwa l-akbar motivatur għalik)

	1	2	3	4	5
M'in skedat għall-eżerċizzju	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
M'oqjen ta' rutina	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mezz biex tohroġ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Esperjenzi tal-passat fl-eżerċizzju	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
M'in biżżejjed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
M'in biex tiffoka fuqek innifsek	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 23. Fatturi fuq livell soċjali

(1 huwa l-inqas motivatur u 5 huwa l-akbar motivatur għalik)

	1	2	3	4	5
Benefiċċji soċjali	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Appoġġ soċjali u inkoraġġiment (minn kollegi, raġel/mara, hbieb, u professjonisti tas-saħħa)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Iktar attivit soċjali	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sens ta' appartenenza	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Osservazzjoni ta' nies oħrajn ikunu attivi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 24. Fatturi fuq livell ambjentali

(1 huwa l-inqas motivatur u 5 huwa l-akbar motivatur għalik)

	1	2	3	4	5
Opportunitajiet ta' eżerċizzju organizzat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aċċess għal facilitajiet għall-eżerċizzju u/jew tagħmir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Post attwali	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distanza tal-ivjaġġar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tista' tagħmel l-eżerċizzju bil-pass tiegħek/ tagħzel l-eżerċizzji	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Atmosfera tal-gym	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Karatteristiċi tal-haddiema/ "instructor" (inkluż l-aċċess għall-haddiema, għarfien, interazzjoni, kompetenza, superviżjoni u attenzjoni)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Fatturi li jiskoraġġixxu / jistgħu jiskoraġġixxu l-attenzenza fil-gym

Għal kull fattur milli gej, qis is-sinifikat ta' kull wiehed minnhom fl-għażla tiegħek biex **MA IATTENDIX** gym, kemm jekk diġà tattendi jew kellek tattendi gym.

Immarka kolonna **WAHDA** biss għal kull ringiela.

1 huwa l-inqas ostaklu u **5** huwa l-akbar ostaklu għalik.

* 25. Fatturi fiżiċi fuq livell individwali

(1 huwa l-inqas ostaklu u 5 huwa l-akbar ostaklu għalik)

	1	2	3	4	5
Kundizzjoni hażina tas-saħħa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Riskju ta' koriment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ugħigh	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Għajjen/a	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diġa' ta' koriment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 26. Fatturi psikoloġiċi fuq livell individwali

(1 huwa l-inqas ostaklu u 5 huwa l-akbar ostaklu għalik)

	1	2	3	4	5
Nuqqas ta' rieda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nuqqas ta' attitudni pożittiva	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nuqqas ta' gost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anzjan/a wisq	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problemi emozzjonali li jinterferixxu mal-ħajja ta' kuljum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervuż/a/ dipressat/a	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 27. Fatturi oħrajn fuq livell individwali

(1 huwa l-inqas ostaklu u 5 huwa l-akbar ostaklu għalik)

	1	2	3	4	5
Nuqqas ta' hin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nuqqas ta' għarfien	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inkonvenjenti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prezz	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 28. Fatturi fuq livell soċjali

(1 huwa l-inqas ostaklu u 5 huwa l-akbar ostaklu għalik)

	1	2	3	4	5
Responsabbiltajiet tal-familja/ xogħol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nuqqas ta' appoġġ soċjali	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 29. Fatturi fuq livell ambjentali

(1 huwa l-inqas ostaklu u 5 huwa l-akbar ostaklu għalik)

	1	2	3	4	5
Nuqqas ta' facilitajiet għall-eżerċizzju	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nuqqas ta' programmi li huma addattati għall-età	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Kummenti

30. Għandek xi kummenti oħra rigward x'jista' jimmutivak biex tmur go gym?

31. Għandek xi kummenti oħra rigward x'jista' jzommok milli tmur go gym?

* 32. Gym li jkun esklussivament dedikat għal anzjani 'l fuq minn 65 sena, jinkoraġġik tattendi?

Iva

Le

Il-motivaturi u l-ostakli lejn il-partecipazzjoni fil-gyms fl-anzjani

Jekk tissottometti l-istħarriġ, ifisser li qed tagħti kunsens biex id-data tiġi uzata.

