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Communicating with older people about physical activity

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Engaging in appropriate levels of moderate-to-vigorous physical activity (MVPA) is critical for healthy ageing.^{1,2} Participation can delay age-related morbidity and disability, extend the period of independent living and enhance quality of life.^{3,4} Despite these benefits, older people are the least active population segment globally.⁵ In Australia, the context of the present study, 75% of those aged 65 years and older do not meet the minimum weekly guideline of 150 minutes of physical activity incorporating activities that improve cardiovascular fitness, strength, balance and flexibility.⁶ Among those who do exercise, walking tends to be the preferred option and relatively few engage in more strenuous forms of physical activity.^{7,8} Overall, there is considerable opportunity to improve health outcomes for older people given the additional health benefits they can obtain by undertaking greater amounts of MVPA over and above the minimum participation guideline.⁹

Greater investment in the promotion of physical activity is needed to encourage older people to engage in higher levels of participation.^{10–12} Such efforts need to normalise physical activity among older people and increase motivation to participate,^{10,13} including by overcoming expectations of being sedentary in later life and fears about exercise-related harm.^{14–16} However, little is known about developing effective communications to motivate older people to be more active^{17,18} and the complex interplay of factors affecting exercise habits in

Abstract

Objective: Little is known about how to effectively encourage higher levels of activity among older people. This study tested the effectiveness of a public service advertisement designed according to recommendations for communicating with older audiences and featuring five types of moderate-to-vigorous physical activity: tennis, line dancing, cycling, swimming and jogging.

Methods: A survey administered to 1,200 Australians aged 50+ years assessed effects of the public service advertisement on: motivation (intrinsic and extrinsic); perceived believability, relevance, and effectiveness; and feelings elicited (e.g. interest, hope, guilt). Open-ended questions enabled respondents to describe aspects of the ad they considered to be most and least effective.

Results: Moderate to high scores were obtained on the motivation measures and the ad evaluation criteria of perceived effectiveness, likeability, believability and personal relevance. Mean scores for the feelings measures were generally low, with the exception of the positive feelings of being interested, inspired, hopeful and determined.

Conclusions: The results suggest physical activity promotion ads can be motivating across age and socioeconomic subgroups of older people.

Implications for public health: Ads aiming to encourage older people to be more physically active may be accepted and effective if they depict everyday older people enjoying a range of relevant activities.

Key words: public service announcement, message effects, motivation, perceived effectiveness

this group makes the communication process challenging.¹⁹ For example, older people are more likely than younger age groups to experience physical limitations that impact on their ability to participate in various forms of activity. In addition, they are often unaccustomed to scheduling activity into their days because exercise had been largely incidental throughout their adult lives.^{11,20}

Older people have been found to process information somewhat differently to younger people. They typically prefer more affective

rather than cognitive approaches,^{21,22} they can experience longer information processing times²³ and their pre-existing beliefs can be more resistant to change.²⁴ Videos can enable efficient communication of affective content²⁵ and have been found to be an effective means of conveying information to older people,²⁶ including in relation to physical activity.^{17,27} Video formats also permit modelling of activity, which is consistent with the emphasis in social learning theory on automatic learning via observation.²⁸

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Modelling is important in physical activity promotion messages developed for older people because members of this group often have doubts about their physical ability to participate and may thus benefit from messages demonstrating what can be possible in later life.²⁹

A further consideration is the inclusion of a variety of forms of MVPA in physical activity messages to increase the likelihood of at least some of the depicted activities resonating with individual audience members.^{29,30} This approach caters to the greater heterogeneity of older people that results from more diverse life experiences and health events relative to younger population subgroups.³¹

The aim of the present study was to address current deficits in knowledge about effective means of motivating older people to be more active by testing a video advertisement featuring the modelling of MVPA by their peers. The focus on MVPA rather than other forms of physical activity (e.g. those with an emphasis on building strength and enhancing flexibility and balance) reflects the need for ads to overcome fears among many older people that more vigorous activity is associated with unacceptable risk of exercise-related harm.¹⁶ The ad was developed in accordance with recommendations to convey positive images of ageing^{10,32} and to ensure physical activity promotional messages focused on participants being happy and enjoying the activity.^{18,29}

Method

As part of a larger study on physical activity promotion, a video message was developed that sequentially depicted older people participating in the following forms of MVPA: tennis, line dancing, cycling, swimming and jogging. Uplifting music in a major key was used as the background soundtrack, which was the only audio content of the ad. Graphic designers sourced the imagery and soundtrack from publicly available repositories and combined the activity segments into a 15-second video.

