Older adults' perceptions and preferences towards web-based physical activity interventions

A focus group study of older adults' perceptions and preferences towards web-based physical

activity interventions

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Abstract

The majority of older Australians are inactive, which contributes to high chronic disease rates and reduced quality of life in this age group. Web-based physical activity interventions have the potential to reach large numbers of older adults at low cost. The aim of this study was to explore older adults' perceptions and preferences for web-based physical activity interventions in focus group interviews. The results showed that this group of older adults liked websites that have links to information and included instructional videos and disliked websites that were hard to navigate. Many participants did not express an initial interest in web-based physical activity programs. When asked about preferences for web-based physical activity programs, this group preferred them to be simple and not cluttered, to include personalised advice, to include reminder check-ins and the ability to review goals after illness or injury. The most common preference for personalised advice in web-based interventions was that the information needs to be tailored to their existing injuries and illnesses. The findings from this study will inform the design of future web-based interventions specifically tailored to the needs of older people.

Keywords: aging, exercise, Internet, online, program

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The majority (70%) of older adults (65+ years) in Australia are not meeting the physical activity recommendations for good health and wellbeing (Australian Bureau of Statistics, 2015). Physical activity reduces the risk and severity of chronic disease which is more common in older compared to younger adults (Australian Bureau of Statistics, 2015), and reduces the risk of cognitive decline, falls and osteoporosis (Wullems et al., 2016). Older adults who are physically active are estimated to have a 28% lower risk of mortality over a 10-year period (Hupin et al., 2015). Inactivity in older adults is increasing the burden on the health care system, which will be exacerbated with ageing of the population (Productivity Commission, 2013). Physical activity interventions effective at increasing physical activity participation and reaching large numbers of older adults are therefore needed.

Web-based physical activity interventions have the potential to reach large numbers of inactive people at low cost and have been shown to be effective in middle-aged adults (Davies et al., 2012). A meta-analysis demonstrated that web-based interventions to increase physical activity are effective (Davies et al., 2012). Self-monitoring (recording activity manually or through devices such as pedometers), computer-automated personalised advice, goal setting, action planning (detailed plans for activity including what, where and when) and reminder check-ins have been identified as effective intervention components (Davies et al., 2012; Lustria et al., 2009; Michie et al., 2011).

Rising internet usage by older adults means there is an increasing opportunity for developing web-based physical activity interventions in this age group. Currently, 79% of older Australian adults identify as internet users (Australian Communications and Media Authority, 2016). Ammann et al. (2012) conducted a study examining whether a web-based physcial activtiy intervention with computer-automated personalised advice was acceptable, usable and effective for older people. The intervention was not specifically developed for

older adults, however, older participants in the study increased physical activity more than the younger participants. The older adults also indicated more interest in continuing to use the website, and were more likely to finish the intervention (Ammann et al., 2012). Some other studies found web-based physical activity interventions to be effective in older adults, however most used an existing intervention built for all ages and used young age cuts offs of 50 and 55 years (Baxter et al., 2016; Peels et al., 2013; Wijsman et al., 2013). These results are promising and suggest that website-delivered interventions can be an effective means to promote physical activity in older adults.

Interventions that meet the target group's preferences are more effective at producing behaviour changes (Short, Vandelanotte & Duncan, 2014). To date, however, we have little understanding of older adults' perceptions of web-based physical activity interventions and their preferences for intervention delivery, components and support (Baxter et al., 2016). Such knowledge is needed to develop engaging and effective web-based interventions for this age group. The aim of the current study was therefore to gather in-depth information through focus groups about older adults' perceptions and preferences regarding the use of web-based technology to promote physical activity.

Method

Participants

Participants were older (65+ years) adults residing in Central Queensland, Australia. People were invited via telephone to participate. An information sheet explaining the specifics of the study and available group times were sent via email to eligible and interested participants. Participants were invited to bring a family member or friends if they also met the inclusion criteria. The study received ethics approval from the appropriate Human Ethics Committee before data collection (H16/02-028). Written consent was received from all participants prior to focus group commencement.

Measures

At the start of each focus group, participants were asked to complete a hard copy survey with questions about demographic characteristics including sex, age, employment, physical activity motivation, physical activity level and estimated weekly duration of internet use. A semi-structured interview was developed to guide the focus group discussions. Nine questions were used to explore participants' preferences and use of technology and the internet, likes and dislikes of websites, and perceptions of web-based physical activity programs. Participants were also asked about their preferences for web-based physical activity programs, including visual appeal of the websites, and thoughts about action planning tools, self-monitoring, activity graphs and personalised advice within web-based interventions.