Grazzi talli ppartecipajt. Napprezzaw ħafna l-ħin tiegħek.

Appendix D4: Interview guide – current or previous attendance (English version)

Semi-structured Interview guide

Introduction

I am Wayne Cutajar and I am currently reading for a Master's Degree in Physiotherapy at the Faculty of Health Sciences, University of Malta. I am conducting research entitled 'Barriers and motivators to gym attendance by older persons' to identify factors that influence gym attendance by older persons. The aims of this study are to: identify the barriers and motivators to gym attendance in community-dwelling older persons; and investigate how these apply to different participant demographics, as well as exploring the likelihood of community-dwelling older persons to participate in gyms.

As you well know, since you participated in the first part of this study, it consisted of a survey. In this second part of this explorative research, interviews will be carried out to understand the factors that influence gym attendance in further depth. The interview will take approximately 20 minutes. You are not obliged to answer all the questions and may withdraw from the study at any time without giving a reason. Furthermore, withdrawal from the study will not have any negative repercussions on you. Unless you have any objections, this interview will be audio-recorded and then transcribed in verbatim. I can assure you the data collected will be managed with the same rigorous ethical standards, i.e. confidentiality will be maintained throughout the study and that your identity and personal information will not be revealed in any publications, reports or presentations arising from this research. All data collected will be pseudonymised meaning that the transcripts will be assigned codes and that this data will be stored securely and separately from any codes and personal data. This data may only be accessed by the researcher, while the academic supervisor and examiners will typically have access to coded data only. There may be exceptional circumstances which allow the academic supervisor and the examiners to have access to personal data too, for verification purposes. The coded audio-recordings, and transcripts will be stored on the researcher's personal computer that is password protected and in an encrypted format. Any material in hard-copy form will be placed in a locked cupboard. Following completion of the study, personal data from phase 2, will be destroyed while the coded data will be retained in anonymous form (because once the participants' personal data are destroyed, there cannot be a link between the participants and the data that they provided).

Participation in this study is completely voluntary and you are free to accept or refuse to take part without giving a reason. There will be no personal benefits associated with participation in this study. A copy of the information sheet and consent form will be provided for future reference. As a participant, you have the right, under the General Data Protection Regulation (GDPR) and national legislation that implements and further specifies the relevant provisions of said regulation, to access, rectify and where applicable ask for the data concerning you to be erased.

Guiding questions

Background information

- Gender
- Age range
- Living status
- District
- Highest qualification

Gym Attendance patterns

1. What are the first things that come to mind when you listen to the word ‘gym’?
2. Have you ever been to a gym to carry out gym activities?
3. Do you currently attend or have attended a gym before?
4. Can you describe more about the intensity, duration, whether you have/ used to have someone to help you?
5. Has the COVID-19 pandemic left an influence on your views regarding gym attendance? If so, how?
6. Were there any other reasons why you stopped/ reduced the frequency?
7. How does going to the gym affect you?

Factors that motivate/ may motivate gym attendance

8. In your own views, what motivates you to keep on going?
9. In your opinion, do you feel that going to the gym has an influence on how you feel physically? If so, how?

10. In your opinion, are there any psychological factors that motivate you to attend a gym?
11. Can you describe if there is a link between social support and gym attendance for you?
12. What are the environmental factors, if any, that affect your views regarding gym attendance in your opinion?

Factors that discourage/ may discourage gym attendance

13. What are the barriers, if any, that hinder you from attending a gym as much as you would like to?
14. In your opinion, are there any physical factors that limit your attendance?
15. What are your thoughts on the psychological factors with regards to limitation of gym attendance?
16. How do you feel about social factors and their effect in limiting gym attendance?
17. How do environmental factors, if any, discourage your gym attendance?

Senior gyms

18. Had there been a senior gym, that is exclusively dedicated to persons over 65 years, would it encourage your attendance?
19. - *If yes:* Can you describe in more detail why it would encourage you?
- *If no:* Can you describe in more detail why it would not encourage you?
20. In your opinion, do you think it would be a good investment locally and why?
21. Do you have any suggestions as to what features would need to be taken into consideration when planning a senior gym, that would possibly encourage your attendance?

