A systematic review of barriers and motivators to physical activity in aged adults in Iran and worldwide

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Running head: Physical Activity in aged adults

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Abstract

Objective: To identify and characterize the barriers and motivations of the physical activity for elderly in Iran and other countries.

Methods: We searched six databases (PubMed, Embase, Scopus, Web of science, Magiran, Scientific Information Database) from 2000 to end of November 2017, for aged 60 and over and physical activity or exercise and motivator and barrier keywords. Two reviewers performed the search, screen and quality assessment of the studies, independently.

Results: Finally, 34 papers were included in the study. The most important barriers, based on frequency of factors, include physical problems, having no companions, physical barriers to walking and the motivators include improving the physical condition, being social, and suitability of the physical environment.

Conclusions: The important motivators and barriers to physical activity are more related to the intrapersonal than interpersonal and environmental domains. According to the barriers and motivators for physical activity in the elderly, there was not much difference between Iran and other countries. Therefore, a general strategy could be designed to improve the physical activity of the elderly.

Keywords: Motivator, Barriers, Physical Activity, Aging
**Introduction**

In the one hand, physical activity helps to elderly people to improve strength and flexibility; however, the effective type of activity is still unclear [1]. On the other hand, these groups, due to healthy problems and insufficiency of facilities, more likely to face barriers to access than others [2].

Remarkably, for adults aged 60 and over, different items reported such as social support, health benefits, and enjoyment as important motivations and beside them, the main barriers were insufficient guidance and lack of role models [3]. Noticeably, for people aged over 80 years, the most important motivators and barriers included health benefits of Physical Activity, different types of fears, individual preferences and social support [4].

In general, due to the increasing percentage of older population in developing (low and middle-income) countries and the burden of health care and treatment costs, reduce prevalence of physical inactivity intended as an important goal [5]. In addition, physical activity behavior is developed by complex and dynamic interrelations between individual, social, and environmental factors and the usefulness of using multidimensional models in studying such behaviors [6, 7], the socio-ecological model of McLeroy et al [8] was used to study the barriers and motivations of physical activity in the elderly. The aim of this study was systematically review the motivators and barriers to physical activity in people aged 60 years and older in Iran and other countries.
Methods:

1-1 Search strategy:

To collect the data, a comprehensive search was performed of several electronic databases (PubMed (MESH terms), Web of Science, Scopus, Embase, SID, Magiran) to identify all potentially relevant publications in Persian and English languages from 2000 to November 2017. The following keywords were used: “aged (or age 60 and over)”, “physical activity (or exercise)”, “motivator and barrier” (appendix-1). The detailed search strategy interpretation using PubMed was as follows: (elderly OR Aged OR "60 over aged") AND ("Physical activity" OR Exercise OR "physical Exercise" OR "Motor activity") AND (Motivation OR Motivat* OR Barrier*))]. The inclusion criteria were (1) articles published in Persian and English language; (2) an original research has examined the barriers and motivators of physical activity in elderlies; (3) studies that examined the lack of physical and mental illness of the elderlies (the age of 60 and over); and (4) those conducted from 2000 to 2017. Furthermore, the exclusion criteria were articles include letter to the editor, case report, intervention studies, review, meta-analysis, seminars, and conferences. Moreover, articles with no specific definition for age, conducted before 2000 but were accepted in 2000 or later, the elderly kept in nursing homes and have very low-quality score, were excluded. In addition, backward search (checking bibliographic mining of identified papers for any additional studies) was conducted to identify any studies that not available in main search strategy. All quantitative and qualitative designs
will be included. Totally, 1981 articles were retrieved, of which a total of 34 articles remained after the review process shown in Figure 1. Finally, two authors carefully examined 34 full-text.

In this study, two types of studies have been investigated:

1- Quantitative studies (5 Iranian and 15 other countries).

2- Qualitative studies (1 Iranian and 13 other countries).

There are 6 studies in Persian and 28 studies in English.

**1-2 Evaluating the Quality of Articles**

The quality of qualitative studies were assessed using the qualitative methodological checklist of the National Institute of Clinical Nursing (NICE) [9]. In general, based on NICE, ++ means that All or most of the checklist criteria have been fulfilled, + means that some of the checklist criteria have been fulfilled, and – means that few or no checklist criteria have been fulfilled. The quantitative studies were assessed using Newcastle - Ottawa quality assessment scale (NOS) adapted for cross-sectional studies [10]. The NOS is based on three domains including the selection of study groups, comparability of groups and description of exposure and outcome. This scale including eight items and star scores assesses the quality of each study in each domain. All items except comparability domain have one star (maximum score based on stars for
comparability domain is two). Totally, earned stars calculated as total quality score for each study. Based on these criteria, study quality was rated on a scale from one star, very poor, to 10 stars, high quality. Studies are rated as of high (8–10), medium (6–7) or low quality (< 6). Two review authors (SY and HMS) completed quality assessment independently. In cases of disagreement or items that remained unclear, a third review author (AR or MG) was consulted.

