Social marketing physical activity interventions among adults sixty years old and older: a systematic review

Abstract

This article describes results of a systematic review of social marketing physical activity interventions targeting adults sixty years and over. Thirty-four articles covering seven social marketing interventions were identified following systematic literature review procedures. None of the identified interventions gave evidence that they addressed all six social marketing benchmark criteria; three interventions addressed five social marketing benchmark criteria and a further three interventions addressed four social marketing benchmark criteria. Four interventions reported positive behaviour change and no negative behavioural changes were reported amongst all seven social marketing interventions. Previous research shows that social marketing interventions employing all six benchmark criteria offer greater potential to change behaviours, yet none of the interventions in this review used all of the benchmark criteria. Audience segmentation and exchange were used by only three interventions.

Keywords

Systematic review, physical activity, seniors, social marketing, behaviour change, interventions

Introduction

Physical inactivity among an increasingly aging population is a key concern in research focused on health and aging. A lack of physical activity is the main cause of chronic diseases such as cardiovascular diseases, cancer and diabetes, and problems associated with physical inactivity contribute to the death of 3.2 million people each year (Dumith, Hallal, Reis, & Kohl, 2011; WHO, 2015a). Globally, one in four adults are insufficiently active (WHO, 2015b), and overwhelming evidence points towards a decline in physical activity with age for all (Sallis, 2000) and in particular among seniors (Sun, Norman, & While, 2013; Milanović, Pantelić, Trajković, Sporiš, Kostić, & James, 2013). Despite the remarkable improvements in life expectancy, the levels of chronic health conditions are increasing while the level of physical activity among seniors is decreasing, especially in industrialised countries (Taylor, 2013). Further compounding the present scenario is the elderly population who are over 60 is predicted to increase globally to 2 billion in 2050 (WHO, 2015c). Many of the chronic conditions plaguing aging populations are preventable through regular physical activity. Yet, seniors represent the most sedentary segment of the adult population, and in many countries 30% to 80% of people belonging to this group are physically inactive (Van der Bij, Laurant, & Wensing, 2002; King, Rejeski, & Buchner, 1998). Increasing physical activity levels has been suggested as key to improving health in a globally aging population (Taylor, 2013; Paterson, Jones, & Rice, 2007). Identification of characteristics of effective physical activity interventions is first needed as an important platform to understand how to design effective interventions to target this population.

One behavioural change approach that can be used to increase physical activity among targeted populations is social marketing (Stead, Gordon, Angus, & McDermott, 2007). Social marketing

applies commercial marketing concepts and techniques to achieve voluntary behaviour change for a social good (Kotler & Zaltman, 1971). Social marketing has been used to combat a wide range of public health issues and advocate positive behavioural change including increase of physical activity levels (Stead et al., 2007) and reduction in the use of alcohol, tobacco and illicit drugs (Kubacki, Rundle-Thiele, Pang, & Buyucek, 2015a; Eagle, Dahl, Hill, Spotwood, & Tapp, 2013; Stead et al., 2007). Social marketing has also been employed to target different groups within society, for example children aged between 3 and 5 years (Bellows, Davies, Anderson, & Kennedy 2013; Johnson, Bellows, Beckstrom, & Anderson 2007), undergraduate students (Thompson, Heley, Oster-Aaland, Stastny, & Crawford 2013), young married couples (Purdy, 2011), and 20 to 54 years old adults (Maitland, Rosenburg, Shilton, Bauman, Giles-Corti, Henley, & Barnes 2010). In the case of physical activity, differing age groups present a unique set of challenges when designing social marketing interventions due to diverse physical activity recommendations (WHO, 2015b) for children, teenagers, and people over the age of 60. There are a growing number of social marketing interventions targeting children (for example Huhman, Bauman, & Bowles, 2008; Swinburn et al., 2011) and seniors (Russell & Oakland, 2007). While a systematic review of social marketing interventions targeting children to increase physical activity is available (Kubacki, Rundle-Thiele, Lahtinen, & Parkinson, 2015b) to date evidence for social marketing interventions targeting seniors to become more physically active has not been synthesised. This paper responds to this gap and aims to provide a systematic review of social marketing physical activity interventions targeting adults sixty years and over.