A sample of 1,200 Australians aged 50+ years was sourced from an ISO-accredited web panel provider (Pureprofile) and administered an online survey. The selection of 50 years as the age threshold enabled capturing data from current and future seniors to determine whether these two groups reacted differently to the video. This is important in the

context of ensuring that those approaching retirement are motivated to establish physical activity habits that can be carried over into later life.³³

Quotas were used to obtain a sample characterised by an even gender split and equal distribution across the following age brackets: 50-59 years, 60-69 years and 70+ years. The sample profile is presented in Table 1. Ethics approval was obtained from a University Human Research Ethics Committee and all participants provided informed consent.

Online testing is an efficient and cost-effective method of testing ads³⁴ and well-suited to the requirements of the present study due to the need to test video content. As per the ad test procedure,³⁵ after initial demographic, self-rated health and current MVPA questions were posed, respondents were shown the video ad twice, followed by a series of items assessing reactions to and perceptions of the ad. Both open- and closed-answer questions were used to generate qualitative and quantitative data.

Self-rated health was assessed by asking, "How would you describe your physical health?" Responses were made on a five-point scale of 'Poor' to 'Excellent'.³⁶ Mental health was assessed using the 14-item Warwick-Edinburgh Mental Well-Being Scale.³⁷ The Godin leisure-time exercise questionnaire was used to assess current levels of physical activity.³⁸ This measure was selected due to (i) its brevity and therefore suitability for use

within a larger instrument and (ii) the primary focus on older people who are approaching or in retirement and thus for whom leisure-time exercise is especially relevant.

After ad exposure, respondents were asked to "Note down the thoughts and feelings that were going through your mind as you were watching the ad", and then report the extent to which they experienced a range of emotions such as 'Worried', 'Interested' and 'Determined' (five-point response scales: 'Not at all' to 'A lot'). Next, respondents were asked to rate how much they liked or disliked the ad (five-point scale: 'Did not like it at all' to 'Liked it very much'), followed by an open-ended question, "Was there anything about the ad you particularly liked or disliked?"

Subsequent items based on tobacco control message evaluations^{34,35} assessed motivation and perceived ad effectiveness. In terms of motivation, respondents were asked: "To what extent did the ad make you feel that you want to do more physical activity" (intrinsic motivation) and "To what extent did the ad make you think you should do more physical activity" (extrinsic motivation), with responses made on five-point response scales ('Not at all' to 'A lot'). The perceived effectiveness measures were: "How believable was the message in the ad?" (five-point scale: 'Not at all believable' to 'Very believable'), "How relevant to you was the message in this ad?" (five-point scale: 'Not at all relevant' to 'Very relevant') and "How effective do you think this ad will be in encouraging older people to do more physical activity?" (five-point scale: 'Very ineffective' to 'Very effective').

Analyses

Descriptive analyses were conducted on the quantitative data using SPSS V26, with differences in mean scores assessed according to attributes found in previous research to be associated with older people's levels of MVPA: age, gender, socioeconomic status, location (metropolitan vs non-metropolitan), self-rated health and mental health.^{20,39} Due to the large number of comparisons, a Bonferroni-adjusted alpha level of $p < 0.003$ was used to control for the family-wise error rate.

The responses to the various open-ended questions were manually coded to obtain additional insights into the quantitative ratings. All responses were read through initially, followed by a coding process by

Table 1: Sample Profile (n = 1,200).