Closing

Thank you for participating. We really appreciate your time. Should you require further information or have any questions, please do not hesitate to contact me directly on +356 , or via email on: _____, or contact my supervisor Dr. John Xerri de Caro on +356 or via email on:

Appendix D5: Interview guide – never attended (English version)

Semi-structured Interview guide

Introduction

I am Wayne Cutajar and I am currently reading for a Master's Degree in Physiotherapy at the Faculty of Health Sciences, University of Malta. I am conducting research entitled 'Barriers and motivators to gym attendance by older persons' to identify factors that influence gym attendance by older persons. The aims of this study are to: identify the barriers and motivators to gym attendance in community-dwelling older persons; and investigate how these apply to different participant demographics, as well as exploring the likelihood of community-dwelling older persons to participate in gyms.

As you well know, since you participated in the first part of this study, it consisted of a survey. In this second part of this explorative research, interviews will be carried out to understand the factors that influence gym attendance in further depth. The interview will take approximately 20 minutes. You are not obliged to answer all the questions and may withdraw from the study at any time without giving a reason. Furthermore, withdrawal from the study will not have any negative repercussions on you. Unless you have any objections, this interview will be audio-recorded and then transcribed in verbatim. I can assure you the data collected will be managed with the same rigorous ethical standards, i.e. confidentiality will be maintained throughout the study and that your identity and personal information will not be revealed in any publications, reports or presentations arising from this research. All data collected will be pseudonymised meaning that the transcripts will be assigned codes and that this data will be stored securely and separately from any codes and personal data. This data may only be accessed by the researcher, while the academic supervisor and examiners will typically have access to coded data only. There may be exceptional circumstances which allow the academic supervisor and the examiners to have access to personal data too, for verification purposes. The coded audio-recordings, and transcripts will be stored on the researcher's personal computer that is password protected and in an encrypted format. Any material in hard-copy form will be placed in a locked cupboard. Following completion of the study, personal data from phase 2, will be destroyed while the coded data will be retained in anonymous form (because once the participants' personal data are destroyed, there cannot be a link between the participants and the data that they provided).

Participation in this study is completely voluntary and you are free to accept or refuse to take part without giving a reason. There will be no personal benefits associated with participation in this study. A copy of the information sheet and consent form will be provided for future reference. As a participant, you have the right, under the General Data Protection Regulation (GDPR) and national legislation that implements and further specifies the relevant provisions of said regulation, to access, rectify and where applicable ask for the data concerning you to be erased.

Guiding questions

Background information

- Gender
- Age range
- Living status
- District
- Highest qualification

Gym Attendance patterns

1. What are the first things that come to mind when you listen to the word ‘gym’?
2. Have you ever been to a gym to carry out gym activities?
3. How do you think going to the gym would affect you?

Factors that motivate/ may motivate gym attendance

4. In your own views, is there anything that would/ might motivate you to start going?
5. In your opinion, do you feel that going to the gym would have an influence on how you feel physically? If so, how?
6. In your opinion, are there any psychological factors that would motivate you to attend a gym?
7. Can you describe if there is a link between social support and gym attendance for you?
8. What are the environmental factors, if any, that would affect your views regarding gym attendance in your opinion?

Factors that discourage/ may discourage gym attendance

9. What are the barriers, if any, that hinder you from attending a gym?
10. In your opinion, are there any physical factors that limit your attendance?
11. What are your thoughts on the psychological factors with regards to limitation of gym attendance?
12. How do you feel about social factors and their effect in limiting gym attendance?
13. How do environmental factors, if any, discourage your gym attendance?

Senior gyms

14. Had there been a senior gym, that is exclusively dedicated to persons over 65 years, would it encourage your attendance?
15. - *If yes:* Can you describe in more detail why it would encourage you?
- *If no:* Can you describe in more detail why it would not encourage you?
16. In your opinion, do you think it would be a good investment locally and why?
17. Do you have any suggestions as to what features would need to be taken into consideration when planning a senior gym, that would possibly encourage your attendance?