Methods

Search strategy

Following the systematic literature review procedures outlined in Carins and Rundle-Thiele (2014) a search was conducted to identify social marketing interventions that aim to increase physical activity among adults aged sixty years and over, published in peer reviewed journals before January 2015. As there is no universally accepted age to define seniors, the United Nations' cut off of 60 years old was used (WHO, 2015d). Six databases (Table 1) were searched to identify 1,214 sources using the following terms: physical+activit* or exercis* AND intervention* or Randomi#ed Controlled Trial or evaluation or trial or campaign* or program* or study or studies AND social marketing. The use of # in database searches indicates that both British (s) and American (z) versions are included, and therefore no papers are missed due to spelling differences while the use of * allows for singular or plural word forms to be identified. The variance of records between databases can be attributed to the size and the specialisations of each database and how closely they relate to the search terms. ProQuest, for example, is made up of twenty databases.

Insert Table 1 About Here

Inclusion and exclusion criteria

All downloaded records were collated using Endnote. As multiple databases include the same journals, duplicate records had to be removed reducing the number of unique articles to 477. Next, unqualified records including newspaper articles and conference papers were removed. Titles and abstracts were then reviewed and records were excluded as follows: formative

research, papers not identifying as social marketing, review/conceptual papers, interventions targeting children and adults under the age of 60 only, and interventions not targeting physical activity.

A total of twelve articles remained following the application of exclusion criteria. The remaining twelve articles included evaluations of social marketing interventions that aimed to increase physical activity among people aged sixty years and over. Backward and forward searching using authors' names and websites, intervention names, Google Scholar, 'Publish or Perish', university library and reference lists was next completed. A total of twenty-two new articles providing additional information about the identified interventions were uncovered in backwards and forward searching. In total, thirty-four articles were included in the analysis covering seven social marketing interventions. Figure 1 summarises the literature search process, and the full list of thirty-four papers for each social marketing intervention can be found in Appendix 1. Consistent with the procedures outlined in Carins and Rundle-Thiele (2014) all interventions included in this paper self-identified as social marketing interventions.

Figure 1: Flowchart of the literature search process

Data extraction

Previous reviews of social marketing interventions have adopted Andersen's benchmark criteria as a framework to classify interventions (see Carins & Rundle-Thiele, 2014; Kubacki et al. 2015a and 2015b; Stead et al., 2007). Alternative social marketing criteria have been introduced by Lefebvre & Flora (1988), French and Blair-Stevens (2005) and Robinson-Maynard, Meaton, & Lowry (2013), however, they do not offer mutually exclusive criteria for categorisation purposes (Kubacki et al., 2015a). Selected articles were analysed to identify potential evidence of each of Andersen's (2002) six social marketing benchmark criteria: the aim to change behaviours (and factors known to influence behaviour change in the longer term), distinct formative research to inform the intervention, market segmentation to identify homogenous groups within heterogeneous populations, clearly identified exchange, the use of marketing mix, and consideration of competition reported. Further analysis was also completed to identify all intervention outcomes and results reported in the articles. All identified relevant excerpts were reviewed by four social marketing researchers.

Review

Each intervention was analysed to determine its target audience(s) (see Table 2) and the outcomes. The main goal of social marketing is behaviour change (Coffman, 2002). Although all identified social marketing interventions included adults who are over sixty years old within their target audience, they were carried out across a more diverse range of contexts and often included different outcome measures. We were hence unable to follow standard meta-analytical procedures and focused on identifying whether positive, negative or no effects were observed, without attempting to determine the effect sizes. Four interventions (see Table 2) reported

positive behavioural outcomes (Matsudo et al., 2002; Reger-Nash et al., 2006; Russell & Oakland, 2007; Tan et al., 2010). Three of those interventions reported an increase in physical activity, for example an increased frequency of walking (Tan et al., 2010) (see Table 2). No negative behavioural changes were reported for the seven social marketing interventions.