	%
Gender	
Male	50
Female	50
Age M(SD)	64.55 (8.71)
Age in years	
50-59	33
60-69	34
≥70	33
Education	
<Tertiary degree	75
≥ Tertiary degree	25
Socioeconomic status	
Low	35
Mid	43
High	22
Location by region	
Metropolitan	67
Regional	33

Note:
*Socioeconomic status as per Australian Bureau of Statistics' Socio-economic Indexes for Areas.⁴³

which individual comments were assigned to relevant topics. Due to the use of an emergent approach to coding, a single coder undertook the coding task.⁴⁰

Results

Overall, the responses to the ad were positive, with moderate to high average scores for the intrinsic and extrinsic motivation measures and the ad evaluation criteria of perceived effectiveness, likeability, believability and personal relevance (Table 2). Mean scores for the feelings items were generally low, with the exception of the positive feelings of being interested, inspired, hopeful and determined.

Across the various sample subgroups, there were no significant differences on any variable according to socioeconomic status and only one by location (for 'hopeful').

The only differences in average motivation scores were for gender, with females typically finding the ad more intrinsically and extrinsically motivating than did males. Females were also more likely than males to provide higher ratings on the ad evaluation criteria and to report experiencing many of

the more positive feelings, and were less likely to report finding the ad boring. All mean ad evaluation criteria and feelings scores differed significantly by mental wellbeing and most by self-rated health; those with higher mental and self-rated health typically exhibited more favourable outcomes. Those currently engaging in higher levels of MVPA were more likely than those with lower levels to report that the ad made them feel determined, hopeful, inspired and interested, while being less likely to report feeling regretful. There were only two significant differences by age, with younger respondents being more likely to report feeling hopeful and inspired.

The qualitative data analysis indicated that the main reasons for the primarily positive reactions were appreciation of the depiction of people in their own age group, vicarious enjoyment of the portrayed activities, the nature and number of activities shown, the welcome wake-up call and the simplicity of the presentation style. The one notable source of expressed dissatisfaction related to the lack of acknowledgement that those with disabilities would be prevented from acting on the message. These themes were evident

among males and females of all ages across the sample and are outlined in more detail below.

Validation through representation

The most common theme in the comments related to the depiction of older people in the video. Numerous mentions were made about the pleasure received from seeing their age peers featured in an advertisement for physical activity. Appreciation was expressed for realistic role models undertaking realistic forms of exercise.

It wasn't showing ridiculous 20+ people all going flat out with their chosen sport. Showing older people made it feel more relatable to me personally, but also that you don't have to be young to participate in sports. (Female (F), 50 years)

The participants looked like ordinary, older members of the community, not actors. (Male (M), 64 years)

The first thing that I noticed is that it has older people, which makes it more relevant to me. It felt like a positive message and the sports and activities chosen look easy and accessible. (M, 56 years)

Table 2: Ad test outcomes.

	M	SD	% ^a	Age	Gender ^b (male=1, female=2)	SES	Location ^b (metro=1, non-metro=2)	SRH	WEMWBS	MVPA
				p value	p value	p value	p value	p value	p value	p value
Primary outcome variables										
Intrinsic motivation	3.10	1.13	74	0.644	<0.001 (+)	0.968	0.412	0.259	0.081	0.258
Extrinsic motivation	3.29	1.17	78	0.031	<0.001 (+)	0.344	0.017	0.005	0.558	0.685
Ad evaluation criteria										
Perceived effectiveness	3.50	1.14	83	0.145	<0.001 (+)	0.482	0.313	0.019	<0.001 (+)	0.084
Believability	3.96	1.11	89	0.151	<0.001 (+)	0.592	0.497	0.010	<0.001 (+)	0.172
Relevance	3.52	1.31	79	0.122	<0.001 (+)	0.346	0.019	0.005	<0.001 (+)	0.226
Likeability	3.62	1.11	88	0.025	<0.001 (+)	0.828	0.924	<0.001 (+)	<0.001 (+)	0.072
Feelings elicited										
Amused	2.13	1.17	38	0.718	0.787	0.938	0.420	<0.001 (+)	<0.001 (+)	0.006
Annoyed	1.51	0.99	15	0.930	0.014	0.563	0.476	<0.001 (-)	<0.001 (-)	0.068
Anxious	1.53	0.95	16	0.441	0.394	0.176	0.444	<0.001 (-)	<0.001 (-)	0.050
Bored	1.67	1.10	20	0.031	<0.001 (-)	0.421	0.809	0.110	<0.001 (-)	0.021
Determined	2.58	1.29	53	0.066	<0.001 (+)	0.210	0.012	<0.001 (+)	<0.001 (+)	<0.001 (+)
Guilty	2.02	1.27	32	0.042	<0.001 (+)	0.355	0.532	<0.001 (-)	<0.001 (-)	0.004
Hopeful	2.70	1.28	59	<0.001 (-)	<0.001 (+)	0.551	0.002	0.009	<0.001 (+)	<0.001 (+)
Inspired	2.92	1.31	63	<0.001 (-)	<0.001 (+)	0.032	0.007	<0.001 (+)	<0.001 (+)	<0.001 (+)
Interested	3.13	1.26	71	0.088	<0.001 (+)	0.247	0.157	<0.001 (+)	<0.001 (+)	<0.001 (+)
Regret	1.94	1.25	29	0.538	0.042	0.099	0.311	<0.001 (-)	<0.001 (-)	<0.001 (-)
Sad	1.64	1.10	19	0.423	0.637	0.100	0.052	<0.001 (-)	<0.001 (-)	0.019
Worried	1.54	0.97	17	0.422	0.721	0.495	0.561	<0.001 (-)	<0.001 (-)	0.337

