

# Narrative Review: Effects of Social Marketing Intervention on Physical Activity promotion Among the Elderly



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## ABSTRACT

**Background:** Social marketing emphasizes the use of commercial marketing concepts and their application for social purposes and also the change of voluntary behavior in a nonprofit manner. This study mainly aimed to examine the effectiveness of social marketing in changing the physical activity of the elderly. Besides, this study sought to determine the extent to which the Andreason social marketing criteria have been targeted in social marketing interventions.

**Methods:** This was a narrative review study that investigated social marketing interventions to promote elderly physical activity, during 2000-2019. The scientific databases (Elmnet, SID, Irandoc, Civilica, Medline, ScienceDirect, Google Scholar, Web of Science, ProQuest, and Emerald) were searched between February and March 2019. The searched keywords included physical activity, social marketing, the elderly, social marketing mix, improving physical activity level, social marketing intervention, social marketing campaigns, and the Andreason criteria. Finally, nine articles entered the study. Then, the mixed marketing components were extracted from the interventions, and six benchmarks of the Andrasen social marketing interventions were analyzed.

**Results:** Most articles employed four components of the marketing mix. No intervention had applied the six measures of the Andrasen social marketing criteria. Also, five studies reported positive behavioral changes. However, other studies have reported no change in negative behavior. According to the evidence gathered in our study, social marketing offers an effective behavioral change approach to increase physical activity in the elderly.

**Conclusion:** The present findings provide the basis for comprehensive and effective social marketing interventions.

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## 1. Introduction

Population aging is one of the most important challenges of general hygiene in the present decade [1]. Physical inactivity is a major concern among the elderly so that the elderly and health research has emphasized it. Furthermore, evidence shows the decrease of physical activity by aging [2]. The result of inactivity and motor poverty is a failure, containing various physical, mental, and social aspects [3]. One in four adults around the world has inadequate physical activity [4]. According to the World Health Organization, the population above 60 years old around the world will grow up to two billions by 2050. Also, in the same report, it is predicted that 35% of the Iranian population will be among the elderly by 2050. The elderly are the most inactive population among the adults so that 30% to 80% of inactive people belong to this age range [5].

Social marketing is a behavioral change approach that can increase physical activity among the elderly [6]. The term “social marketing” was initially mentioned by Kotler and Zaltman in 1971. Social marketing is to apply concepts and commercial marketing methods for voluntary changes in the appropriate social behavior [7]. The ultimate purpose of social marketing includes individual and societal welfare but not organization profitability; this distinguishes social marketing from the other marketing aspects [8].

Andreasen has introduced the key criterion for social marketing success; the criterion has been used in lots of research to measure social marketing intervention. Regarding the success of behavioral change initiatives in physical activities, our extensive understanding of the success criterion of social marketing intervention is very important. The first criteria are behavioral objectives, that is social marketing influences on behavior besides awareness and insight. The second criteria include exchanges. According to this, the prerequisite to form trade between two people or groups is that the profits resulted from having desired product should be more than the cost paid for getting it. Voluntary exchange on behavior also constitutes the basis of social marketing programs. To accept a new behavior or to leave an old behavior, the perceived costs of the behavior (or leaving it) should not be higher than the perceived profits of the behavior (or leaving it). In this way, the audience voluntarily accepts our suggested idea or behavior and uses it [9].

Audience research in social marketing contains the awareness of ideas, demands, needs, and preferences of

the target group and providing appropriate service, idea, or behavior. During all stages of designing and implementing programs based on social marketing patterns, paying attention to the audience and moving toward meeting their needs are observed [10]. Applied research to access needed products and materials to implement social marketing programs is named formative research that creates the audience-centric and bottom-up look, and not expert-centric and up-bottom one in behavioral modification interventions [11]. Moreover, paying attention to competition principle and understanding audience market behavior is the success key to use social marketing perspective. If we accept that behavior is a product bought by the audience group and the costs are paid for getting it, we should also accept that there is competition in this market like other various markets [10]. Audience segmentation is how the audience groups of behavior change programs in health areas are usually formed by people and subgroups with different demographic, economic, social, geographical, cultural, and behavioral characteristics. Thus, transforming this heterogeneous group into small homogenous groups can increase the effectiveness of the programs aimed at behavior modification. Besides using demographic, economic, social, and geographical variables, this process also employs patterns and theories that could determine the behavioral condition in the audience group.

Focus on the elements of the marketing mix is a key concept in marketing and is defined as “a set of controllable instruments that, by mixing them, accountability to target market and audience group will be possible”. The mixed market is also called 4P that is originated from the first letters of the terms product, price, place, and promotion. Discussing social marketing, the product predicates a new behavior and the advantages of the behavior on the target group. Also, price is suggestive of the price that consumer incurs on exchange for new behavior, and more shows dissatisfaction that people manifest while adapting to new behaviors. The place also refers to a site or market where the exchange happens. To form a new behavior, environmental factors help facilitate this adaptation. And at last, an increase of efforts to communicate with the target group is rooted in communication with product’s advantages. Here it is worthwhile noting that advertising can be a great part of a promotion strategy and not all of that [12].

Exercise can improve the physical aspects of the elderly’s lives, such as power, mobility, balance, flexibility, and cardiovascular situation, and also expand cognitive performance and the feeling of health [13, 14]. A study in Isfahan City found that 86.3% of the elderly had an

improper physical activity based on the World Health Organization ranking [15]. Despite improvement in life situation and increase in health level, the physical activity level of the elderly has reduced, especially in industrial countries [16]. Efforts to increase participation in physical activity among the elderly have been usually influenced by obstacles, like the lack of motivation, time, social capital, health poverty, and proper facilities [17, 18]. Ramirez et al. emphasized the positive role of social marketing in changing harmful behaviors and turning them into useful categories related to health; the success these authors attained in the food industry and the proper food consumption is also generalizable to other categories like physical activity [19].

Extensive studies are conducted on social marketing intervention to improve the elderly's physical health, however, each study considered a special aspect that was not addressed by other studies. These suggest the necessity of a systematic review, so that information on various studies is comprehensively provided to researchers, executive authorities, and policymakers; it helps futurology inside the country and compiling necessary policies on the elderly. Therefore, this research mainly seeks to systematically examine social marketing efficiency in changing the elderly's physical activity. Besides, it aimed to determine the usage rate of the Andreason social marketing criterion in various studies performed in this context. The reason why the study emphasizes the Andreason perspective is the comprehensiveness of the approach and the fact that this theory has been frequently emphasized in various studies.

## 2. Methods

Concerning the procedure, this research was a narrative review. The statistical population of the systematic study included all research articles done by aiming at improving physical activity among the elderly. Various databases were used to identify articles. To find Persian articles, an internet search was done in the domestic databases of Elmnet, SID, Irandoc, and Civilica. Also, for English articles, we searched the foreign databases, including Medline, ScienceDirect, Google Scholar, Web of Science, ProQuest, and Emerald. The databases were searched between February and March 2019. Information needed at the first step was collected by searching keywords, including physical activity, social marketing, the elderly, social marketing mix, improving physical activity level, social marketing intervention, social marketing campaigns, and Andreason's criteria.

## Data extraction

Data extraction was done using a form containing the author's name, study year, study purpose, study type, target group, size of the population studied, and the most important results. According to a checklist with various questions for quality assessment, two referees independently studied data and assessed their quality. High agreement between the two referees caused the third referee not to be used.

## Criteria of study inclusion and exclusion

- Resources Published from 2000 to 2019,
- Resources in Persian or English languages,
- Complete and downloadable article text,
- The social marketing mix should be used in the articles.

Moreover, an extra search was done with the same strategies among unpublished articles, conferences, reports, and theses. Retrieved articles were included in the Endnote software. Also, the whole process of performing and writing the study was evaluated according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist [20]. Repeated and common articles in the abovementioned databases were removed, and 368 studies were screened in the second step. The screening criteria in this step included having relevance to the study subject (title and abstract) and removing irrelevant articles; articles the purpose of which were not physical activity were removed. Besides, articles the target population of which was not the elderly were removed. Furthermore, review and educational articles were removed in this step, and 142 studies remained. Regarding the screening criteria in the third step (ie, removing the article by examining articles' complete text), because of insufficient and unsuitable information and low quality of the articles, among 142 studies remained, nine articles relevant to the subject and purpose of the current research were finally recognized and included in the study. Figure 1 shows the details of the process.

## 3. Results

Nine articles entered the study. Based on the publication years, one article was published between 2000 and 2005, five articles between 2006 and 2012, and three articles between 2013 and 2019. Table 1 shows the results

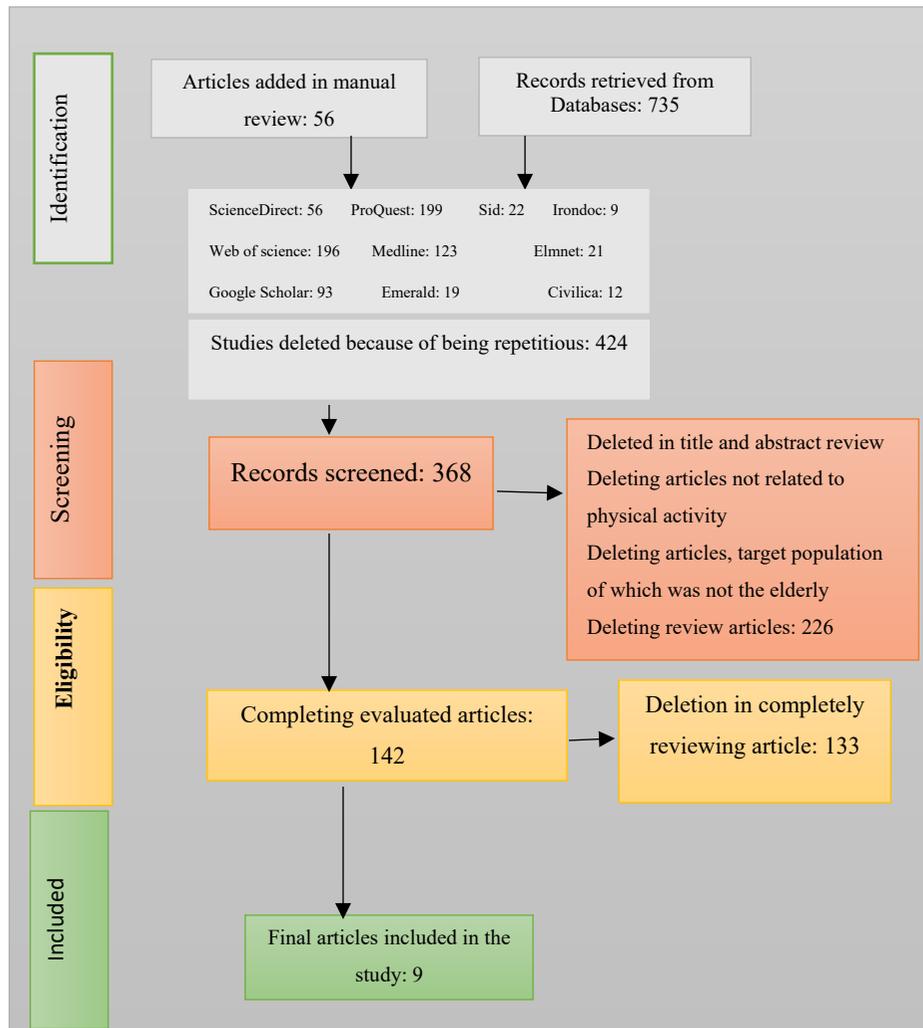


Figure 1. Flowchart of the literature search process, adapted from PRISMA checklist [20]

of the Andreason evaluation of six criteria examined in the study research. No intervention has considered all six criteria together. However, three interventions [21-23] have observed five factors of social marketing criteria that are separately explained.

**Behavioral objectives**

All interventions examined in the research had expressed specific behavioral objectives and some of them reported the positive outcomes of behavioral change. For example, three investigations had determined at least 30 minutes in a day as the behavioral objective [23-25].

**Segmentation**

One investigation [22] had set two groups of women with the age range of 60 to 79 years as a goal and provided various types of physical activities proportionate to the needs and abilities of each group. The first program

included women who were interested in physical activity but not engaged enough in regular walking activity owing to backache and knee pain. The second group included women who did the flexibility and strength activities daily at regular times; this group had also backache and knee pain. Another study [23] conducted a multilevel intervention and set the residents of Sao Paulo state, Brazil as a goal population, including the elderly above the age of 60 years, workers, and university students. This intervention considered the specified application and material for each group. The final intervention reported the use of a technique to attract the minority population of the region; this intervention designed an application for social media advertisement by African-American artists [24]. Two final interventions reported positive behavioral outcomes.

**Table 1.** Evaluation of the use of the Andreasen social marketing intervention assessment criterion

Research	Population	No. of Used Criteria	Behavioral Objectives	Audience Segmentation	Informative Research	Exchange	Marketing Mix	Competition
Matsudo et al. [23]	34 million inhabitants of Sao Paolo	5	Positive behavioral changes	*	*	...	* 3	*
Kamada et al. [22]	Adults (40-79 years old)	5	Without positive behavioral change	*	*	*	* 4	...
DiGuseppi et al. [21]	Adults (more than 60 years old)	5	Without positive behavioral change	...	*	*	* 4	*
Tan et al. [26]	Adults (more than 60 years old)	4	Positive behavioral changes	...	*	*	* 4	...
Russell and Oakland [25]	Adults (more than 60 years old)	4	Positive behavioral changes	...	*	...	* 3	*
Ishaghi et al. [15]	The elderly	4	Without positive behavioral change	...	*	...	* 4	...
Van Esch et al. [27]	Adults (more than 60 years old)	5	Positive behavioral changes	...	*	...	* 4	*
Richert et al. [28]	Adults (with 30-60 years of age or diabetes)	3	Without positive behavioral change	...	*	...	4	...
Reger-Nash et al. [24]	Adults (40-65 years old)	4	Positive behavioral changes	*	*	...	1	*

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### Formative research

All investigations examined reported formative research. The most common method for formative research was the use of a “focus group”. Furthermore, secondary research, observation, interview, and experimental design were used in interventions. For example, one of the investigations used group interviews with beneficiaries and key informative interviews and focused on people with more than 60 years of age in the church [21]. Another research involved a focus group with 30 people who had regular walking and 34 people who didn't have regular physical activity to capture information about their beliefs toward regular walking with medium intensity [24]. Also, previous studies have used religious teachings about physical activity and health and speech by religious authorities [15].

### Exchange

In the study, three interventions included clear exchange evidence. People were paid 20 dollars to participate in balance classes [22]. Also, movies and DVDs were offered for participants on aerobic, flexibility, and

strength activities. The pedometer was sold or rented to participants, and the facilities for acting were accessible for hiring [22]. In other investigations, participants had voluntary activity for 22 hours a week, on average, and for 15 hours a week; they also received grant-in-aid (150 to 200 US dollars monthly). Voluntaries were forced to do physical, social, and cognitive activities [26]. One of the investigations included participation in the ExerStart program and doing quadruple exercises related to the elderly's independence [27].

### Competition

According to the results, five interventions competed to capture target behavior. Three interventions mentioned other organizations and campaigns as competitors, one intervention offered other recreational facilities and sports programs as competitors, and one intervention expressed its program as being inexpensive to compete with other programs.

**Table 2.** Social marketing mix

Research	Product	Promotion	Place	Price
Matsudo et al. (2002) [23]	On average, 30 minutes of physical activity per day	Educational materials (manual, advertising, tag, speech, pamphlet, poster, television report, and radio; advertising in the stadium, metro, and bus stops; educational booklet; and general information)	Home, workplace, and parks	.....
Kamada et al. (2013) [22]	Participation in health education program, sports events, and festivals; safe walking; buying a pedometer; and buying strength movement and flexibility educational CDs	Declaration, journal, campaign newsletter, poster, local audio playback, and encouragement in medical examination	The home, street, clinic, and community places	Loan, and grant-in-aid for buying pedometers
DiGuseppi et al. (2014) [21]	Participation in balance classes in the church to prevent falling	Poster, brochure, advertising, coupons, and church newsletter; notification and marketing in the course catalog, class dramatic movie, announcement, and websites	Churches	20 dollars
Tan et al. (2010) [26]	Voluntary participation in physical, social, and cognitive activities for at least 15 hours per week; 150-200 dollars as a motivation of participation cost	Verbal advertising, church Bolton, email, radio advertising, newspaper, and television	Elementary schools	Related costs or voluntary work
Russell and Oakland (2007) [25]	Participation in an inexpensive and professional educational program of nutrition	Newsletter, play, food samples	Food aggregation places	Not reported
Ishaghi et al. (2011) [15]	....	Two educational sessions + religious teachings on physical activity, group discussion, and speech	Mosque	....
Van Esch et al. (2019) [27]	Participation in ExerStart, the elderly' independence, and reduction in health cost	Eight hours educational program, assigning 15-200 dollars for the elderly who work as a coach, verbal advertising, and educational DVD	Park, neighborhood, and community places	.....
Richert et al. (2007) [28]	Map of walking outdoor	Sites, verbal advertising, and local newspapers	Workplaces, attention to health infrastructure, and attention to social consideration in the location	Time
Reger-Nash et al. (2006) [24]	....	Advertising by mass media, such as television, radio, and newspaper; education by media; and media relationship	.....	.....



**Marketing mix**

In the current research, all interventions have applied the marketing mix promotion element (Table 2). Most interventions have applied four marketing mix elements. The findings of each part are provided in the following.

**Product:** most of the interventions studied provided products, most of which were intangible, like events [23], learning programs [22, 25], voluntarily program and physical activity [26], participation in balance classes [21], and participation in the ExerStart program [27]. However, some interventions provided tangible products, like a pedometer,

videotape, the educational movie of strength and flexibility movements [22], and a map of walking paths [28].

**Promotion:** advertising programs related to the promotion of physical education were observed in all interventions. Marketing interventions applied an extensive range of advertising instruments to increase awareness and promote activities related to the target behavior. The most common printed instruments included posters, brochures, newsletters, and educational pamphlets, or using social media, such as television, radio, and newspaper. As well, some interventions created a website, and some others used word-of-mouth advertising. One investigation [24] only

used the promotion element among the four marketing mix elements; it can be categorized as social advertising [29].

**Place:** most of the interventions owned places, hence, the product was available for behavior change. Common places included workplaces and religious places, like churches and mosques [15, 21, 23, 28].

**Price:** loan and grant-in-aid were expressed to prepare pedometers and buy movies [22]. In other investigations, 20 dollars was mentioned as the cost of participation at balance classes [21]. Some groups paid costs related to voluntary work [26]. But in another research, time was expressed as the price of doing target behavior [28]. Interestingly, treatment costs and time were not mentioned in the interventions, instead, monetary costs were mentioned.

#### 4. Discussion

The current research aimed at a narrative review of social marketing intervention to improve the elders' physical activity. After searching the various scientific databases, nine articles that worked on intervention were finally examined; five articles reported positive behavioral changes. This is while other investigations have not reported negative behavioral changes. Evidence gathered in our study shows that social marketing is an effective behavioral change approach to increase physical activity among the elderly. Examples of positive behavioral changes in the research were an increase in knowledge, awareness, and self-efficacy. According to studies, research that completely implements the marketing mix is more likely to capture positive behavioral changes [29]. Evidence shows that if the Andreasen criterion is met in social marketing intervention, we can see positive behavioral changes more.

According to the research, social marketing is effective in improving the elderly's physical activity and might be among strategies that ensure general health. If social marketing intervention meets six Andreasen criteria, it will have a high potential for behavioral change [29]. The research examined in the study met no Andreasen criterion among six ones. Particularly, audience-oriented criteria and exchange in interventions were less considered among others. Although the promotion element was applied in the interventions of all research studied, most of them did not suggest evident and tangible product interventions, except in two investigations where participants were provided with pedometer and walking map as final products. Future research may suggest more tangible products that would facilitate behavioral change and target audiences to spend eagerly for easier exchange. This also helps behavior to be stable in the long term. Importantly, among research that

reported positive behavioral change, four considered the competition element; this adds to its importance and role. Also, two interventions performed the audience segregation. To use each of these indices in social marketing interventions, being proportionate to various groups' needs is very important for behavioral change.

All investigations studied postulated more interventions for stable behavioral change in the context of social marketing to improve the elderly's physical activity. Prevention is better and more inexpensive than treatment [30]. Also, it is predicted that the number of the elderly above 60 years of age would be two milliards by 2050 [4], in addition, a great part of the elderly are immobile. Thus, purposeful interventions should be considered for logical and principal confrontation with this situation. So, more attention to various levels and more extensive and less restrictive thinking in social marketing is increasing. Since besides the individual behavioral change, community welfare is also considered in social marketing, a complementary approach to the idea is to have a comprehensive look at three social change levels: micro, moderate, and macro [31]. While social marketing focused on individual behavioral change (micro) by commercial marketing techniques in the past, this is a descending and up-bottom outlook that may restrict our minds [32]. More attention to micro and medium social marketing catches our attention to the governments; politicians; lobbying actions; and protection initiatives related to the organizations, groups, and ultimately more extensive attitudes. This insight can help accurately determine the problem reason, hence, it increases our ability to change environmental factors to facilitate change at the individual level that will ultimately favor the society [32].

#### 5. Conclusion

According to the research results, if the abovementioned factors are considered and implemented well, we can expect that the ultimate mission of social marketing, which is to institutionalize desirable behavior and have its benefits, would be emerged. Promoting the physical activity of the elderly leads to promoting health and welfare, creating a healthier and stronger society, decreasing treatment costs, increasing social interactions, creating an active society, increasing self-assertion and self-esteem, and ultimately, being active in life. Concerning numerous advantages of the elderly's physical activity, designing and coherently implementing the marketing mix, by considering the Andreasen criterion, can lead to insights and behavior change. Hence, senior managers and policymakers must pay attention to the crucial role of social marketing.

## Ethical Considerations

### Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Shahrood University of Technology (Code: No. 50/۴/12852).

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### Authors' contributions

All authors equally contributed to preparing this article.

### Conflict of interest

The authors declared no competing interests.

## References

- [1] Salehi L, Taghdisi M, Ghasemi H, Shokervash B. [To identify the facilitator and barrier factors of physical activity among elderly people in Tehran (Persian)]. *Iran J Epidemiol*. 2010; 6(2):7-15. <https://irje.tums.ac.ir/article-1-80-en.html>
- [2] Sallis JF. Age-related decline in physical activity: A synthesis of human and animal studies. *Med Sci Sports Exerc*. 2000; 32(9):1598-600. [DOI:10.1097/00005768-200009000-00012] [PMID]
- [3] Javadipour M, Ghavedel Sarkandi M, Saminia M. [Introduction to the theoretical framework and model designing of sport for all in Iran (Persian)]. *Sport Manag Stud*. 2014; 5(21):127-48. [http://smrj.ssrc.ac.ir/article\\_244.html](http://smrj.ssrc.ac.ir/article_244.html)
- [4] World Health Organization. Physical activity [Internet]. 2020 [Updated 2020 November 26]. Available from: <https://www.who.int/en/news-room/fact-sheets/detail/physical-activity>
- [5] Bauman AE, Reis RS, Sallis JF, Wells JC, Loos RJF, Martin BW, et al. Correlates of physical activity: Why are some people physically active and others not? *Lancet*. 2012; 380(9838):258-71. [DOI:10.1016/S0140-6736(12)60735-1] [PMID]
- [6] Gordon R, McDermott L, Stead M, Angus K. The effectiveness of social marketing interventions for health improvement: What's the evidence? *Public Health*. 2006; 120(12):1133-9. [DOI:10.1016/j.puhe.2006.10.008] [PMID]
- [7] Kotler P, Zaltman G. Social marketing: An approach to planned social change. *J Mark*. 1971; 35(3):3-12. [DOI:10.1177/002224297103500302] [PMID]
- [8] The iSMA, ESMA and AASM: Consensus definition of social marketing [Internet]. 2013 [Updated 2013 October 5]. Available from: [https://www.i-socialmarketing.org/assets/social\\_marketing\\_definition.pdf](https://www.i-socialmarketing.org/assets/social_marketing_definition.pdf)
- [9] Kubacki K, Ronto R, Lahtinen V, Pang B, Rundle-Thiele S. Social marketing interventions aiming to increase physical activity among adults: A systematic review. *Health Educ*. 2017; 117(1):69-89. [DOI:10.1108/HE-02-2016-0008]
- [10] Andreasen AR. Marketing social marketing in the social change marketplace. *J Public Policy Mark*. 2002; 21(1):3-13. [DOI:10.1509/jppm.21.1.3.17602]
- [11] van der Bij AK, Laurant MGH, Wensing M. Effectiveness of physical activity interventions for older adults: A review. *Am J Prev Med*. 2002; 22(2):120-33. [DOI:10.1016/S0749-3797(01)00413-5] [PMID]
- [12] Amiri F, Ghasemi S. [Social marketing (Persian)]. Isfahan: Arkan-Danesh; 2012. <http://opac.nlai.ir/opac-prod/bibliographic/2825480>
- [13] Weening-Dijksterhuis E, de Greef MHG, Scherder EJA, Slaets JP, van der Schans CP. Frail institutionalized older persons: A comprehensive review on physical exercise, physical fitness, activities of daily living, and quality-of-life. *Am J Phys Med Rehabil*. 2011; 90(2):156-68. [DOI:10.1097/PHM.0b013e3181f703ef] [PMID]
- [14] Zhao E, Tranovich MJ, Wright VJ. The role of mobility as a protective factor of cognitive functioning in aging adults: A review. *Sports Health*. 2014; 6(1):63-9. [DOI:10.1177/1941738113477832] [PMID] [PMCID]
- [15] Ishaghi SR, Mahmoudian SA, Asgarian R, Sohrabi A. [Effect of faith-based education on physical activity on the elderly (Persian)]. *Iran J Med Educ*. 2011; 10(5):1281-8. <https://ijme.mui.ac.ir/article-1-1638-fa.html>
- [16] Taylor D. Physical activity is medicine for older adults. *Postgrad Med J*. 2014; 90(1059):26-32. [DOI:10.1136/postgradmedj-2012-131366] [PMID] [PMCID]
- [17] Trost SG, Owen N, Bauman AE, Sallis JF, Brown W. Correlates of adults' participation in physical activity: Review and update. *Med Sci Sports Exerc*. 2002; 34(12):1996-2001. [DOI:10.1097/00005768-200212000-00020] [PMID]
- [18] Zlot AI, Librett J, Buchner D, Schmid T. Environmental, transportation, social, and time barriers to physical activity. *J Phys Act Health*. 2006; 3(1):15-21. [DOI:10.1123/jpah.3.1.15]
- [19] Ramirez AS, Diaz Rios LK, Valdez Z, Estrada E, Ruiz A. Bringing produce to the people: Implementing a social marketing food access intervention in rural food deserts. *J Nutr Educ Behav*. 2017; 49(2):166-74.e1. [DOI:10.1016/j.jneb.2016.10.017] [PMID] [PMCID]
- [20] Moher D, Liberati A, Tetzlaff J, Altman DG, PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Ann Intern Med*. 2009; 151(4):264-9. [DOI:10.7326/0003-4819-151-4-200908180-00135] [PMID]
- [21] DiGuseppi CG, Thoreson SR, Clark L, Goss CW, Marosits MJ, Currie DW, et al. Church-based social marketing to motivate older adults to take balance classes for fall prevention: Cluster randomized controlled trial. *Prev Med*. 2014; 67:75-81. [DOI:10.1016/j.ypmed.2014.07.004] [PMID]
- [22] Kamada M, Kitayuguchi J, Inoue S, Ishikawa Y, Nishiuchi H, Okada S, et al. A community-wide campaign to promote physical activity in middle-aged and elderly people: A cluster randomized controlled trial. *Int J Behav Nutr Phys Act*. 2013; 10:44. [DOI:10.1186/1479-5868-10-44] [PMID] [PMCID]

- [23] Matsudo V, Matsudo S, Andrade D, Araujo T, Andrade E, de Oliveira LC, et al. Promotion of physical activity in a developing country: The Agita Sao Paulo experience. *Public Health Nutr.* 2002; 5(1A):253-61. [DOI:10.1079/PHN2001301] [PMID]
- [24] Reger-Nash B, Bauman A, Cooper L, Chey T, Simon KJ. Evaluating communitywide walking interventions. *Eval Program Plann.* 2006; 29(3):251-9. [DOI:10.1016/j.evalprogplan.2005.12.005]
- [25] Russell C, Oakland MJ. Nutrition education for older adults: The Chef Charles Club. *J Nutr Educ Behav.* 2007; 39(4):233-4. [DOI:10.1016/j.jneb.2007.01.014] [PMID]
- [26] Tan EJ, Tanner EK, Seeman TE, Xue QL, Rebok GW, Frick KD, et al. Marketing public health through older adult volunteering: Experience corps as a social marketing intervention. *Am J Public Health.* 2010; 100(4):727-34. [DOI:10.2105/AJPH.2009.169151] [PMID] [PMCID]
- [27] van Esch P, Duffy SM, Teufel J, Northey G, Elder E, Frethey-Bentham C, et al. ExerStart: Helping seniors be active and independent for less. *J Soc Mark.* 2019; 9(2):146-60. [DOI:10.1108/JSOCM-06-2018-0065]
- [28] Richert ML, Webb AJ, Morse NA, O'Toole ML, Brownson CA. Move more diabetes: Using Lay Health Educators to support physical activity in a community-based chronic disease self-management program. *Diabetes Educ.* 2007; 33(Suppl 6):179S-84S. [DOI:10.1177/0145721707304172] [PMID]
- [29] Carins JE, Rundle-Thiele SR. Eating for the better: A social marketing review (2000-2012). *Public Health Nutr.* 2014; 17(7):1628-39. [DOI:10.1017/S1368980013001365] [PMID]
- [30] Goetzel RZ. Do prevention or treatment services save money? The wrong debate. *Health Aff (Millwood).* 2009; 28(1):37-41. [DOI:10.1377/hlthaff.28.1.37] [PMID]
- [31] Brennan L, Previte J, Fry M-L. Social marketing's consumer myopia: Applying a behavioural ecological model to address wicked problems. *J Soc Mark.* 2016; 6(3):219-39. [DOI:10.1108/JSOCM-12-2015-0079]
- [32] Wymer W. Developing more effective social marketing strategies. *J Soc Mark.* 2011; 1(1):17-31. [DOI:10.1108/20426761111104400]

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