Andreasen's (2002) benchmark criteria

Table 2 presents the assessment of each of the seven social marketing interventions against Andreasen's (2002) six social marketing benchmark criteria. None of the interventions gave evidence that they addressed all six benchmark criteria. Three interventions (DiGuseppi et al., 2014; Kamada et al., 2013; Matsudo et al., 2002) addressed five social marketing benchmark criteria and a further three interventions (Reger-Nash, Bauman, Cooper, Chey, & Simon, 2006; Russell & Oakland, 2007; Tan et al., 2010) provided clear evidence of use of four social marketing benchmark criteria. One intervention reported the use of three benchmark criteria (Richert, Webb, Morse, O'Toole, & Brownson, 2007). The number of social marketing benchmark criteria within each intervention observed in the current review exceeds levels observed in Kubacki et al. (2015a and 2015b) suggesting more complete use of social marketing benchmark criteria in social marketing interventions targeting seniors. Among the interventions, the two most common benchmark criteria which were lacking were audience segmentation and exchange. Consistent with previous literature reviews (Carins & Rundle-Thiele, 2014; Kubacki et al. 2015a and 2015b), if evidence of at least two of the marketing mix elements (product, place, price or promotion) was reported in an intervention, the intervention was classified as using a marketing mix.

Insert Table 2 About Here

Behavioural objective

Behaviour change can be found in all social marketing benchmark criteria frameworks (Andreasen, 2002; French & Blair-Stevens, 2006) and it is fundamental to evaluating intervention success. French & Blair-Stevens (2006) stated that social marketing must have “a clear focus on behaviour, based on a strong behavioural analysis, with specific behaviour goals” (p.1). All interventions analysed for this paper stated a specific behavioural aim for their intervention, and four out of seven interventions which aimed to change behaviour achieved at least some positive behavioural outcomes (Table 2). As suggested by the benchmark criteria, all of the interventions did target specific behaviours: for example, Matsudo et al. (2002), Russell & Oakland (2007), and Reger-Nash et al. (2006) all aimed to promote at least 30 minutes of daily moderate physical activity.

Segmentation

Careful segmentation of target audiences is necessary to identify homogenous groups within a heterogeneous population (Evers, Jones, Caputi, & Iverson, 2013). Theoretically, application of a full segmentation process can “ensure maximum efficiency and effectiveness in the use of scarce resources” (Andreasen, 2002, p.104). Segmentation is based on the principle understanding that populations are typically heterogeneous and that groups with similar needs

and wants can be identified. Segmentation can be based on one or more of demographic, psychographic, geographic, behavioural and epidemiological factors.

In this review, only one intervention reported the use of segmentation within a senior audience (Kamada et al., 2013). Kamada et al. (2013) targeted two segments of women 60-79 years of age offering different types of physical activities adapted to the needs and abilities of each group. The first segment consisted of women who had an interest in, but were either not engaged in or were insufficiently engaged in regular walking behaviour and who had low back or knee pain, and the second segment was comprised of women who engaged in flexibility and/or muscle-strengthening activities, either occasionally or daily, and who had low back or knee pain.

One intervention targeted seniors as one group within a larger population study (among several other segments). The intervention reported in Matsudo et al. (2002) was a multi-level, community-wide intervention aimed at all inhabitants of the Sao Paulo state in Brazil. People over 60 years old were one of the main segments along with students and workers. The intervention targeted the three segments and developed programs and materials specifically for each group. The final intervention that reported use of segmentation was Reger-Nash et al. (2006) who created supplementary advertisements for the African American community by featuring African American actors to appeal to the regional minority population. Both interventions delivered positive behavioural outcomes (Matsudo et al., 2002; Reger-Nash et al., 2006).

Formative research

Formative research is essential to any social marketing intervention (Andreasen, 2002) providing an opportunity for the social marketer to learn about the target audience and how to best design an intervention to meet the needs and wants of the targeted audience(s).

All interventions reported the use of formative research, and five interventions used more than two formative research methods. The most common formative research methods observed were focus groups which were used in four interventions (DiGuseppi et al., 2014; Richert et al., 2007; Reger-Nash et al., 2006; Russell & Oakland, 2007). Surveys, secondary research, interviews, and use of a pilot trial were reported in two interventions each, and observations were used once (DiGuseppi et al., 2014). For example, DiGuseppi et al. (2014) also used group interviews with stakeholders, key informant interviews and focus groups with church members older than 60 years of age. Reger-Nash et al. (2006) conducted the most comprehensive formative research including community focus groups with 30 regular walkers and 34 insufficiently active targeted population members to identify beliefs about regular moderate-intensity walking, followed by a survey of 411 regular walkers and irregularly active 50–65 years-of age participants from the target community.