Notes:

a: selected 3, 4, or 5 on 5-point scales

b: Mean scores by gender and location are provided in Supplementary Table S1

SES = socioeconomic status; SRH = self-rated health; WEMWBS = Warwick-Edinburgh Mental Wellbeing Scale

Results significant at Bonferroni-adjusted p value of .003 shown in bold

(-) = negative relationship; (+) = positive relationship

The ad showed real people performing achievable types of exercise in a normal environment. (F, 72 years)

For those who were already active, the ad appeared to reinforce their positive views about participating in MVPA.

Loved to see the mature runner (I run myself) – made me happy! (F, 60 years)

It is what I have done every day and at 84 it shows it works. (M, 84 years)

Vicarious enjoyment

A positive aspect of the ad was seen to be its ability to bring emotional pleasure to viewers through observing their peers enjoying being active. This outcome appeared to be especially common among the female respondents.

Fun, happiness, sociability, feeling great, and made me smile. (F, 73 years)

Was loving it, made me feel alive. (F, 54 years)

It relates to me as I'm a senior person. It was lovely to see older people getting out and being active. (F, 66 years)

It makes me want to participate. It is calling me to be active and stay active. Participating in sporting activity seems to be fun. (M, 67 years)

Variation in activity options

Respondents often referred to the specific forms of MVPA shown in the ad and noted which were appealing to them. For some this was about personal preference, while for others it was about accommodating their physical limitations. Showcasing a broad range of activities served as a reminder about the diverse forms of activity that are available, highlighted the relevance of these activities to older people and encouraged audience members to mentally try each one on for size.

Made me feel I should do more exercise. Definitely not keen on bike riding, running, or tennis, but swimming and dancing looked good. (F, 70 years)

How I would like to do the dance exercise – I can't ride a bike, I can't swim and can't run. (F, 73 years)

I could do this – cycle or play tennis. (M, 70 years)

It showed that there are so many activities to choose from which I could be doing. (M, 62 years)

Wake-up call

Most respondents appeared to accept the veracity of the ad's message and

acknowledged that it is beneficial for older people to be physically active. For many of those who were inactive, this translated to an acknowledgement that they should make an effort to do more.

Guilt. Older people than me are participating in some form of exercise, and look very happy doing it. At the same time, it made me feel a little motivated that I CAN do more. It made me feel a little inspired, I liked it. (F, 50 years)

I really should do more exercise as I'm not fit. (M, 77 years)

I need to do more exercise. (M, 55 years)

Made me think I really must exercise. (F, 70 years)

Simplicity

Some respondents made reference to the simplicity of the message and its delivery as attractive features of the ad. They appreciated the singular focus on showing older people being active without lots of detailed information or a hard sell.