Closing

Thank you for participating. We really appreciate your time. Should you require further information or have any questions, please do not hesitate to contact me directly on +356 , or via email on: _____, or contact my supervisor Dr. John Xerri de Caro on +356 _____, or via email on:

Appendix D6: Interview guide – current of previous attendance (Maltese version)

Gwida għall-intervista semi-strutturata

Introduzzjoni

Jiena Wayne Cutajar, fil-preżent qed insewgi l-kors M.Sc. fil-Fiżjoterapija, fl-Università ta' Malta. Qed nagħmel riċerka bit-titlu, 'Barriers and motivators to gym attendance by older persons' biex jiġu identifikati fatturi li jinfluwenzaw l-attendenza tal-anzjani 'l fuq minn 65 sena fil-gyms. L-oġġettivi ta' dan l-istudju huma biex: jiġu identifikati l-motivaturi u l-ostakli lejn l-attendenza fil-gyms fl-anzjani li jgħixu fil-komunità; jiġi investigat kif dawk japplikaw għal nies b'informazzjoni ġenerali differenti, kif ukoll tiġi esplorata l-probabbiltà li persuni anzjani fil-komunità jużaw il-gyms.

Bħalma diġà taf, minhabba li inti pparteċipajt fl-ewwel fażi tal-istudju, din kienet tikkonsisti minn sħarriġ. F'din it-tieni parti ta' dan l-istudju esplorattiv, se jsiru intervisti biex nifhmu l-fatturi li jinfluwenzaw l-attendenza fil-gyms f'iktar dettall. L-intervista se tieħu madwar 20 minuta. M'intix obligat/a li twieġeb il-mistoqsijiet kollha u tista' twaqqaf l-istudju fi xhin trid mingħajr ma tagħti l-ebda raġuni. Dan mhux ħa jkollu riperkussjonijiet negattivi fuqek u l-informazzjoni li tingabar mingħandek tithassar. Sakemm m'għandek l-ebda oġġezzjoni, ir-risposti tiegħek se jiġu rrekordjati bl-awdjo. Nassigurak li se tinżamm il-kunfidenzjalità matul l-istudju kollu u l-identità tiegħek u kull informazzjoni personali miġbura mhuma se jiġu żvelati mkien fit-teżi, ir-rapporti, il-preżentazzjonijiet u/jew il-pubblikazzjonijiet li jistgħu jirriżultaw minnha. Kull tagħrif miġbur se jiġi psewdonomizzat, jiġifieri id-data kollha se tkun protetta permezz ta' sistema ta' kodiċi u miżmuma separatament mill-informazzjoni personali. Ir-riċerkatur biss ser ikollu aċċess għall-informazzjoni miġbura, filwaqt li s-superviżur akkademiku u l-eżaminaturi se jkollhom biss aċċess għal data kkodifikata. Is-superviżur akkademiku u l-eżaminaturi jista' jkollhom bżonn aċċess għall-informazzjoni miġbura għal skop ta' verifika. L-awdjo rrekordjat u d-data kollha se jinħażnu fuq il-kompjuter personali tar-Riċerkatur permezz ta' kodifikazzjoni tad-data (data encryption) u li hi protetta b'password. Barra minn hekk, il-materjal stampat se jinqafel f'post sigur. Wara li jitlesta l-istudju, data personali minn fażi 2 se tiġi meqruda, filwaqt li data kkodifikata se tinħażen f'forma anonima (għax meta d-data personali tiegħek tiġi meqruda, ma jkunx hemm konnessjoni bejnek u d-data li tkun provdejt).