Exchange

According to French & Blair-Stevens (2006), in the context of social marketing exchange describes something that a person has to give up in order to get the proposed benefit of the intervention. In this review exchange was treated as “direct exchange”, meaning that there is something tangible or intangible that needs to be given up simultaneously to get a direct benefit. For example, exchange may include behaviours that have to be given up to perform the desired

behaviour. Over time, performing an exchange or multiple exchanges is expected to lead to the desired behaviour. Understanding what the alternatives are to the desired behaviour can provide insight into what would represent a valuable exchange to the target audience. Similar to commercial marketing, social marketers must know the behaviours that are competing with the behavioural aim of an intervention.

In this review three interventions included clear evidence of exchange. In DiGuseppi et al. (2014), participants paid a \$20 course fee to attend balance classes for fall prevention; Kamada et al. (2013) offered pedometers and two types of demonstration materials, videos and DVDs, to engage participants in aerobic, flexibility, and muscle-strengthening activities. Pedometers were either sold or rented by participants and demonstration materials were available for rent. In the case of Tan et al. (2010), participants contributed on average 22 hours a week of volunteering, and received a stipend (\$150 to \$200 per month) for 15 hours a week of volunteer time. Volunteering required participants to engage in physical, social and cognitive activities.

Marketing mix

Social marketing campaigns involve the use of multiple strategies, including the 4Ps of the traditional marketing mix: product, price, place, and promotion (Evers, 2013). In this review, four interventions employed the entire marketing mix and two interventions used three elements of the marketing mix (see Tables 2 and 3). The number of marketing mix elements observed in the current review exceeds levels observed in Kubacki et al. (2015a and 2015b) suggesting more complete use of marketing mix in social marketing interventions targeting seniors. All of the

interventions used the promotional aspect of the marketing mix, and one intervention relied solely on promotions to achieve their aims (Reger-Nash et al., 2006).

Product

Product is the bundle of benefits (can be both tangible and intangible) that the target audience receives during the exchange. Six of the interventions reported using products (DiGuseppi et al., 2014; Kamada et al., 2013; Matsudo et al., 2002; Richert et al., 2007; Russell & Oakland, 2007; Tan et al., 2000). Five of the six interventions offered intangible products such as events (Matsudo et al., 2002), education programs (Kamada et al., 2013; Russell & Oakland, 2007), volunteering program with physical activities (Tan et al., 2000) and balance classes (DiGuseppi et al., 2014), and two interventions offered tangible products such as pedometers, videotapes and DVDs on flexibility and muscle-strengthening activities (Kamada et al., 2013) and walking trail maps (Richert et al., 2007).

Promotion

Evidence of promotion was identified in all seven interventions. The social marketing interventions in this review used a wide range of promotional tools to raise awareness, enforce a particular message or to promote social marketing activities. The most commonly used tools were either printed materials including pamphlets, posters, flyers and newsletters (n=5), or public service announcements including TV programs, radio broadcast, and newspaper advertisements (n=4). Three interventions created websites and another three also considered the use of word-of-mouth as a promotion. Several promotion tools specific to the target audience were also identified in this review. For example, Russell & Oakland (2007) provided Snack & Act Bingo

game and food sampling to encourage the behaviour change, and Matsudo et al. (2002) created various educational materials which were developed for three segments including students, workers, and elderly. Reger-Nash et al. (2006) was the only interventions which relied solely on promotion activities and therefore can be classified as social advertising (Carins & Rundle-Thiele, 2014).

Place

Place as a location where the target audience enters into an exchange was identified in six interventions and five of them had multiple place settings. This was where the product was available for the behaviour change to take place. The two most common places were worksites and churches (DiGuseppi et al., 2014; Matsudo et al., 2002; Richert et al., 2007).