I liked the message delivery – simple and effective. (M, 65 years)

No hype. No hoopla. Just older people happily exercising. (M, 54 years)

It was simple and just provided a good message. (F, 57 years)

Exclusion through omission

The few who expressed dislike for the ad typically made reference to the emphasis on able-bodied people and the lack of consideration for those who may wish to engage in MVPA but are not able to do so. In a small number of cases, the adverse reaction was quite strong.

It assumes that all older people can do these things. That is just not true. (M, 66 years)

Not everyone can be this active or do these activities and the ad just tries to make people feel guilty if they aren't as active as the people in the ad. Everyone is different!! (F, 72 years)

Hated that it only showed people without injuries. (F, 67 years)

Discussion

Consistent with previous research on social modelling,^{28,29} the study results indicated that older people can be receptive to physical activity promotion advertisements that depict their peers engaging in moderate to vigorous forms of activity. There were no significant differences in motivation and ad evaluation ratings according to

age, suggesting that such ads may also be effective with those below retirement age. This was a very positive outcome due to the need to establish physical activity habits prior to older age.³³ The overall favourable response may be partly the result of the positive images used, along with the fact that almost half of all Australian adults do not meet minimum physical activity guidelines,⁶ making the message content equally relevant to many of the younger respondents.

The higher average ratings for females across most of the outcome measures is somewhat fortuitous given that physical activity in females reduces much more dramatically than among males in later life,⁶ and therefore the needs of females as a communications audience may require greater attention in the development and dissemination of physical activity promotion campaigns.

Importantly, there were almost no differences in any of the ad outcomes according to socioeconomic status or location. Those older adults experiencing higher levels of disadvantage are less likely than their more affluent peers to meet physical activity guidelines,⁶ making it important to ensure physical activity interventions meet the needs of this group.²⁹ Similarly, those living outside of metropolitan areas tend to be less likely to meet guidelines, especially females in these areas.⁶ The ability of the tested ad to perform equally well across these groups indicated that messages of this type can be cost-effective due to the lack of need to develop alternative ads for different groups of older people. Although there were differences in ad evaluation and feelings ratings by self-rated health and mental wellbeing, these did not manifest into significant differences in internal or external motivation.

A key finding of the present study is the need to take steps to avoid alienating older people who experience physical limitations that prevent them from participating in many forms of physical activity. Efforts should be made to incorporate images of people with disabilities engaging in activities suited to their circumstances (e.g. seated volleyball, yoga, Tai Chi).

The primary limitations of this study were the testing of just one video ad and the cross-sectional design that prevented measurement of post-exposure behaviour change. In addition, the use of a web panel may have resulted in sample that was skewed on criteria that were not assessed in this study. A further limitation was the

focus on aerobic/cardiovascular forms of MVPA and the non-inclusion of other types of physical activity that are also important for healthy ageing, such as resistance training and exercises to improve balance and flexibility. Current Australian guidelines recommend that older people engage in at least 30 minutes of moderate intensity physical activity on most, preferably all, days, including cardiorespiratory, strength, flexibility and balance activities.⁴¹ A comprehensive approach to promoting physical activity among older people will therefore involve the development, testing and implementation of education campaigns that highlight the feasibility and benefits of the full range of physical activity categories recommended for good health. Finally, efforts to produce meaningful changes in older people's physical activity levels need to involve broad approaches that go beyond the use of standalone campaigns.^{18,42} Future research could assess the effectiveness of ads featuring other forms of physical activity and investigate the outcomes of campaigns that are implemented in conjunction with favourable modifications to physical and social environments to provide a more comprehensive understanding of the potential to improve activity levels among older people.

In conclusion, it is important to normalise expectations of active ageing and encourage older people who can undertake more vigorous forms of activity to do so. The findings of this study indicate that ads designed for this purpose may be effective if they depict everyday older people enjoying a range of relevant activities. Ideally, such ads will include representation of a broad range of older people with differing levels of physical ability.