Procedure

A total of six focus groups were held at a Central Queensland University campus in April 2016. Each focus group took 1.5-2 hours. First, participants were given a hard copy of the consent form, the information sheet and the demographic survey to complete. All forms were collected from participants before the start of the focus group discussions. Discussions were facilitated by two researchers. The researchers facilitated discussions by rephrasing questions and prompting everyone to participate. The focus groups were audiotaped and transcribed by an independent transcribing service verbatim. The concept of web-based interventions was described to participants and a slide presentation was used to provide examples of various web-based technologies relating to physical activity programs.

Analysis

Content analysis was used to examine older adults' perceptions and preferences towards physical activity and web-based programs. The six-step process of content analysis proposed by Braun & Clarke (2006) was followed: (1) familiarisation with data; (2)

generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes and (6) producing the report. The themes were drawn from the nine questions asked of focus group participants. Responses within each theme were identified from the focus group discussion and coded as subthemes. The coding was carried out using Microsoft Word software. Two authors coded the focus groups and both coders coded focus group 5 (16 % of data) for inter-reliability assessment. Results demonstrated 86% agreement for themes and 77% for subthemes. Inter-rater reliability (Kappa) for theme was .86, p<.001 and for topic was .77, p<.001 indicating very good and good reliability, respectively (Altman, 1991). Table 1 presents the themes and subthemes derived from the focus group discussions.

Results

Participants

The sample included 46 community dwelling adults with an average age of 72.28 years (SD = 4.52). The majority of the sample were female (73.9%), retired (89.9%) and wanted to increase their physical activity (73.3 %). The average number of days per week on which the participants were engaged in more than 30 minutes of moderate to vigorous physical activity was 4.24 days (SD = 2.48). Average weekly internet use at home was 69.56 minutes (SD = 87.70).

Qualitative Analysis

Preferences for technology. The most common technological device participants reported to use was the computer: "Well I've only really got the computer, I play games and the emails back and forth to people where I used to write letters once" (Female, 74). Therefore, the general consensus was that they would use a desktop computer if participating in a web-based physical activity program. Some participants mentioned that they use a tablet or IPad, and a small number mentioned that they use a smartphone.

Web-based physical activity programs. The majority of participants did not know of any web-based physical activity programs: "No, that's not what I've been searching for" (Male, 68). Some participants mentioned their awareness of the online 10,000 steps walking program: "...they put a walker, counter on you and we often come up to check it… there should be more of them" (Male, 80). After the nature of web-based physical activity programs were described to participants, there was a general lack of interest in using such programs: "No, need somebody with a whip" (Male, 66), "Probably not interested no" (Female, 75). The most common reason was that they did not have a computer or adequate internet connection: "...there are limits there on what people have available and what they can get access to" (Male, 75). The next most commonly mentioned reasons for not being interested were that they were already self-motivated, that such programs are aimed at healthy younger people, provide no accountability and take too much time (participants stated that interventions should take less than 30 minutes on a few occasions in total or 5-10 minutes every 1-3 days). Conversely a few participants mentioned that they would be interested in using a web-based physical activity program: "Yes that sounds interesting" (Female, 69). In addition, a few participants mentioned that they would be interested in using such a program if it included exercise instruction: "I think it'd be good to show you how to do it, especially yoga and things" (Female, 70), "I think information is not necessary, we already know that it's good for us don't we, that it's going to be good for us, I just think the program" (Female, 71).

Likes and dislikes about websites. Participants most commonly mentioned that they like links in websites: "Links to good information and the fact that where the information is drawn from, there's so much information out there and it can be from unreliable sites, so that you only have the links to reliable sites so that we know the information is sound" (Female, 71), followed by instructional videos. Other likes included: testimonials and strong visual

appeal. The most common dislike about websites was difficulties with navigating: "…It's frustrating when it won't do what you're telling it to do or what you want it to do" (Female, 70),"I just get very frustrated and I just shut the whole thing down, pull the plug out of the wall. I might go back a few days later and think oh I'll have another go at that" (Female, 70). There was a general consensus that advertisements are frustrating: "I hate being interrupted by ads" (Female, 70). Other common dislikes were lack of training, lack of understanding and confusing technology jargon: "Understanding the language. Cause I feel I could negotiate the instructions on a computer if I could understand what they mean by certain terms that they use" (Male, 67).

Physical activity intervention website appearances. There was a general consensus that physical activity intervention websites should be simple and not cluttered (i.e. not too many words and not too much on one page): "They're just too full…too much information." (Female, 71). Other common views on physical activity program websites included that the website's attractiveness does not matter, that they should be in an easy-to-read font, have a nice colour and use simple navigation tabs.