Price

Adoption costs in social marketing may be monetary or non-monetary in nature, including time, effort and energy required to perform the behaviour, perceived psychological risks and losses, monetary costs and physical discomforts that may be associated with the behaviour (Lee & Kotler 2011). Price as the cost or sacrifice exchanged for the product was explicitly identified in four interventions and included time and psychological costs. It is important to note that price was the least mentioned component of 4Ps marketing mix. Three interventions stated the financial cost. For example, Kamada et al. (2013) identified loan or purchase cost for pedometers and visual materials such as videos and DVDs, and DiGuseppi et al. (2014) mentioned a \$20 course fee as a price for the class. In the case of Tan et al. (2010), the associated cost of

volunteering (or opportunity cost of not being able to perform paid work during volunteer time) was stated as a cost. Time was also mentioned in Richert et al. (2007).

Competition

Andreasen's (2002) social marketing benchmark criteria require recognising and addressing the competition of the behaviour targeted by an intervention. The social marketer has to understand what other behaviours are competing for the chosen target audience's time and attention in order to develop strategies that minimise the impact of the competition (Andreasen, 2002).

Four interventions identified in this review mentioned competition to their desired behaviours, three interventions reported other organisations or campaigns as competitors, and one intervention (DiGuseppi et al., 2014) identified other recreational facilities which offer exercise programs as competitors.

Conclusions

The aim of this paper was to provide a systematic review of social marketing physical activity interventions targeting adults sixty years and over. Seven social marketing interventions were identified in the study, and four reported positive behavioural change. While no negative behavioural outcomes were reported in the remaining three interventions positive outcomes in known behavioural change precursors were reported, namely knowledge, awareness and self-efficacy. The results indicate that two of the benchmark criteria, namely behavioural objectives and formative research are well utilised in physical activity social marketing interventions targeting adults sixty years and over. Only one intervention relied solely on promotion activities

while the remaining interventions offered good examples of utilisation of a full marketing mix. Consistent with earlier studies indicating that behaviour change is more likely when more of the marketing mix is used (Carins and Rundle-Thiele, 2014) the results of the current study provide further evidence that application of more of the social marketing benchmark criteria as proposed by Andreasen (2002) may lead to positive behavioural change outcomes. The evidence suggests that social marketing is effective in increasing physical activity among adults sixty years old and older indicating that employment of social marketing together with other change disciplines such as education and public health is warranted in future. This paper contributes to the growing evidence base indicating the effectiveness of social marketing interventions across a wide range of social issues (Carins and Rundle-Thiele, 2014; Kubacki et al., 2015a; Stead et al., 2007) and target audiences (Kubacki et al., 2015b).

Previous research indicates that social marketing interventions employing all six benchmark criteria offer greater potential to change behaviours (Carins & Rundle-Thiele, 2014), yet none of the interventions in this review used all six of the Andreasen (2002) benchmark criteria. Specifically, reported use of audience segmentation and exchange was low with only three out of the seven interventions employing these criteria in each case. Consistent with earlier reviews (Carins and Rundle-Thiele, 2014; Kubacki et al., 2015a and b) considerable opportunity exists to empirically examine the role that exchange and segmentation may offer to further enhance intervention success (Andreasen, 2002, p.104). Further, although promotion was used in all seven social marketing interventions, five of the interventions offered intangible products and only two provided tangible products such as pedometers and walking maps. There is an opportunity for future social marketing interventions to provide more tangible products that

directly facilitate behaviour change by offering a bundle of benefits that the target audience will willingly exchange money for thereby increasing program sustainability over time. Finally, only seven interventions were identified, suggesting a need for more social marketing interventions targeting people aged 60 and older to be developed given that prevention is cheaper than cure (Goetzel, 2009). As the number of people over 60 is predicted to increase to 2 billion in 2050 (WHO, 2015c), and a large proportion of seniors remain insufficiently physically active, targeted interventions can assist to prevent many of the negative health conditions associated with physical inactivity.

This study has several important limitations. First, it only includes studies which self-identified as social marketing, and therefore excludes public health, health promotion, education and community-based interventions which may use some of the social marketing tools and techniques. Combating physical inactivity among seniors will require an orchestrated multidisciplinary effort, and therefore a systematic review including all approaches is warranted. Second, five of the seven interventions were carried out in the United States. There is a need for more research reporting the effectiveness of social marketing interventions targeting seniors in other countries to better understand the effectiveness of social marketing outside of the United States and in a non-Western context. Third, social marketers should consider a unified and consistent approach in reporting intervention outcomes to enable meta-analysis to be undertaken. Finally, the analysis presented in this paper is limited by the information provided in sources identified in the search process.