1-3 Data Extraction

We used a structured form to extract the data. The extracted data included study and participant’s characteristics (e.g. gender, location, country, population, age, type of instrument, type of study, year of study), as well as motivators and barriers to physical activity. Two authors (SY and HMS), who conducted the study selection independently perform the data extraction. All disagreements were discussed with third review author (AR or MG) if necessary. The data were classified based on the socio-classical model as a theoretical framework (i.e. interpersonal and intrapersonal factors, organizational and social factors, environmental factors) that McLarry et al. developed in 1988 (Figure 2) [8]. Prioritize the factors were identified based on the frequency of participant responses.

2- Results:
2-1 Quality of qualitative and quantitative studies

Fortunately, based on the National Institute for Health and Clinical Excellence (NICE) checklist for qualitative studies, almost all qualitative studies had followed the items in this checklist. Among the 14 qualitative articles, 2 of them had high quality, and 12 articles had good quality, and 5 poor quality as indicated in Table 1. Furthermore, for quantitative studies based on NOS scale, 18 articles had a moderate to high quality and 2 had moderate quality.

2-2 Description of reviewed Studies:

The articles were published between 2000 and the last of 2017, and the sample sizes ranged from 9, for qualitative studies to 4227 participants, for quantitative studies. The samples consisted of both male and female subjects in 30 of the 34 studies, exclusively of female subjects in 4 and male 1. The type of physical activity is more walking and then swimming and fitness, and not available for 17 studies.

In Tables 2 to 5, the characteristics of studies is presented.
2.3 Motivators and Barriers to the Physical Activity of elderlies

Considering the McLeury Model, we examined the motivators and barriers for physical activity of the elderlies at intrapersonal, interpersonal and environmental levels as follows. (Tables 2 to 5) According to the study population, people aged 60 years and older, the items were included in only 3 groups of McLeury Model. For quantitative studies, only significant variables were evaluated and due to heterogeneity between studies and input variables the meta-analysis of results was not applicable. In the following, the most important factors in any dimension of model, based on the frequency of participant responses, were presented.

2.3.1 Intrapersonal Factors

According to the literature review, 23 barriers and 16 motivators were identified as intrapersonal factors. In several articles, “Physical Problems”, such as difficulty in walking, physical health problems, physical weakness, respiratory problems, and energy shortages, mentioned as key barriers [13-15, 19, 27, 31-36, 38-41, 43-45].

Notably, the second barriers of the intrapersonal factors were “time limit” [16, 17, 19, 27, 28, 35, 36, 39, 42-44]. The third intrapersonal barriers were “fear of falling” [14, 17, 19, 23, 27, 31, 35, 40, 43, 45].

Additionally, the first intrapersonal motivator, which resulted in physical activity, was “improving the physical condition”, including improving balance, improving walking
ability, reducing muscles pain, improving sleep, and strengthening the muscles [18, 24, 34, 41, 44].

Enjoyment [12, 24, 40, 44], understanding psychological issues which involved relief from stress, feeling efficiency, having positive perceptions of physical activity, having positive self-image, being less depressed, and enhancing sleep [14, 16, 33, 41], having motivation and fancy [15, 30, 34, 38] was the second intrapersonal motivator [12, 24, 28, 40, 44, 45]. The third intrapersonal motivators were knowledge shortage [17, 30], health concerns [17, 37] and being economical [24, 34].

2-3-2 Interpersonal Factors

In the interpersonal domain, 6 barriers and 7 motivations were identified (Table 6). The first interpersonal barriers to physical activity were “having no companion” [36, 42]. “Family responsibility” (taking care of grandchildren, children, and sick people at home) was the second interpersonal barrier to physical activity [34].

The first interpersonal motivator was “being social”, which included communication with friends, peer support, communication with others, exercise with friends, social coherence, moderate and high local dependency, abundance of people for walking, and support by others [11, 16, 18, 23, 24, 26, 28, 30, 36, 40]. “Supervision of health professionals” was the second interpersonal motivator [18, 28, 29, 46]. In addition, two articles identified the “Specialist health care” [18, 28, 29] as motivator for physical activity. Another
important interpersonal motivator for physical activity was “availability of sports facilities” [15, 24].

2-3-3 Factors at the Environment Level:

In general, 7 barriers and 6 motivators were identified at the community level. The first barrier was “physical barriers to walking”. Another included of safety, parked motorcycles next to the street, potted plants, rubber tiles in playgrounds, food retailers, paved streets, broken sidewalks, scaffolds, snow accumulation along the street in winter, devoting seats in parks to children, the lack of facilities such as a bench for rest, poor location, unsafe roads, stray dogs, and hills [22, 23, 26, 27, 31, 43, 44]. The second barrier was “temperature, season, and weather” [16, 25, 27, 34, 35]. Obviously, intense physical activity in the elderly was observed in the spring (40.1%), sunny weather (76.8%) and moderate temperature (56.2%) [25]. The third barrier was the lack of facilities for exercise [16, 21, 34, 36].

The first environmental motivator was “the suitability of the physical environment”. This factor included pleasant landscapes, streetlights, sidewalks, bike riding routes, walking paths, neighborhood’s suitability for walking, interconnections between streets and an attractive environment, environment free from any non-cultural social activity (smoking, alcohol, gambling), green space, attractive architecture, resting benches, a place for dog
parks, a smooth surface for hiking, and food availability in urban centers [11, 23, 26, 34, 36]. “Environmental security” was the second environmental motivator [26, 30].

Discussion:

In the present study, the information of physical activity in elderlies was reviewed from 2000 to 2017. We aimed to identify the motivators and barriers of individuals aged over 60 for the Iran and worldwide; however, some studies did not specify age under or over 60 years as two different groups, so they were excluded, but the studies that determined age differentiation were not excluded [2, 36]. In general, the ecological model is a comprehensive multilevel framework, which includes contributors to an active behavior at all levels: individual (interpersonal and intrapersonal), social, environmental and policy [47].

A systematic review by Veerle Baert et al. on the adults aged over 79 confirmed that the quantitative research has more focus on interpersonal and community levels, while, the qualitative research has more focus on interpersonal level [4]. We found that the barriers and motivators at the organizational level need more research, while Veerle Baert et al. showed that the community-based barriers and motivators need more research because the policymakers potentially influence on them [4].

Intrapersonal Factors
The “health status” was highlighted in most articles both as a barrier (18 times) and as a motivator (5 times) for physical activity. In the literature review, 23 articles reported “poor health” as a barrier (aged 60 and over). Moreover, the beneficial effects of physical activity on the health status (such as improving balance, improving walking ability, reducing muscle pain, improving sleep, and strengthening) are well established. In addition, Veerle Baert et al. reported health status as a barrier and motivator [4]. On the other hand, health improvement reported as an important motivator, and highlighted that the health benefits can be a major factor for promoting physical activity [17]. In this review, compared to other countries, the most of articles were performed in Iran and United States of America. According to the proportion of young population and current barriers, they needs to more attention for that. For example, Since Iran is a country which has a young population, this is expected to highest proportion of elderly in the next 50 years and will face similar challenges to Europe and the United States between 2040 and 2050 [48].

Apparently, “fear” is a special barrier. Fear is a complex factor, which can occur in different situations (e.g. fear of walking at night in order to exercise outside the house). It can be related to the health status such as fear of injury or pain, fear of falling, and fear of being dependent on others. Lim et al. reported that fear of falling was associated with inadequate level of physical activity [49]. Moreover, fear of falling was considered as a barrier to physical activity in different races, including African Americans, Whites, and
Indians. Especially, American Indians were worried about falling when there was nobody
to help them [50]. Furthermore, tension and fear of injury were mentioned as a
barrier [19]. Health care providers should recognize the type of the fear, and consider it
as an important barrier and appropriately deal with, if necessary.

In our study, the “time limit” or “lack of time” has determined as a barrier. This barrier
also described other studies [4]. In the focus group study, the lack of time among people
aged over 65 determined as a barrier to physical activity [19]. In general, in many
countries and cultures, taking care of children and the home as a responsibility, take a
long time of them in a day, and consequently have negative effects on health
behavior [51].

“Enjoying from physical activity” was reported as a motivator that confirmed in another
studies. These factors increase the pleasure during the physical activity that depends on
the individual preferences (doing physical exercise in the group or enjoying landscapes).
Fortunately, the health providers can provide support and guidance in this respect [4].

**Interpersonal Factors**

Aligned with another age groups, “being social”, was identified as a motivator. In general,
social support was also reported as a motivational factor. However, elderlies need more
social support than younger adults [4]. Unfortunately, elderly people are often single,
which leading to being socially isolated [24]. Supervision of health professionals has an
important impact on the physical activity in elderlies, which can encourage elderly people to participate in the group exercises. It has been suggested that regarding the information and awareness about physical activity by health care providers, provoke the self-confidence of elderlies to beginning the exercise [18].

Environmental factors

Dramatically, “lack of sports facilities” was considered as barrier. In this case, the amusement parks, sidewalks, parks, or other fitness facilities could motivate participation in exercise such as walking. Governments play an important role in providing subsidies and funds to providing the health facilities (such as health centers and walking paths) [2]. This confirms that the lack of adequate facilities in organizational settings led to a decrease in the enthusiasm to physical activity [52]. Likewise, in Iran, confirmed that the presence of exercise facilities, parks and walking or cycling routes lead to more motivation the elderlies to engage in physical activities [16].

Some studies have shown that a resting place, such as benches along the routes, may facilitate walking for elderlies. In this regard, for elderlies, easy access to safe, beautiful, and interesting places for walking is very important. For these reasons, they preferred places that have a place for them to rest [25].

The “weather, season and temperature” were the potential barriers. Naderi et al., in Iran, reported that participants have considered “inappropriate environment” as a barrier [16].
In addition, other studies show the relation between natural changes (season, weather, and temperature) and the intensity of physical activity [25]. In general, intense physical activity was observed in the spring (40.1%), sunny weather (76.8%) and moderate temperature (56.2%). The walking rate of the elderlies was higher in the sunny weather than rainy; as well, the walking rate was higher at temperatures below 60ºF rather than to high temperatures (81ºF). Schmidt et al. reported “unpleasant weather” such as cold, snowy, and extreme heat as barriers [53]. In addition, this confirmed that the weather was a potential barrier for oldest old people [4].

It is worth to mention that we retrieved some similar barriers and motivators. Moreover, for some reviewed studies, there was a link between the benefits of prayer and sport. In Muslim daily prayers, the energy cost was about 80 calories per day and could be considered a form of physical activity [12, 54].

There are two important implications of these findings. First, need to consider the most important factors with regard to gender. Second, need to consider the geographical area and facility accessibility. However, the types of program for intervention (community or individual based) is a most important factor to encourage the elderly groups.

This systematic review has some limitations as follows: first, there is no information about the differences between males and females. Therefore, further research is needed to find out the difference if exist. Second, possible different for definition of exercise and physical activity among participants and authors. Third, most studies were conducted in
developed countries. Therefore, it may be result in specific results and decreased the
generalizability. **As final limitation, for the reason that of inconsistency and heterogeneity in the data gathering and analysis methods used in quantitative articles, it was not feasible to conduct a meta-analysis.**

**Conclusion:**

This study conducted a comprehensive research on the barriers and motivators of physical activity in the elderly group. According to the results, the most of barriers involved in intrapersonal and interpersonal domains. According to the population composition of these countries, especially for Iran, intervention in this field is essential. In addition, elderly may have different perceptions of barriers and motivators that need to be considered.

**References:**


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46. Dye CJ, Wilcox S. Beliefs of low-income and rural older women regarding physical activity: You have to want to make your life better. Women & Health 2006;43:115-134.


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**Figure legend**

Figure 1: Reviewing the Literature and Retrieval Process

Figure 2. Levels of Impact in the Socio-Ecological Model. (Adapted from McLeroy et al. (1988))
Table 1: Quality Assessment of Qualitative Articles

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<th>Reference</th>
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<td>Amir nadri et al (2016) [16]</td>
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<td>Gudrun Catathrine Lindgren DE root et al. [18]</td>
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<td>Tracy Chippendale et al. [23]</td>
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Appropriate / clear / defendable / persuasive / rich / yes: +, inappropriate / not defendable / not clear / not persuasive / not poor: -, I’m not sure / combined / reported: ?, 1-2: Whether the qualitative approach is appropriate? 1-2: Whether it is clear what study is doing? 2-1: How defendable is the research design / research methodology 3-1: How have data been collected? 4-1: Whether the text has been clearly explained? 4-2: Whether these methods were reliable? 5-1: Whether the data are rich? 5-2: Whether the analysis is reliable? 5-3: Whether the findings are persuasive? 5-4: Whether the conclusion is sufficient? 6-1: Whether the study was approved by an ethics committee? 6-2: Whether the role of the researcher was clearly explained.
Table 2: The description of cross-sectional eligible studies reporting

<table>
<thead>
<tr>
<th>Row</th>
<th>Reference</th>
<th>Type of study</th>
<th>Publication date of the articles</th>
<th>Place of research</th>
<th>Size of samples based on female / male separation</th>
<th>age</th>
<th>Race</th>
<th>Location</th>
<th>Type of instrument</th>
<th>Type of physical activity</th>
<th>Socio-Ecological Model</th>
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<td>1</td>
<td>Anna Elizabeth Price et al. [25]</td>
<td>Cross-sectional</td>
<td>2012</td>
<td>Spartanburg South Carolina</td>
<td>488 women 565 men</td>
<td>over 60</td>
<td>often white</td>
<td>not stated</td>
<td>observe</td>
<td>walking</td>
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<td>2</td>
<td>Veerle Van Holle et al. [26]</td>
<td>Cross-sectional</td>
<td>2015</td>
<td>Belgium</td>
<td>433-54% women</td>
<td>over 65</td>
<td>not stated</td>
<td>residental house</td>
<td>questionnaire</td>
<td>walking</td>
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<td>3</td>
<td>Johanna Eronen et al. [27]</td>
<td>Cross-sectional</td>
<td>2012</td>
<td>Finland</td>
<td>848 53% women</td>
<td>75-90</td>
<td>not stated</td>
<td>residental house</td>
<td>questionnaire</td>
<td>Walking, gardening</td>
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<td>4</td>
<td>Asmita Patel, et al. [28]</td>
<td>Cross-sectional</td>
<td>2013</td>
<td>Auckland New Zealand</td>
<td>32 men 48 women</td>
<td>65-75</td>
<td>not stated</td>
<td>residental house</td>
<td>questionnaire</td>
<td>not stated</td>
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<td>Jiska Cohen-Mansfield et al. [29]</td>
<td>Cross-sectional</td>
<td>2004</td>
<td>not stated</td>
<td>324 58% of women</td>
<td>74-85</td>
<td>not stated</td>
<td>residental house</td>
<td>questionnaire and telephone interview</td>
<td>Walking and excersising in class</td>
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<td>6</td>
<td>Xiangren Yi et al. [30]</td>
<td>Cross-sectional</td>
<td>2016</td>
<td>Shandong China</td>
<td>580 men 1000 women</td>
<td>60-85</td>
<td>not stated</td>
<td>local communuty</td>
<td>questionnaire</td>
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<td>Merja Rantakokko et al. [31]</td>
<td>Cross-sectional</td>
<td>2010</td>
<td>Finland</td>
<td>1310 people 75% female</td>
<td>75-81</td>
<td>not stated</td>
<td>community</td>
<td>face to face interview</td>
<td>walking</td>
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<td>8</td>
<td>Rafal Rowinska et al. [32]</td>
<td>Cross-sectional</td>
<td>2017</td>
<td>Poland</td>
<td>1004 men 1649 women</td>
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<td>not stated</td>
<td>not stated</td>
<td>questionnaire</td>
<td>walking, biking, swimming</td>
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<th></th>
<th>Study Title</th>
<th>Study Type</th>
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<th>Location</th>
<th>Sample Size</th>
<th>Age Range</th>
<th>Ethnicity</th>
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<td>Stephen Bire et al. [33]</td>
<td>Cross-sectional</td>
<td>2009</td>
<td>Australia</td>
<td>197 women 136 men</td>
<td>over 60</td>
<td>Anglo, Croatian, Greek, Italian, Messi, Maltese, Vietnam</td>
<td>Residenti al house</td>
<td>Questionnaire</td>
<td>Gymnastics, aerobics, cycling, dancing, horticulture, walking</td>
</tr>
<tr>
<td>10</td>
<td>Rona Macniven et al. [34]</td>
<td>Cross-sectional</td>
<td>2014</td>
<td>South Wales</td>
<td>769 men 1053 women</td>
<td>65 and over</td>
<td>Not stated</td>
<td>Residenti al house</td>
<td>Interview</td>
<td>Walking, biking, swimming, dancing, gardening, yoga, fishing, golf, tennis</td>
</tr>
<tr>
<td>11</td>
<td>Stephen Bird et al. [35]</td>
<td>Cross-sectional</td>
<td>2009</td>
<td>West Melbourne Region</td>
<td>72 women</td>
<td>60-84</td>
<td>Italian Vietnamese Anglo-Celtic</td>
<td>Residenti al house</td>
<td>Questionnaire</td>
<td>Walking, tai chi, yoga, swimming, dancing, gardening, aerobics, house chorese</td>
</tr>
<tr>
<td>12</td>
<td>John Kowal et al. [36]</td>
<td>Cross-sectional</td>
<td>2007</td>
<td>North American</td>
<td>149 women 21 women over 60 years old</td>
<td>Over 60</td>
<td>Caucasian</td>
<td>Not stated</td>
<td>Questionnaire</td>
<td>Leisure activities, home activity</td>
</tr>
<tr>
<td>13</td>
<td>Rachel Newson S et al. [37]</td>
<td>Cross-sectional</td>
<td>2007</td>
<td>Australia</td>
<td>96 men 121 women</td>
<td>63-86</td>
<td>Not stated</td>
<td>Residenti al house</td>
<td>Questionnaire</td>
<td>Fitness</td>
</tr>
<tr>
<td>14</td>
<td>David Brian Gillette et al. [38]</td>
<td>Cross-sectional</td>
<td>2015</td>
<td>Washington</td>
<td>215 women 26 men</td>
<td>70</td>
<td>Caucasian</td>
<td>Residenti al house</td>
<td>Questionnaire</td>
<td>Not stated</td>
</tr>
<tr>
<td>15</td>
<td>Christina M et al. [39]</td>
<td>Cross-sectional</td>
<td>2016</td>
<td>United States Seattle and Baltimore</td>
<td>726 men and women 53% female</td>
<td>66 and over</td>
<td>Non-Spanish and white</td>
<td>Residenti al house</td>
<td>Online questionnaire and telephone interview</td>
<td>Walking, running</td>
</tr>
</tbody>
</table>

* Intra-personal, interpersonal, environmental or organizational dimension based on the theory.
Table 3: The description of Qualitative eligible studies reporting

<table>
<thead>
<tr>
<th>Row</th>
<th>Reference</th>
<th>Type of study</th>
<th>Publication date of the articles</th>
<th>Place of research</th>
<th>Size of samples based on female / male separation</th>
<th>Age</th>
<th>Race</th>
<th>Location</th>
<th>Type of instrument</th>
<th>Type of physical activity</th>
<th>Socio-Ecological Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Ellen Costello et al. [17]</td>
<td>Qualitative study</td>
<td>2011</td>
<td>America Montgomery, County, Maryland</td>
<td>31 women</td>
<td>60-94</td>
<td>not stated</td>
<td>residential house</td>
<td>focus group</td>
<td>Treadmills, standing bikes, swimming classes, walking in water, aerobic exercise</td>
<td>*</td>
</tr>
<tr>
<td>17</td>
<td>Gudrun Catathrine Lindgren DE root et al. [18]</td>
<td>Qualitative study</td>
<td>2011</td>
<td>Norway</td>
<td>5 men 5 women</td>
<td>71-91</td>
<td>not stated</td>
<td>residential house</td>
<td>semi-structured interview, focus group</td>
<td>walking</td>
<td>*</td>
</tr>
<tr>
<td>18</td>
<td>Anna-Karin Welmer et al. [13]</td>
<td>Qualitative study</td>
<td>2012</td>
<td>Sweden</td>
<td>6 men 14 women</td>
<td>80-91</td>
<td>not stated</td>
<td>residential house</td>
<td>focus group</td>
<td>walking</td>
<td>*</td>
</tr>
<tr>
<td>19</td>
<td>Seunghyan Yoo et al. [11]</td>
<td>Qualitative study</td>
<td>2017</td>
<td>Seoul</td>
<td>46 people 60% female and 39% male</td>
<td>95</td>
<td>not stated</td>
<td>residential house</td>
<td>face-to-face interview, semi-structured interview</td>
<td>walking</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Faith D. Lees et al. [19]</td>
<td>Qualitative study</td>
<td>2005</td>
<td>Rhode Island</td>
<td>57 men 9 women</td>
<td>over 65</td>
<td>not stated</td>
<td>not stated</td>
<td>focus group</td>
<td>Fast walking, swimming, aerobics, dancing, cycling, sports class</td>
<td>*</td>
</tr>
</tbody>
</table>

Continued
<table>
<thead>
<tr>
<th></th>
<th>Author(s) and Year</th>
<th>Study Type</th>
<th>Year</th>
<th>Location</th>
<th>Gender</th>
<th>Age</th>
<th>Setting</th>
<th>Data Collection Method</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Melanie D. Grossman et al. [20]</td>
<td>Qualitative study</td>
<td>2003</td>
<td>California</td>
<td>men 15, women 18</td>
<td>over 75</td>
<td>residential house</td>
<td>interview with open questions</td>
<td>not stated</td>
</tr>
<tr>
<td>22</td>
<td>B. A. J. Simmonds et al. [14]</td>
<td>Qualitative study</td>
<td>2016</td>
<td>Bristol Southwest England</td>
<td>women 29, men 7</td>
<td>65-88</td>
<td>residential house</td>
<td>semi-structured interview</td>
<td>walking</td>
</tr>
<tr>
<td>23</td>
<td>Hilary J et al. [15]</td>
<td>Qualitative study</td>
<td>2014</td>
<td>Cassette Tape Washington</td>
<td>men 24, women 28</td>
<td>66-80</td>
<td>residential house</td>
<td>group interview</td>
<td>not stated</td>
</tr>
<tr>
<td>24</td>
<td>M. Horne et al. [12]</td>
<td>Qualitative study</td>
<td>2012</td>
<td>South Asia</td>
<td>men 16, women 13</td>
<td>60-70</td>
<td>Indian, Pakistan</td>
<td>focus group, deep interview</td>
<td>walking</td>
</tr>
<tr>
<td>25</td>
<td>Sebastien F. M. Chastin et al. [21]</td>
<td>Qualitative study</td>
<td>2014</td>
<td>Glasgow</td>
<td>women 9</td>
<td>over 65</td>
<td>not stated</td>
<td>structured interview</td>
<td>not stated</td>
</tr>
<tr>
<td>26</td>
<td>Yen-Jong Chen et al. [22]</td>
<td>Qualitative study</td>
<td>2015</td>
<td>Devlin in the southern part of the city of Tainan in Taiwan</td>
<td>men 40, women 60</td>
<td>65-90</td>
<td>not stated</td>
<td>Observe, interview</td>
<td>walking</td>
</tr>
<tr>
<td>27</td>
<td>Tracy Chippendale et al. [23]</td>
<td>Qualitative study</td>
<td>2014</td>
<td>New York City</td>
<td>men and women 14</td>
<td>65 and over</td>
<td>Caucasian, Spanish, Black</td>
<td>questionnaire, semi-structured interview</td>
<td>not stated</td>
</tr>
<tr>
<td>28</td>
<td>Miller, Wendy et al. [24]</td>
<td>Qualitative study</td>
<td>2017</td>
<td>Central government in the Midwest</td>
<td>men 4, women 6</td>
<td>over 65</td>
<td>White</td>
<td>semi-structured interview</td>
<td>not stated</td>
</tr>
</tbody>
</table>
Table 4: The description of Qualitative Iranian eligible studies reporting

<table>
<thead>
<tr>
<th>Row</th>
<th>Reference</th>
<th>Type of study</th>
<th>Publication date of the articles</th>
<th>Place of research</th>
<th>Size of samples based on female / male separation</th>
<th>Place of research</th>
<th>Type of instrument</th>
<th>Type of physical activity</th>
<th>Type of physical activity</th>
<th>Type of physical activity</th>
<th>Socio-Ecological Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>Leili Salehi et al. [40]</td>
<td>Qualitative Study</td>
<td>2011</td>
<td>Iran Tehran)</td>
<td>102 men 298 women</td>
<td>men over 60 not stated</td>
<td>residential house</td>
<td>questionn aire, structured interview</td>
<td>not stated</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

[Socio-Ecological Model] = intrapersonal, inter-personal, environmental, organizational
Table 5: The description of cross-sectional Iranian eligible studies reporting

<table>
<thead>
<tr>
<th>Row</th>
<th>Reference</th>
<th>Type of study</th>
<th>Publication date of the articles</th>
<th>Place of research</th>
<th>Size of samples based on female / male separation</th>
<th>Age</th>
<th>Race</th>
<th>Location</th>
<th>Type of instrument</th>
<th>Type of physical activity</th>
<th>Socio-Ecological Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Nejati V et al. [41]</td>
<td>Cross-sectional</td>
<td>2010</td>
<td>Iran (Tehran)</td>
<td>73 men, 80 women</td>
<td>over 60</td>
<td>not stated</td>
<td>residential house</td>
<td>questionnaire</td>
<td>not stated</td>
<td>*</td>
</tr>
<tr>
<td>31</td>
<td>Khalili Z et al. [42]</td>
<td>Cross-sectional</td>
<td>2015</td>
<td>Iran (Kashan)</td>
<td>400 - they were not separated</td>
<td>60-90</td>
<td>not stated</td>
<td>residential house</td>
<td>questionnaire</td>
<td>not stated</td>
<td>* * *</td>
</tr>
<tr>
<td>32</td>
<td>Amir nadri et al. [16]</td>
<td>Cross-sectional</td>
<td>2016</td>
<td>Iran (Tehran)</td>
<td>17 men, 13 women</td>
<td>76-90</td>
<td>Not stated</td>
<td>residential house</td>
<td>Semi-structured deep interview</td>
<td>not stated</td>
<td>* * *</td>
</tr>
<tr>
<td>33</td>
<td>Ramin Shiraly et al. [43]</td>
<td>Cross-sectional</td>
<td>2017</td>
<td>Iran (Shiraz)</td>
<td>524 men, 476 women</td>
<td>60-80</td>
<td>not stated</td>
<td>residential house</td>
<td>questionnaire</td>
<td>Ordinary walking, fast walking, swimming, gardening</td>
<td>* *</td>
</tr>
<tr>
<td>34</td>
<td>Sharifian A et al. [44]</td>
<td>cross-sectional study</td>
<td>2014</td>
<td>Iran (Kerman)</td>
<td>310 - they were not separated</td>
<td>over 60</td>
<td>not stated</td>
<td>residential house</td>
<td>questionnaire</td>
<td>walking, running, ball sports, cycling, hiking, swimming</td>
<td>* * *</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Barriers</th>
<th>Motivators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrapersonal Dimensions</strong></td>
<td><strong>Motivators</strong></td>
</tr>
<tr>
<td>- Being a physically patient [13, 14, 16, 19, 27, 31-34, 36, 38-41, 43-45]</td>
<td>- Improving the physical condition [18, 24, 34, 41, 44]</td>
</tr>
<tr>
<td>- Lack of motivation [16, 28, 32, 33, 35, 43] - Pain [21, 24, 38, 41, 43]</td>
<td>- Knowledge shortage [17, 30], Health Concerns [17, 37], Being economical [24, 34]</td>
</tr>
<tr>
<td>- Laziness [19, 36, 40, 44], Financial cost [13, 24, 32, 34]</td>
<td>- Feeling security [33], Having a long life [40], Fear of falling and illness [13], Pain [21], Loneliness [35], Socioeconomic status, having sports skills, training [30], Having enough time [12], Joining physical activity to daily life [14], Spending free time [44]</td>
</tr>
<tr>
<td>- Age [42-44] - Issues related to individual beliefs [13, 17], House chores [34, 36], Security concerns [14, 23], Single and widower [24, 43]</td>
<td>- Being enough active [28], Sex [43], Lack of energy [21], Insufficient understanding of physical activity [42], An unpleasant experience [18], Lack of self-discipline [17], Low level of education, retirement, life problems [43], Heavy weight [42], feeling self-awareness [39]</td>
</tr>
<tr>
<td>- Being enough active [28], Sex [43], Lack of energy [21], Insufficient understanding of physical activity [42], An unpleasant experience [18], Lack of self-discipline [17], Low level of education, retirement, life problems [43], Heavy weight [42], feeling self-awareness [39]</td>
<td>- Improving the physical condition [18, 24, 34, 41, 44]</td>
</tr>
<tr>
<td><strong>Interpersonal dimension</strong></td>
<td><strong>Motivators</strong></td>
</tr>
<tr>
<td>- Having no companion [36, 42]</td>
<td>- being social [11, 16, 18, 23, 24, 26, 28, 30, 36, 40]</td>
</tr>
<tr>
<td>- Family responsibilities [34], Having no professional guide, inadequate information distribution [15], Social pressure, having less time to spend with friends and family [21], Devoting the clubs to young adults and the lack of planning in the clubs [23], Working with others, different views of others [16]</td>
<td>- Specialist health care [18, 28, 29] - Availability of facilities [15, 24]</td>
</tr>
<tr>
<td><strong>Environmental dimension</strong></td>
<td><strong>Motivators</strong></td>
</tr>
<tr>
<td>- Physical barriers to walking [22, 23, 26, 27, 31, 43, 44]</td>
<td>- Suitability of the physical environment [11, 23, 26, 34, 36]</td>
</tr>
<tr>
<td>- Traffic [16, 36], Inappropriateness of the sports classes time [16, 23]</td>
<td>- Access to public transportation [11], Access to sports facilities [30], Social network of neighbors, air quality, living in an apartment, proximity to sports facilities [23], Economic and financial agents, holding walking meetings [16]</td>
</tr>
<tr>
<td>- Lack of personal safety [16], Commuting and distance from home to sports facilities [23]</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1: Reviewing the Literature and Retrievability of Articles

Articles identified in electronic database searching n=1981

Records after duplicate removed n=1750

Excluded: n=231 duplicate articles

Title screening: n=1750

Excluded: n=1304
- No abstract
- Letter to editor
- Case report
- Intervention studies
- Systematic review
- Seminars and conferences
- Books
- Irrelevant

Title/Abstract screening: n=446

Excluded: n=359
- Non-adult studies
- Comments, editorial

Full text screening: n=87

Excluded: n=53
- Full text not available
- Definition of outcome
- Data not in usable format
- Irrelevant

Articles included in review n=34
Figure 2: Levels of Impact in the Socio-Economic Framework

- **Policy/Enabling Environment** (national, state, local laws)
- **Organizational** (organizations and social institutions)
- **Community** (relationships between organizations)
- **Interpersonal** (families, friends, social networks)
- **Individual or Intrapersonal** (knowledge, attitudes, behaviors)