Preferences for web-based physical activity intervention components. Many participants mentioned that they would not like peer comparisons and competition to help them become more active: "Too competitive, would cause me anxiety… and you've got to keep up to a standard someone else has set and I don't want that" (Female, 71). However, a small number of participants disagreed and said that they would like competition components such as a monthly step leader board. The next most commonly mentioned thoughts on intervention components was the need for personalised information, the need for reminder check-ins and the ability to review and update goals after illness: "[Reassessing goals] would be important, cause if you've had a week where you're unwell or something." (Female 69). Some participants mentioned that they would like the ability to trial the program first.

Preferences for goal setting action planning. Goal setting and action planning, which is planning of how they will engage in physical activity (what, where, when etc.) was explained to participants. The most common preference for goal setting and action planning was to write their goals and plan in a paper diary/calendar rather than online: "… if there's an exercise class I'm going to I'd have it in my diary and I'd go to it" (Female, 70), This was followed by participants mentioning that they were not interested in action planning: "I don't like having my life planned… I like to do my own thing in my own time" (Male, 74) ; "I wouldn't do it, too precise, too regimented…" (Female, 71). Other preferences for goal setting and action planning included: receiving mentor support through phone calls and receiving computer suggestions: "… maybe the computer suggests something after it's taken your age and your weight and your height" (Male, 67).

Preferences for self-monitoring. The most common preference for monitoring physical activity was writing in a paper diary rather than online: "I find it easy to write in a diary, calendar stuff, fill that in" (Female, 82). Some participants mentioned a pedometer as a useful activity monitor while a similar number reported the Fitbit to be useful: "Fitbit of course is the easiest" (Female, 74). However, cost was identified as a negative to purchasing the Fitbit compared to other devices.

Preferences for activity graphs. There was a general consensus that graphs presenting the users physical activity would be helpful: "I'd be up for this, and it would make me feel a bit guilty, got to lift my game" (Male, 67), "Graphs are good in all sorts of applications because they're really easy to understand to see where you're at even if it's in usage of something" (Male, 74). Commonly mentioned preferences included the need for graphs to be simple and clear, colourful, include healthy guidelines for older adults and that it needs to be easy to understand.

Preferences for computer-automated personalised advice. There was a general consensus that computer-automated personalised advice would be helpful and useful: "It'd be very helpful to me" (Female, 76) and "… practical advice would be good…" (Female, 80). The majority of participants agreed that personalised advice should take into account existing injuries and illness: "…health status would have to be in there… it needs to have enough information to give you feedback that's accurate feedback for you" (Male, 86) and "I'd have to have it tailored to my condition" (Female, 67). The need for individualised exercise advice was also mentioned by a few participants: "I'd like someone to say you know you've done too much and that's why you're feeling absolutely knackered…" (Female, 69).

Discussion

The aim of the study was to explore the perceptions and preferences of older adults towards web-based physical activity programs. The participants reported that they would most likely access a web-based physical activity program through a desktop computer. This reflects the recent research conducted by the Australian Communications and Media Authority (2016) which found that the most popular device among older internet users (over 65 years) in Australia was desktop computer (41%), followed by laptop (27%), tablet (18%) and mobile phone (12%). The initial lack of interest in web-based physical activity programs was mainly due to participants not having access to a computer or the internet. This may change in the coming years, as the number of older adults that use the internet is steadily growing (65% in 2010 and 79% in 2014) (Australian Communications and Media Authority, 2016).

To address participants' view that existing physical activity interventions are aimed at healthy younger people, interventions for older adults should deliver physical activity advice specific for older adults and use images and wording that is suited to older adults. Intervention developers should ensure formative testing of websites is conducted to make

sure that the intervention website and content is acceptable to older adults (Danaher & Seeley, 2009). The concern that web-based interventions take too much time could be addressed by keeping the interventions brief (30 minutes on a few on occasions or 5-10 minutes every 1-3 days) (Davies et al., 2012). To address participants' concern that web-based physical activity interventions provide no accountability, interventions for older adults should provide follow up phone calls with a personal coach. Follow up phone calls have been found to improve intervention adherence and effectiveness in adults of all ages, and the results of the current study suggest that they may be particularly important for older adults (Davies et al., 2012). Interventions for older adults should also provide specific exercise instruction through video or images and weekly exercise plans including frequency, intensity, time and type of exercise which participants can follow if they choose to.

Despite the general lack of interest there were some participants who were interested in participating in a web-based physical activity intervention. King (2001) argued that it is all about figuring out what works for whom, under what circumstances and then offering people several options. Future research is needed to investigate which groups of older adults are most interested in using web-based programs. It may be that such programs are suited to the younger older adults 65-69 years and 70-74 years who are higher internet users (89% and 81% respectively) compared to adults 75-79 years and 80+ years who are less likely to use the internet (73% and 58% respectively) (Australian Communications and Media Authority, 2016).