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Table 1: Databases and articles retrieved in initial search

Database	Number of articles retrieved
EBSCO All Databases	99
Medline (R; and InProcess) (Ovid)	210
ProQuest All Databases	412
PsycINFO (Ovid)	80
ScienceDirect	47
Web of Science	366
Total	1,214

Table 2: Assessment of the use of Andreasen's social marketing benchmark criteria (SMBC) in social marketing interventions

Interventions	Target Audience	No. of SMBC	Behavioural Objective	Audience Segmentation	Audience Research	Exchange	Marketing Mix	Competition
<i>Matsudo et al. (2002)</i>	34 million inhabitants of Sao Paulo State	5	✓(+ ¹)	✓	✓	✗	✓(3 ²)	✓
<i>Kamada et al. (2013)</i>	Adults (40-79 years)	5	✓(* ³)	✓	✓	✓	✓(4)	✗
<i>DiGuisseppi et al. (2014)</i>	Adults (more than 60 years)	5	✓(*)	✗	✓	✓	✓(4)	✓
<i>Tan et al. (2000)</i>	Adults (more than 60 years)	4	✓(+)	✗	✓	✓	✓(4)	✗
<i>Russell & Oakland (2007)</i>	Adults (more than 60 years)	4	✓(+)	✗	✓	✗	✓(3)	✓
<i>Reger-Nash et al. (2006)</i>	35-65 y/o in McDowell County; 40-65 y/o in Broome County, NY; 40-65 y/o in Morgantown; 50-65 y/o in Wheeling	4	✓(+)	✓	✓	✗	✗ (1)	✓
<i>Richert et al. (2007)</i>	Adults aged 30 to 70 years with type-2 diabetes	3	✓(*)	✗	✓	✗	✓(4)	✗

¹ + positive behavioural outcomes reported

² the number of marketing mix elements reported in the intervention (product, place, price, promotion)

³ * no behavioural change reported

Table 3: Marketing mix

Interventions	Product	Promotion	Place	Price
<i>Matsudo et al. (2002)</i>	30 minutes of moderate physical activity per day, Annyal Active Elderly day event	Education materials (manual, folders, banners, booklets and stickers; lectures), pamphlets, posters, flyers, reports via TV programmes, radio, promotional materials and message displayed in a soccer stadium and metro stations, general information books, promotional give-away products	Home, workplace, parks	Not reported
<i>Kamada et al. (2013)</i>	Health education program, community events including sports events and festivals, light-reflective material for walking safety, pedometers, videotapes and DVDs on flexibility and muscle-strengthening activities	Flyers, leaflets, community newsletters, posters, banners, local audio broadcasts, encouragement at medical checks and community events, enhancement of school support	Homes, town streets, clinics, community centers, assembly houses	Loan/purchase cost for pedometers
<i>DiGuseppi et al. (2014)</i>	Church-based balance class for fall prevention	Posters, brochures, flyers, coupons, church newsletters and bulletins, pulpit announcements, and person-to-person marketing, course catalogues, class demonstration video, flyers and websites	Churches	\$20 course fee
<i>Tan et al. (2000)</i>	Minimum 15 hours of weekly volunteering program (including physical, social and cognitive activities) with monthly \$150-\$200 incentive for expenses	Word-of-mouth, Church bulletins, community outreach talks, direct mailings through formal social networks, recruitment ambassadors, radio ads on local gospel radio, newspapers, local TV	Public elementary schools	Associated cost of volunteering
<i>Russell & Oakland (2007)</i>	A low-cost and paraprofessional-led nutrition education program	Newsletter with Snack&Act bingo game and other activities, food samples	Congregate meal sites	Not reported

Interventions	Product	Promotion	Place	Price
<i>Reger-Nash et al. (2006)</i>	Not reported	Mass media promotion including TV, radio, print ads, newspaper ads, media relations, website	Not reported	Not reported
<i>Richert et al. (2007)</i>	Outdoor walking trail maps and indoor walking spaces	Website, word-of-mouth, ads in local weekly newspapers	Work sites, health care settings, faith and community settings	Time needed to engage in activity