Il-parteċipazzjoni tiegħek f'dan l-istudju hija għażla għal kollox volontarja u inti ħieles/ħielsa li taċċetta jew tirrifjuta li tieħu sehem mingħajr ma jkun hemm konsegwenzi fil-konfront tiegħek. Mhux ser ikun hemm benefiċċji personali assoċjati mal-parteċipazzjoni f'dan l-

istudju. Se tinghata kopja tal-ittra ta' informazzjoni u tal-formula ta' kunsens sabiex tkun tista' taċċessahom fil-futur. Barra minn hekk, skont ir-Regolamenti Ġenerali dwar il-Protezzjoni tad-Data (GDPR) u l-leġiżlazzjoni nazzjonali li timplimenta u tispeċifika aktar il-provvedimenti rilevanti tar-regolamenti msemmija, inti għandek id-dritt li taċċessa, tirretifika, u fejn japplika titlob sabiex titħassar id-data li tikkonċerna lilek.

Mistoqsijiet ta' gwida

Informazzjoni ġenerali

- Ġeneru
- Firxa ta' età
- Mod ta' għajxien
- Distrett
- L-ogħla kwalifika

Informazzjoni dwar l-attenzenza fil-gyms

1. X'inhuma l-ewwel affarijiet li jiguk f' moħħok meta tisma l-kelma 'gym'?
2. Ġieli kont go gym biex tagħmel attivitajiet tal-gym?
3. Tattendi preżentament jew ġieli attendejt?
4. Tista' tiddeskrivi iktar dwar l-intensità, tul ta' ħin, u jekk għandek/ kien ikollok lil xi hadd biex jgħinek?
5. Il-pandemija COVID-19 ħalliet impatt fuq il-fehmiet tiegħek rigward l-attenzenza fil-gym? Jekk iva, kif?
6. Kien hemm xi raġunijiet oħra għaliex waqft/ naqqast mill-frekwenza?
7. Kif jaffettwak il-gym?

Fatturi li jimmotivaw/ jistgħu jimmotivaw l-attenzenza fil-gym

8. Fl-opinjoni tiegħek, x'jimmotivak biex tkompli tmur il-gym?
9. Fl-opinjoni tiegħek, tħoss li l-fatt li tmur/ kont tmur il-gym għandu influwenza fuq kif tħossok fiżikament? Jekk iva, kif?
10. Fl-opinjoni tiegħek, hemm xi fatturi psikoloġiċi li jimmotivawk jimmotivawk biex tattendi gym?

11. Tista' tiddeskrivi jekk thossx li hemm xi konnessjoni bejn l-appoġġ soċjali u l-attendenza fil-gym għalik?
12. X'inhuma l-fatturi ambjentali, jekk hemm, li jaffettwaw il-fehmiet tiegħek fil-konfront tal-attendenza fil-gyms?

Fatturi li jiskoraġġixxu/ jistgħu jiskoraġġixxu l-attendenza fil-gym

13. Fl-opinjoni tiegħek, x'inhuma l-ostakli, jekk hemm, li jxekkluq milli tattendi gym kemm tixtieq?
14. Fl-opinjoni tiegħek, hemm xi fatturi fiżiċi li jillimitawk milli tattendi?
15. X'inhuma l-ħsibijiet tiegħek fuq il-fatturi psikoloġiċi fir-rigward ta' limitazzjoni fl-attendenza fil-gyms?
16. Kif thossok dwar il-fatturi soċjali u l-effetti tagħhom fil-limitazzjoni tal-attendenza fil-gyms?
17. Jekk hemm, kif jiskoraġġixxu l-attendenza tiegħek il-fatturi ambjentali?

Gyms għall-anzjani

18. Kieku kellu jkun hemm gym li jkun esklussivament dedikat għal anzjani '1 fuq minn 65 sena, jinkoraġġik tattendi?
19. - *Jekk iva:* Tista' tiddeskrivi f' iktar dettall għaliex jinkoraġġik?
- *Jekk le:* Tista' tiddeskrivi f' iktar dettall għaliex ma jinkoraġġikx?

20. Fl-opinjoni tiegħek, taħseb li jkun investiment tajjeb lokalment, u għaliex?
21. Għandek xi suggerimenti dwar kieku xi jkunu l-fatturi li jridu jiġu meqjusa meta jkun qed jiġi pjanat gym għall-anzjani, li possibilment jinkoraġġixxi l-attendenza tiegħek?