References

- Oliveira JS, Pinheiro MB, Fairhall N, Walsh S, Franks TC, Kwok W, et al. Evidence on physical activity and the prevention of frailty and sarcopenia among older people: A systematic review to inform the World Health Organization Physical Activity Guidelines. *J Phys Act Health*. 2020;17(12):1247–58.
- Powell KE, King AC, Buchner DM, Campbell WW, DiPietro L, Erickson KI, et al. The scientific foundation for the Physical Activity Guidelines for Americans, 2nd Edition. *J Phys Act Health*. 2019;16(1):1–11.
- Langhammer B, Berglund A, Rydwick E. The importance of physical activity exercise among older people. *BioMed Res Int*. 2018:e7856823.
- Rhodes RE, Janssen I, Bredin SSD, Warburton DER, Bauman A. Physical activity: Health impact, prevalence, correlates and interventions. *Psychol Health*. 2017;32(8):942–75.

- Hallal PC, Andersen LB, Bull FC, Guthold R, Haskell W, Ekelund U. Global physical activity levels: Surveillance progress, pitfalls, and prospects. *Lancet*. 2012;380(9838):247–57.
- Australian Institute of Health Welfare. *Physical Activity Across the Life Stages*. Report No.: Catalogue No.: PHE 225. Canberra (AUST): AIHW; 2018.
- Amireault S, Baier JM, Spencer JR. Physical activity preferences among older adults: A systematic review. *J Aging Phys Act*. 2019;27(1):128–39.
- Australian Institute of Health and Welfare. *Australia's Health 2018* [Internet]. Canberra (AUST): AIHW; 2018 [cited 2021 Jan 6]. Available from: <https://www.aihw.gov.au/reports/australias-health/australias-health-2018/contents/indicators-of-australias-health/physical-inactivity>
- World Health Organization. *WHO Guidelines on Physical Activity and Sedentary Behaviour*. Geneva (CHE): WHO; 2020.
- Bardach SH, Schoenberg NE, Howell BM. What motivates older adults to improve diet and exercise patterns? *J Community Health*. 2016;41(1):22–9.
- Rai R, Jongenelis MI, Jackson B, Newton RU, Pettigrew S. Factors influencing physical activity participation among older people with low activity levels. *Ageing Soc*. 2020;40(12):2593–613.
- Sims J, Kerse N, Naccarella L, Long H. Health promotion and older people: The role of the general practitioner in Australia in promoting healthy ageing. *Aust NZ J Public Health*. 2000;24(4):356–9.
- Durand Z, Nigg CR. The theoretical basis for engagement in physical activity among older adults. *Annu Rev Gerontol Geriatr*. 2016;36(1):251–71.
- Abioye AI, Hajifathalian K, Danaei G. Do mass media campaigns improve physical activity? A systematic review and meta-analysis. *Arch Public Health*. 2013;71(1):20.
- Cavill N, Bauman A. Changing the way people think about health-enhancing physical activity: Do mass media campaigns have a role? *J Sports Sci*. 2004;22(8):771–90.
- Franco MR, Tong A, Howard K, Sherrington C, Ferreira PH, Pinto RZ, et al. Older people's perspectives on participation in physical activity: A systematic review and thematic synthesis of qualitative literature. *Br J Sports Med*. 2015;49(19):1268.
- Bergeron CD, Tanner AH, Friedman DB, Zheng Y, Schrock CS, Bornstein DB, et al. Physical activity communication: A scoping review of the literature. *Health Promot Pract*. 2019;20(3):344–53.
- Williamson C, Baker G, Mutrie N, Niven A, Kelly P. Get the message? A scoping review of physical activity messaging. *Int J Behav Nutr Phys Act*. 2020;17(1):51.
- Perracini MR, Franco MRC, Ricci NA, Blake C. Physical activity in older people – Case studies of how to make change happen. *Best Pract Res Clin Rheumatol*. 2017;31(2):260–74.
- Rai R, Jongenelis MI, Jackson B, Newton RU, Pettigrew S. Exploring factors associated with physical activity in older adults: An ecological approach. *J Aging Phys Act*. 2019;27(3):343–53.
- Yoon C, Laurent G, Fung HH, Gonzalez R, Gutches AH, Hedden T, et al. Cognition, persuasion and decision making in older consumers. *Mark Lett*. 2005;16(3–4):429–41.
- Drolet A, Jiang L, Mohammad AP, Davis C. The influence of aging on consumer decision-making. *Consum Psychol Rev*. 2019;2(1):3–16.
- Li S-C. Connecting the many levels and facets of cognitive aging. *Curr Dir Psychol Sci*. 2002;11(1):38–43.
- Rice GE, Okun MA. Older readers' processing of medical information that contradicts their beliefs. *J Gerontol*. 1994;49(3):119–28.
- Guido G, Pichierrri M, Rizzo C, Chieffi V, Moschis G. Information processing by elderly consumers: A five-decade review. *J Serv Mark*. 2021;35(1):14–28.
- Chase J-AD. Interventions to increase physical activity among older adults: A meta-analysis. *Gerontologist*. 2015;55(4):706–18.
- Zubala A, MacGillivray S, Frost H, Kroll T, Skelton DA, Gavine A, et al. Promotion of physical activity interventions for community dwelling older adults: A systematic review of reviews. *PLoS One*. 2017;12(7):e0180902.
- Bandura A. Social cognitive theory of mass communication. *Media Psychol*. 2001;3(3):265–99.
- Devereux-Fitzgerald A, Powell R, Dewhurst A, French DP. The acceptability of physical activity interventions to older adults: A systematic review and meta-synthesis. *Soc Sci Med*. 2016;158:14–23.
- de Lacy-Vawdon CJ, Klein R, Schwarzman J, Nolan G, Silva R de, Menzies D, et al. Facilitators of attendance and adherence to group-based physical activity for older adults: A literature synthesis. *J Aging Phys Act*. 2018;26(1):155–67.
- Lowsky DJ, Olshansky SJ, Bhattacharya J, Goldman DP. Heterogeneity in healthy aging. *J Gerontol A Biol Sci Med Sci*. 2014;69(6):640–9.
- de Jong LD, Lavender AP, Wortham C, Skelton DA, Haines TP, Hill A-M. Exploring purpose-designed audio-visual falls prevention messages on older people's capability and motivation to prevent falls. *Health Soc Care Community*. 2019;27(4):e471–82.
- Rai R, Jongenelis MI, Jackson B, Newton RU, Pettigrew S. Retirement and physical activity: The opportunity of a lifetime or the beginning of the end? *J Aging Phys Act*. 2019;28(3):365–75.
- Mowery A, Riedesel P, Dreher M, Schillo BA, Saul JE. Using online message testing to evaluate TV ads, select effective messaging, and improve public health campaigns. *Soc Mark Q*. 2016;22(3):179–99.
- Amonini C, Pettigrew S, Clayforth C. The potential of shame as a message appeal in antimoking television advertisements. *Tob Control*. 2015;24(5):436–41.
- Bombak AE. Self-rated health and public health: A critical perspective. *Front Public Health* [Internet]. 2013 [cited 2020 Dec 31];1:15. Available from: <https://www.frontiersin.org/articles/10.3389/fpubh.2013.00015/full>
- Tennant R, Hiller L, Fishwick R, Platt S, Joseph S, Weich S, et al. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. *Health Qual Life Outcomes*. 2007;5(1):63.
- Shepherd R. Godin leisure-time exercise questionnaire. *Med Sci Sports Exerc*. 1997;29(6):S36–8.
- Lim K, Taylor L. Factors associated with physical activity among older people—a population-based study. *Prev Med*. 2005;40(1):33–40.
- Smith B, McGannon KR. Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *Int Rev Sport Exerc Psychol*. 2018;11(1):101–21.
- Department of Health (AUST). *Physical Activity Guidelines for Older Australians*. Canberra (AUST): Government of Australia; 2021.
- Brown DR, Soares J, Epping JM, Lankford TJ, Wallace JS, Hopkins D, et al. Stand-alone mass media campaigns to increase physical activity: A community guide updated review. *Am J Prev Med*. 2012;43(5):551–61.
- Australian Bureau of Statistics. *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*. Canberra (AUST): ABS; 2016.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Supplementary Table 1: Ad test outcomes stratified by gender and location.