The focus group discussions about websites suggests that physical activity interventions for older adults should be simple and not cluttered (e.g., large font size, no flashing advertising and not too much information on each page), demonstrate that the information is evidence-based by providing links to where the information is from, incorporate step-by-step instructions for website features (possibly in video format) and be

easy to navigate (e.g. simple navigation tabs). There is limited research that explores the presentation of web-based content so that it is appealing to older adults (Mouton & Cloes, 2013). As such, our study findings are valuable for informing the design and appeal of future web-based physical activity interventions for older adults.

Reminder check-ins, the ability to review goals after illness or injury and personalised information were the most commonly identified useful web-based intervention components. These outcomes align with past research which has shown that email reminders are effective at increasing physical activity levels (Davies et al., 2012); that it is important to provide goal setting options that allow adjustment based on illness and injury (Latham, 2003) and that personalised advice is more engaging and effective than generic advice (Lustria et al., 2009). The most important preference for personalised advice was information being tailored to existing injuries and illness. For example, a participant with diabetes would receive messages about the physical activity benefits and recommendations specifically for people with diabetes. Many participants indicated that they were not interested in comparisons or competition between peers. This is not in line with past focus groups conducted in other population groups. For example, Vandelanotte et al. (2013) found that middle-aged males were interested in friendly competition with others as part of a web-based intervention (Vandelanotte et al., 2013). This may be due to the lower levels of self-efficacy for physical activity observed in older adult samples (Jefferis et al., 2014). The lower levels self-efficacy may mean that older adults are less likely to have the confidence to complete with their peers (Jefferis et al., 2014).

Despite a rising number of older adults using the internet (Australian Communications and Media Authority, 2016), our results suggest that older adults prefer using paper and pen to self-monitor and set action plans. Web-based interventions may therefore be more effective if they teach older adults how to write effective action plans,

encourage them to write it down, and place it where they can see it regularly. Web-based interventions should at least make goal setting and action planning tools simple and quick to use through pre-set plans that participants could quickly personalise by clicking a few buttons. Pedometers were mentioned as a useful device for monitoring physical activity in older adults. This result is consistent with a study conducted by Alley et al. (2016) who found that older adults were more likely to have used a pedometer and less likely to have used a Fitbit than younger adults. Alley et al. (2016). However some participants in the current study were interested in using a Fitbit to monitor their physical activity. The Fitbit may be a useful tool to overcome participants' lack of interest in going online to manually self-monitor physical activity (e.g. enter in steps from a pedometer) as the Fitbit automates the self-monitoring process. Future research is required to determine the effectiveness of self-monitoring via Fitbit in comparison to pedometers as part of a web-based intervention for older adults.

Strengths and limitations

This study generated new knowledge that will inform future developments in the design and delivery of web-based physical activity interventions targeting older adults. Despite this, some limitations must be acknowledged. First, we do not know if what the older adults said they wanted in an intervention aligns with what they would use in reality. Second, participants were from the Central Queensland region, physically active and predominately female (M=12 and F=34) so the results may not generalise across genders, to inactive older adults and to older adults in other locations.

Conclusions

This study identified perceptions and preferences for using web-based physical activity interventions for a group of older adults living in Central Queensland. To satisfy the needs of this group, web-based physical activity interventions should be simple and not

cluttered, include reminder check-ins, offer the ability to review goals after illness or injury, include clear and colourful physical activity graphs, self-monitoring and personalised advice taking into account their health conditions. Further research is required to develop and test web-based physical activity interventions targeting older adults which incorporate these findings.

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Table 1

Results of themes and subthemes for web-based physical activity interventions

Theme	Subthemes
Preferences for technology	
	Computer
	IPad/tablet
	Smartphone
	Laptop
	None
Web-based physical activity programs	
	Not heard of
	10,000 steps
	Not interested
	Bad internet connection
	Already self-motivated
	Targeted to younger people
	No accountability
	Take too much time
	Interested in exercise instruction
Likes about websites	
	Good links
	Videos (instructional)
	Testimonials
	Visually appealing
Dislikes about websites	
	Navigation difficulty
	Advertisements
	Lack of training
	Technology language
Physical activity intervention website appearances	
	Simple and not cluttered
	Attractiveness doesn't matter
	Easy to read font
	Nice colour
	Simple navigation tabs
Web-based intervention components	
	Peer comparisons (negative)
	Personalised information
	Reminder check-ins
	Goal review post illness
	Short term trials
Goal setting and action planning	
	Paper diary/calendar
	Not interested
	Mentor support
Self- monitoring	

	Paper diary
	Pedometer
	Fitbit
	Costs barrier
Activity graphs	
	Helpful
	Simple and clear
	Colourful
	Healthy guidelines
	Easy to understand
Computer automated personalised advice	
	Helpful and useful
	Injury and illness
	Individualised exercises