Gheluq

Grazzi ħafna tal-ħin u s-sehem tiegħek f'dan l-istudju. F'każ li jkollok xi mistoqsijiet jew tixtieq tiċċara xi ħaġa, tista' ċċempilli fuq: jew tibgħatli email fuq: .

Tista' wkoll tikkuntattja lis-Supervizur Dr. John Xerri de Caro fuq: jew billi tibgħat email fuq:

Appendix D7: Interview guide – never attended (Maltese version)

Gwida għall-intervista semi-strutturata

Introduzzjoni

Jiena Wayne Cutajar, fil-preżent qed insewgi l-kors M.Sc. fil-Fiżjoterapija, fl-Università ta' Malta. Qed nagħmel riċerka bit-titlu, 'Barriers and motivators to gym attendance by older persons' biex jiġu identifikati fatturi li jinfluwenzaw l-attendenza tal-anzjani 'l fuq minn 65 sena fil-gyms. L-oġġettivi ta' dan l-istudju huma biex: jiġu identifikati l-motivaturi u l-ostakli lejn l-attendenza fil-gyms fl-anzjani li jgħixu fil-komunità; jiġi investigat kif dawk japplikaw għal nies b'informazzjoni ġenerali differenti, kif ukoll tiġi esplorata l-probabbiltà li persuni anzjani fil-komunità jużaw il-gyms.

Bħalma diġà taf, minhabba li inti pparteċipajt fl-ewwel fażi tal-istudju, din kienet tikkonsisti minn sħarriġ. F'din it-tieni parti ta' dan l-istudju esplorattiv, se jsiru intervisti biex nifhmu l-fatturi li jinfluwenzaw l-attendenza fil-gyms f'iktar dettall. L-intervista se tieħu madwar 20 minuta. M'intix obligat/a li twieġeb il-mistoqsijiet kollha u tista' twaqqaf l-istudju fi xħin trid mingħajr ma tagħti l-ebda raġuni. Dan mhux ħa jkollu riperkussjonijiet negattivi fuqek u l-informazzjoni li tingabar mingħandek tithassar. Sakemm m'għandek l-ebda oġġezzjoni, ir-risposti tiegħek se jiġu rrekordjati bl-awdjo. Nassigurak li se tinżamm il-kunfidenzjalità matul l-istudju kollu u l-identità tiegħek u kull informazzjoni personali miġbura mhuma se jiġu żvelati mkien fit-teżi, ir-rapporti, il-preżentazzjonijiet u/jew il-pubblikazzjonijiet li jistgħu jirriżultaw minnha. Kull tagħrif miġbur se jiġi psewdonomizzat, jiġifieri id-data kollha se tkun protetta permezz ta' sistema ta' kodiċi u miżmuma separatament mill-informazzjoni personali. Ir-riċerkatur biss ser ikollu aċċess għall-informazzjoni miġbura, filwaqt li s-superviżur akkademiku u l-eżaminaturi se jkollhom biss aċċess għal data kkodifikata. Is-superviżur akkademiku u l-eżaminaturi jista' jkollhom bżonn aċċess għall-informazzjoni miġbura għal skop ta' verifika. L-awdjo rrekordjat u d-data kollha se jinħażnu fuq il-kompjuter personali tar-Riċerkatur permezz ta' kodifikazzjoni tad-data (data encryption) u li hi protetta b'password. Barra minn hekk, il-materjal stampat se jinqafel f'post sigur. Wara li jitlesta l-istudju, data personali minn fażi 2 se tiġi meqruda, filwaqt li data kkodifikata se tinħażen f'forma anonima (għax meta d-data personali tiegħek tiġi meqruda, ma jkunx hemm konnessjoni bejnek u d-data li tkun provdejt).

Il-parteċipazzjoni tiegħek f'dan l-istudju hija għażla għal kollox volontarja u inti ħieles/ħielsa li taċċetta jew tirrifjuta li tieħu sehem mingħajr ma jkun hemm konsegwenzi fil-konfront tiegħek. Mhux ser ikun hemm benefiċċji personali assoċjati mal-parteċipazzjoni f'dan l-

istudju. Se tinghata kopja tal-ittra ta' informazzjoni u tal-formula ta' kunsens sabiex tkun tista' taċċessahom fil-futur. Barra minn hekk, skont ir-Regolamenti Ġenerali dwar il-Protezzjoni tad-Data (GDPR) u l-leġiżlazzjoni nazzjonali li timplimenta u tispeċifika aktar il-provvedimenti rilevanti tar-regolamenti msemmija, inti għandek id-dritt li taċċessa, tirretifika, u fejn japplika titlob sabiex titfassar id-data li tikkonċerna lilek.

Mistoqsijiet ta' gwida

Informazzjoni ġenerali

- Ġeneru
- Firxa ta' età
- Mod ta' għajxien
- Distrett
- L-ogħla kwalifika

Informazzjoni dwar l-attenzenza fil-gyms

1. X'inhuma l-ewwel affarijiet li jiguk f' moħħok meta tisma l-kelma 'gym'?
2. Ġieli kont go gym biex tagħmel attivitajiet tal-gym?
3. Kif taħseb li l-attenzenza fil-gym tista' taffettwak?

Fatturi li jimmotivaw/ jistgħu jimmotivaw l-attenzenza fil-gym

4. Fl-opinjoni tiegħek, hemm xi haġa li tista' timmotivak biex tibda tmur?
5. Fl-opinjoni tiegħek, thoss li l-fatt li kieku tmur il-gym jista' jkollu influwenza fuq kif thossok fiżikament? Jekk iva, kif?
6. Fl-opinjoni tiegħek, hemm xi fatturi psikoloġiċi li jistgħu jimmotivawk biex tattendi gym?
7. Tista' tiddekrivi jekk thossx li hemm xi konnessjoni bejn l-appoġġ soċjali u l-attenzenza fil-gym għalik?
8. X'inhuma l-fatturi ambjentali, jekk hemm, li jistgħu jaffettwaw il-fehmiet tiegħek fil-konfront tal-attenzenza fil-gyms?

Fatturi li jiskoraġġixxu/ jistgħu jiskoraġġixxu l-attenzenza fil-gym

9. Fl-opinjoni tiegħek, x'inhuma l-ostakli, li jxekkkluk milli tattendi gym?

10. Fl-opinjoni tiegħek, hemm xi fatturi fiżiċi li jillimitaww milli tattendi?
11. X'inhuma l-ħsibijiet tiegħek fuq il-fatturi psikoloġiċi fir-rigward ta' limitazzjoni fl-attendenza fil-gyms?
12. Kif thossok dwar il-fatturi soċjali u l-effetti tagħhom fil-limitazzjoni tal-attendenza fil-gyms?
13. Jekk hemm, kif jiskoraġġixxu l-attendenza tiegħek il-fatturi ambjentali?

Gyms għall-anzjani

14. Kieku kellu jkun hemm gym li jkun esklussivament dedikat għal anzjani 'l fuq minn 65 sena, jinkoraġġik tattendi?

15. - *Jekk iva*: Tista' tiddeskrivi f'iktar dettall għaliex jinkoraġġik?

- *Jekk le*: Tista' tiddeskrivi f'iktar dettall għaliex ma jinkoraġġikx?

16. Fl-opinjoni tiegħek, taħseb li jkun investiment tajjeb lokalment, u għaliex?

17. Għandek xi suggerimenti dwar kieku xi jkunu l-fatturi li jridu jiġu meqjusa meta jkun qed jiġi pjanat gym għall-anzjani, li possibilment jinkoraġġixxi l-attendenza tiegħek?

Gheluq

Grazzi ħafna tal-ħin u s-sehem tiegħek f'dan l-istudju. F'każ li jkollok xi mistoqsijiet jew tixtieq tiċċara xi ħaġa, tista' ċċempilli fuq: jew tibgħatli email fuq: .

Tista' wkoll tikkuntattja lis-Supervizur Dr. John Xerri de Caro fuq: jew billi tibgħat email fuq: