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Digital or mobile technologies and falls prevention

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Time taken: 15 hours

Date Range: 2010 - 2023

Other Limits: English language only

Search terms and notes: (search terms) mhealth, "digital technolog*", "digital communication tool*", SMS, "intelligent messag*", AND "fall* prevention", Florence, health, elderly, "old people",

Search requested by:	
Email:	
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Searched by:	Malcolm Cater
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| Date(s) search carried out: | 26/04/2023 – 03/05/2023 |

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Disclaimer: It is recommended that you check the references for their relevance and that they are critically appraised before being applied to a clinical decision. Please be aware that published journal articles will have been peer reviewed, however, other evidence such as pre-prints, reports and other grey literature may not have been through this process.

Mobile/ digital technologies and behaviour change

Papers looking at mobile/digital technologies impact and effectiveness on behaviour change, but not in the field of falls prevention, although similar processes could be applied and these will be looked at in the next section.

An evaluation of behaviour change techniques in health and lifestyle mobile applications

Item Type	Journal Article
Author	Gaston Antezana
Author	Anthony Venning
Author	Victoria Blake
Author	David Smith
Author	Megan Winsall
Author	Simone Orlowski
Author	Niranjan Bidargaddi

Abstract Despite the current popularity and potential use of mobile applications (apps) in the area of behaviour change, health promotion, and well-being for young people, it is unclear whether their design is underpinned by theory-based behaviour change techniques. Understanding the design of these apps may improve the way they can be used to support young people?s well-being.The objectives of this study were to investigate what behaviour change techniques are included in the content of health and lifestyle apps, and determine which of these are prominent in app design. Thirty of the top-listed health and lifestyle apps across three categories (physical activity, diet, and sleep) were freely downloaded from the two most popular app stores (GooglePlay? and AppStore?). Selected apps were used by trained researchers and the features identified coded against the Behaviour Change Techniques Taxonomy 1, a systematic classification of techniques used in behaviour change interventions. It was found that 9 of the 93 behaviour change techniques listed in the Behaviour Change Techniques Taxonomy 1 were common across the chosen health and lifestyle apps. The app found to include the most behaviour change techniques had 20 (21%), while the app found to include the least had 1 behaviour change technique (1%). The most frequently used behaviour change techniques were related to goal setting and feedback. Entire categories in the Behaviour Change Techniques Taxonomy 1 were absent in the design of the selected apps.

Date	2020-03-01
Library Catalogue	SAGE Journals
URL	https://doi.org/10.1177/1460458218813726
Accessed	26/04/2023, 12:43:29
Extra	Publisher: SAGE Publications Ltd
Volume	26
Publication	Health Informatics Journal
DOI	10.1177/1460458218813726
Issue	1
Journal Abbr	Health Informatics J

Assistive digital technology to promote quality of life and independent living for older adults through improved self-regulation: a scoping review

Item Type	Journal Article
Author	Gaja Zager Kocjan
Author	Tanja Špes
Author	Matija Svetina
Author	Nejc Plohl
Author	Urška Smrke
Author	Izidor Mlakar
Author	Bojan Musil

Abstract Digital technologies can be a key component in helping older adults maintain their autonomy and quality of life in their homes and communities. The purpose of this scoping review was to examine the existing literature on the role of assistive digital technologies in promoting a higher quality of life and independent living for older adults by supporting their self-regulation in various aspects of daily living. The review was conducted and reported in accordance with PRISMA guidelines. Major electronic databases were searched to identify relevant articles published between 2012 and 2022. A total of 972 articles were identified, of which 19 articles met all inclusion criteria. Results are presented in four categories: (i) types of digital technologies, (ii) quality of life domains, (iii) quality of life benefits, and (iv) technological

aspects supporting self-regulation. Our review also showed that successful adoption of assistive technologies depends on older adults' trust in these technologies and the perceived benefits of

technological support. Early involvement of older adults in the development of assistive technologies appears to play an important role in their technological self-efficacy. The limitations of the studies reviewed are discussed, and some general guidelines for future research in this area are suggested.

Date	2022-11-25
Library Catalogue	Taylor and Francis+NEJM
URL	https://doi.org/10.1080/0144929X.2022.2149423
Accessed	20/04/2023, 14:42:02
Extra	Publisher: Taylor & Francis _eprint: https://doi.org/10.1080/0144929X.2022.2149423
Volume	0
Publication	Behaviour & Information Technology
DOI	10.1080/0144929X.2022.2149423
Issue	0

Can behavior change techniques be delivered via short text messages?

Item Type	Journal Article
Author	Onur Cem Doğru
Author	Thomas L. Webb
Author	Paul Norman
Abstract	Despite significant advancements in behavioral science it is unclear whether behavior change techniques (or BCTs) can be delivered to large numbers of people in a cost-effective and reliable way. The current study investigated whether it is possible to reliably deliver BCTs using short text messages. Short text messages were designed to deliver each of the 93 BCTs specified in the BCT taxonomy v1. Following initial coding and refinement by the team, a Delphi study with a panel of 15 experts coded which BCT each short text message was designed to deliver and also rated whether they were likely to be understood by recipients and easily converted to target different behaviors. After two iterations, the experts correctly assigned 66 of the 93 messages to the BCT that they were designed to deliver and indicated that these messages were likely to be easy to apply to a range of behaviors and understood by recipients. Experts were not able to identify which BCT 27 of the messages were designed to deliver and it was notable that some clusters of BCTs (e.g., "Goals and planning") were easier to deliver via short text messages than other clusters (e.g., "Scheduled consequences"). The findings suggest that short text messages can be a reliable way to deliver many, but not all, BCTs. The implications of the current study are discussed with respect to the delivery of specific BCTs and clusters of the taxonomy, as well as the need to test the acceptability of interventions delivered via short messages and the impact of messages on behavior.
Date	2022-11-16
Library Catalogue	PubMed
Extra	PMID: 36190350
Volume	12
Publication	Translational Behavioral Medicine
DOI	10.1093/tbm/ibac058
Issue	10
Journal Abbr	Transl Behav Med

Designing in-app messages to nudge behavior change: Lessons learned from a weight management app for young adults

Item Type	Journal Article
Author	Carmina G. Valle

Author	Brooke T. Nezami
Author	Deborah F. Tate

Abstract While mobile-based behavioral weight loss apps are increasing, little is known about factors associated with likelihood of viewing in-app messages. The objectives of this study were to examine, among 52 young adults participating in a microrandomized trial testing smartphone-delivered messages promoting weight management behaviors, the proportion of intervention messages viewed and behavioral predictors of message viewing. Two thirds of messages delivered were viewed. Messages were less likely to be viewed over time in the program and as participants' total weight change in the program increased. Lapses in self-weighing and increased weight since the last weighing observation were associated with decreased probability of message viewing. Conversely, increased days of meeting dietary goals in the last 7 days were associated with increased likelihood that a message was viewed. These findings identified circumstances in which messages are less likely to be viewed and have implications for designing mobile approaches to enhance participant engagement.

Date	2020-11-01
Library Catalogue	ScienceDirect
URL	https://www.sciencedirect.com/science/article/pii/S0749597820303903
Accessed	26/04/2023, 14:04:24
Volume	161
Publication	Organizational Behavior and Human Decision Processes
Series	Creating Habit Formation for Behaviors
DOI	10.1016/j.obhdp.2020.10.004
Journal Abbr	Organizational Behavior and Human Decision Processes

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Effect of a short message service (SMS) intervention on adherence to a physiotherapist-prescribed home exercise program for people with knee osteoarthritis and obesity: protocol for the ADHERE randomised controlled trial

Item Type	Journal Article
Author	Rachel K. Nelligan
Author	Rana S. Hinman
Author	Jessica Kasza
Author	Sarah Schwartz
Author	Alexander Kimp
Author	Lou Atkins
Author	Kim L. Bennell

Abstract Abstract Background Knee osteoarthritis (OA) is a highly prevalent condition. People with knee OA often have other co-morbidities such as obesity. Exercise is advocated in all clinical guidelines for the management of knee OA. It is often undertaken as a home-based program, initially prescribed by a physiotherapist or other qualified health care provider. However, adherence to home-based exercise is often poor, limiting its ability to meaningfully change clinical symptoms of pain and/or physical function. While the efficacy of short message services (SMS) to promote adherence to a range of health behaviours has been demonstrated, its ability to promote home exercise adherence in people with knee OA has not been specifically evaluated. Hence, this trial is investigating whether the addition of an SMS intervention to support adherence to prescribed home-based exercise is more effective than no SMS on self-reported measures of exercise adherence. Methods We are conducting a two-arm parallel-design, assessor-and-participant-blinded randomised controlled trial (ADHERE) in people with knee OA and obesity. The trial is enrolling participants exiting from another randomised controlled trial, the TARGET trial, where participants are prescribed a 12-week home-based exercise program (either weight bearing functional exercise or non-weight bearing quadriceps strengthening exercise) for their knee by a physiotherapist and seen five times over the 12 weeks for monitoring and supervision. Following completion of outcome measures for the TARGET trial, participants are immediately enrolled into the ADHERE trial. Participants are asked to continue their prescribed home exercise program unsupervised three times a week for 24-weeks and are randomly allocated to receive a behaviour change theory-informed SMS intervention to support home exercise adherence or to have no SMS intervention. Outcomes are measured at baseline and 24-weeks. Primary outcomes are self-reported adherence measures. Secondary outcomes include self-reported measures of knee pain, physical function, quality-of-life, physical activity, selfefficacy, kinesiophobia, pain catastrophising, participant-perceived global change and an additional adherence measure. Discussion Findings will provide new information into the potential of SMS to improve longer-term exercise adherence and ultimately enhance exercise outcomes in knee OA. Trial registration Prospectively registered with the Australian New Zealand Clinical Trials Registry. Reference: ACTR N12617001243303 Date/version: August 2019/two

Date 12/2019

Library Catalogue DOI.org (Crossref)

URL https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/s12891-019-2801-z

Accessed 26/04/2023, 15:06:21

Volume 20

Publication BMC Musculoskeletal Disorders

DOI 10.1186/s12891-019-2801-z

Issue 1

Journal Abbr BMC Musculoskelet Disord

Exploring the experiences and use of text messages to enhance health behaviours and selfmanagement in South Asian patients

Item Type Thesis

Author T. Chaudhry

Contributor P. Ormandy

Contributor C. M. Vasilica

Abstract　This PhD thesis seeks to explore and understand the use and experiences of whether text-messaging in the South-Asian (SA) community enhances positive health behaviours, and self-management through the Florence (FLO) text messaging system. It also examines socio-cultural factors contributing to selfmanagement, patient activation and engagement with text messaging. There is limited literature available on the use of text messaging systems in ethnic groups to support self-management to change health behaviour. In order to optimise self-management in SA ethnic minorities, understanding health behaviours, and behavioural change interventions (for example, mobile health) is becoming increasingly important. Therefore, Health behaviour and behaviour change are explored along with the contextual factors influencing the acceptance and uptake of text messaging. A mixed methodology consisting of two phases took place within Diabetes and Endocrine clinics held in the Midlands, UK. Phase one included the quantitative element in which the Patient Activation Measure (PAM) was completed to understand participants' level of skills, knowledge and confidence to self-manage their long-term condition; whilst, phase two utilised qualitative interviews to explore and understand SA participant (n=40) experiences of using a text messaging system and their self-management behaviours. Data was obtained from both users (n=20) and non-users (n=20) of the FLO system. The PAM was executed for the first time across a SA sample, and vital to provide insight to where SAs are up to with their self-management, and what healthcare providers can do to optimise their self-management. In general, users had higher patient activation levels and better self-management behaviours. Particular themes contributing to SA participant engagement with text messages and self-management included demographics (age, gender roles, ethnicity, religion, education levels and socio-economic/employment status) family support, health beliefs and cultural norms, adoption of traditional remedies over western or prescribed medications, religious and fatalistic beliefs, and language barriers. The findings also generated new knowledge by providing an underpinning on theoretical constructs that played a significant role to better understand SA health behaviour, participant contexts and acceptance to uptake such interventions. Recommendations for future practice and policy include the implementation of culturally appropriate mHealth interventions (i.e., text messaging) to better suit SA participants.

Date　2021-03-17

Library Catalogue　usir.salford.ac.uk

URL　http://usir.salford.ac.uk/id/eprint/61730/

Accessed　26/04/2023, 14:17:09

Rights　https://usir.salford.ac.uk/id/eprint/61730/3/T%20Chaudhry%20Thesis%20FINAL%2002.09.2021.pdf:public

# of Pages　480

University　University of Salford

Functions of mHealth applications: A user's perspective

Item Type　Journal Article

Author　David Smahel

Author　Steriani Elavsky

Author　Hana Machackova

Abstract　The usage of mobile health (mHealth) applications is rapidly increasing. This research has been aimed mostly at reviewing existing mHealth apps and their functionality. However, studies from users?
perspectives are rather scarce. This exploratory study addresses that gap and, using cross-sectional survey data, seeks to reveal the socio-demographic and individual characteristics of users who utilize specific functions of mHealth apps. The data were collected via an online survey through websites oriented toward eating habits, exercising, dieting, and weight loss. From the original sample (1002 users; M?=? 24.8, standard deviation?=?6.9; 81.6% females), the final sub-sample of 406 participants aged from 13 to 39?years (M?=?23.8, standard deviation?=?5.3, 86.9% females) who reported usage of mHealth apps was examined. The analyses revealed demographic and individual differences in predicting usage of various functions of mHealth apps. The drive for thinness was associated with functions for weight monitoring and planning functions. Excessive exercise was associated with weight monitoring, socializing functions, and functions for planning and monitoring goals. These findings imply that mHealth apps should be individually tailored to incorporate components such as risk-specific warnings or the provision of information related to seeking professional help for at-risk audiences.

Date　2019-09-01

Library Catalogue　SAGE Journals

URL　https://doi.org/10.1177/1460458217740725

Accessed　19/04/2023, 14:56:21

Extra　Publisher: SAGE Publications Ltd

Volume　25

Going Mobile: Delivering Behavioural Support via SMS Text Messages: (544722013-004)

Item Type Dataset
Author Felix Naughton
Author Stephen Sutton
Date 2011
Library Catalogue DOI.org (Crossref)
URL http://doi.apa.org/get-pe-doi.cfm?doi=10.1037/e544722013-004
Accessed 26/04/2023, 12:40:26
Extra Institution: American Psychological Association DOI: 10.1037/e544722013-004
DOI 10.1037/e544722013-004

Intelligent mobile support for therapy adherence and behavior change

Item Type Journal Article
Author Michel Klein
Author Nataliya Mogles
Author Arlette van Wissen
Abstract Mobile applications have proven to be promising tools for supporting people in adhering to their health goals. Although coaching and reminder apps abound, few of them are based on established theories of behavior change. In the present work, a behavior change support system is presented that uses a computational model based on multiple psychological theories of behavior change. The system determines the user's reason for non-adherence using a mobile phone app and an online lifestyle diary. The user automatically receives generated messages with persuasive, tailored content. The system was designed to support chronic patients with type 2 diabetes, HIV, and cardiovascular disease, but can be applied to many health and lifestyle domains. The main focus of this work is the development of the model and the underlying reasoning method. Furthermore, the implementation of the system and some preliminary results of its functioning will be discussed.
Date 2014-10-01
Library Catalogue ScienceDirect
URL https://www.sciencedirect.com/science/article/pii/S1532046414001221
Accessed 26/04/2023, 14:04:54
Volume 51
Publication Journal of Biomedical Informatics
DOI 10.1016/j.jbi.2014.05.005
Journal Abbr Journal of Biomedical Informatics

It Started with a Text: An analysis of the effectiveness of mHealth interventions in changing behaviour and the impact of text messaging on behavioural outcomes.

Item Type Journal Article
Author Professor Ben
Abstract New technologies are radically transforming health care. In this paper we evaluate a burgeoning method for delivering health interventions, the use of SMS text messaging via mobile telephones, or mHealth. This paper evaluates the peer-reviewed literature in this domain, examining the range of health issues that have been targeted using text messaging, their efficacy and the characteristics associated with intervention effectiveness. It introduces the Do Something Different behaviour change platform and discusses how this uses behavioural science principles to provide effective mHealth interventions.
Date 2015
Library Catalogue Zotero

Mobile Phone SMS Messages Can Enhance Healthy Behaviour: A Meta-Analysis Of Randomised Controlled Trials

Item Type	Web Page
URL	https://developmentevidence.3ieimpact.org/search-result-details/systematic-review-repository/mobilephone-sms-messages-can-enhance-healthy-behaviour-a-meta-analysis-of-randomised-controlledtrials/9438
Accessed	26/04/2023, 14:32:38
Website Title	3IE

Mobile text messaging for health: a systematic review of reviews

Item Type	Journal Article
Author	Amanda K. Hall
Author	Heather Cole-Lewis
Author	Jay M. Bernhardt
Abstract	The aim of this systematic review of reviews is to identify mobile text-messaging interventions designed for health improvement and behavior change and to derive recommendations for practice. We have compiled and reviewed existing systematic research reviews and meta-analyses to organize and summarize the text-messaging intervention evidence base, identify best-practice recommendations based on findings from multiple reviews, and explore implications for future research. Our review found that the majority of published text-messaging interventions were effective when addressing diabetes selfmanagement, weight loss, physical activity, smoking cessation, and medication adherence for antiretroviral therapy. However, we found limited evidence across the population of studies and reviews to inform recommended intervention characteristics. Although strong evidence supports the value of integrating text-messaging interventions into public health practice, additional research is needed to establish longer-term intervention effects, identify recommended intervention characteristics, and explore issues of cost-effectiveness.
Date	2015-03-18
Library Catalogue	PubMed
Extra	PMID: 25785892 PMCID: PMC4406229
Volume	36
Publication	Annual Review of Public Health
DOI	10.1146/annurev-publhealth-031914-122855
Journal Abbr	Annu Rev Public Health

Promoting physical activity through text messages: the impact of attitude and goal priority messages

Item Type	Journal Article
Author	Tom St Quinton
Author	Ben Morris
Author	Martin J. Barwood
Author	Mark Conner
Abstract	Introduction: Many young adults demonstrate insufficient rates of physical activity (PA) to yield health benefits. The study tested the effectiveness of a text messaging intervention targeting key psychological determinants and PA. Methods: Participants received either attitude messages, goal priority messages, a combination of these, or generic PA information (control). After confirming that groups were matched at baseline, a 2 (attitude: yes vs. no) by 2 (goal priority: yes vs. no) by 2 (time: immediately postintervention, four weeks postintervention) randomized control trial tested main and interactive effects. Results: Results showed participants that received attitude messages had significantly more positive attitudes, intentions and rates of PA. Mediational analyses showed the influence of attitude messages on PA to be fully mediated through the serial path via attitude and intention. There were no other main or interactive effects. Conclusion: The study provides support for using attitudinal messages delivered via text messaging to influence key psychological determinants and PA.
Date	2021-01-01
Library Catalogue	DOI.org (Crossref)

Usability evaluation of mHealth apps for elderly individuals: a scoping review

Item Type	Journal Article
Author	Qiuyi Wang
Author	Jing Liu
Author	Lanshu Zhou
Author	Jing Tian
Author	Xuemei Chen
Author	Wei Zhang
Author	He Wang
Author	Wanqiong Zhou
Author	Yitian Gao

Abstract BACKGROUND: Usability is a key factor affecting the acceptance of mobile health applications (mHealth apps) for elderly individuals, but traditional usability evaluation methods may not be suitable for use in this population because of aging barriers. The objectives of this study were to identify, explore, and summarize the current state of the literature on the usability evaluation of mHealth apps for older adults and to incorporate these methods into the appropriate evaluation stage. METHODS: Electronic searches were conducted in 10 databases. Inclusion criteria were articles focused on the usability evaluation of mHealth apps designed for older adults. The included studies were classified according to the mHealth app usability evaluation framework, and the suitability of evaluation methods for use among the elderly was analyzed. RESULTS: Ninety-six articles met the inclusion criteria. Research activity increased steeply after 2013 (n = 92). Satisfaction (n = 74) and learnability (n = 60) were the most frequently evaluated critical measures, while memorability (n = 13) was the least evaluated. The ratios of satisfaction, learnability, operability, and understandability measures were significantly related to the different stages of evaluation (P < 0.05). The methods used for usability evaluation were questionnaire (n = 68), interview (n = 36), concurrent thinking aloud (n = 25), performance metrics (n = 25), behavioral observation log (n = 14), screen recording (n = 3), eye tracking (n = 1), retrospective thinking aloud (n = 1), and feedback log (n = 1). Thirty-two studies developed their own evaluation tool to assess unique design features for elderly individuals. CONCLUSION: In the past five years, the number of studies in the field of usability evaluation of mHealth apps for the elderly has increased rapidly. The mHealth apps are often used as an auxiliary means of self-management to help the elderly manage their wellness and disease. According to the three stages of the mHealth app usability evaluation framework, the critical measures and evaluation methods are inconsistent. Future research should focus on selecting specific critical measures relevant to aging characteristics and adapting usability evaluation methods to elderly individuals by improving traditional tools, introducing automated evaluation tools and optimizing evaluation processes.

Date	2022-12-02
Library Catalogue	PubMed
Extra	PMID: 36461017 PMCID: PMC9717549
Volume	22
Publication	BMC medical informatics and decision making
DOI	10.1186/s12911-022-02064-5
Issue	1
Journal Abbr	BMC Med Inform Decis Mak

Mobile/ digital technologies and falls prevention

Papers looking at mobile/digital technologies impact and effectiveness on falls prevention, primarily through behaviour change.

A Digital Health Fall Prevention Program for Older Adults: Feasibility Study

Item Type Journal Article

Author Claire L Jacobson

Author Lauren C Foster

Author Hari Arul

Author Amanda Rees

Author Randall S Stafford

Abstract Background About 1 in 3 adults aged 65 and older falls annually. Exercise interventions are effective in reducing the fall risk and fall rate among older adults. In 2020, startup company Age Bold Inc. disseminated the Bold Fall Prevention Program, aiming to reduce falls among older adults through a remotely delivered, digital exercise program. Objective We conducted a feasibility study to assess the delivery of the Bold Fall Prevention Program remotely and evaluate the program's impact on 2 primary outcomes—annualized fall rate and weekly minutes of physical activity (PA)—over 6 months of follow-up. Methods Older adults at high risk of falling were screened and recruited for the feasibility study via nationwide digital advertising strategies. Self-reported outcomes were collected via surveys administered at the time of enrollment and after 3 and 6 months. Responses were used to calculate changes in the annualized fall rate and minutes of PA per week. Results The remote delivery of a progressive digital fall prevention program and associated research study, including remote recruitment, enrollment, and data collection, was deemed feasible. Participants successfully engaged at home with on-demand video exercise classes, self-assessments, and online surveys. We enrolled 65 participants, of whom 48 (74%) were women, and the average participant age was 72.6 years. Of the 65 participants, 54 (83%) took at least 1 exercise class, 40 (62%) responded to at least 1 follow-up survey at either 3 or 6 months, 20 (31%) responded to both follow-up surveys, and 25 (39%) were lost to follow-up. Among all participants who completed at least 1 follow-up survey, weekly minutes of PA increased by 182% (ratio change=2.82, 95% CI 1.26-6.37, n=35) from baseline and annualized falls per year decreased by 46% (incidence rate ratio [IRR]=0.54, 95% CI 0.32-0.90, n=40). Among only 6-month survey responders (n=31, 48%), weekly minutes of PA increased by 206% (ratio change=3.06, 95% CI 1.43-6.55) from baseline to 6 months (n=30, 46%) and the annualized fall rate decreased by 28% (IRR=0.72, 95% CI 0.42-1.23) from baseline to 6 months. Conclusions The Bold

Fall Prevention Program provides a feasible strategy to increase PA and reduce the burden of falls among older adults.

Date 2021-12-23

Library Catalogue PubMed Central

URL https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8738986/

Accessed 20/04/2023, 13:58:50

Extra PMID: 34837492 PMCID: PMC8738986

Volume 5

Publication JMIR Formative Research

DOI 10.2196/30558

Issue 12

Journal Abbr JMIR Form Res

An Integrated mHealth Campaign to Reduce the Risk of Falling for Older Adults

Item Type Journal Article

Author Nicola Brew-Sam

Author Arul Chib

Author Arah Ysabelle Fondevilla Torres

Author Jing Xuan Joshua Ng

Author Yi Ting Jade Wong

Author Yeo Sze-G

Abstract The number of falls among older adults is rising due to an aging population worldwide. An integrated communication campaign utilizing mHealth (mobile health) encouraged older adults to perform strength, balance, and flexibility exercises to reduce their risk of falling. Campaign development was guided by a mixed-method approach which incorporated expert interviews (N = 3), qualitative interviews (N = 22), and a quantitative baseline pre-campaign survey (N = 274) with older adults. We evaluated the campaign impact with a pre-post survey analysis (post n = 141). Impact was measured by knowledge, attitudes, self-efficacy, and behaviors as key Social Cognitive Theory factors to exercise adoption. Results showed that respondents with campaign exposure had a significant increase in all factor scores from pre- to post-campaign survey, which was significantly higher in the group with campaign exposure. The impact evaluation illustrated how digital mobile channels effectively provide means to reach older adults to reduce their risk of falling.

Date 2022-05

Library Catalogue PubMed

Extra PMID: 35085043

Volume 41

Publication Journal of Applied Gerontology: The Official Journal of the Southern

Gerontological Society

DOI 10.1177/07334648211062877

Issue 5

Journal Abbr J Appl Gerontol

COVID-19: Technology for strength and balance

Item Type Web Page
URL https://www.opfpru.nihr.ac.uk/our-research/covid-19-research/technology-for-strengthand-balance/
Accessed 19/04/2023, 15:09:58
Website Title Older People and Frailty PRU

Developing Self-Management Application of Fall Prevention Among Older Adults: A Content and Usability Evaluation.

Item Type Journal Article
Author Keren Mazuz
Author Seema Biswas
Author Uri Lindner

Abstract This paper presents a research and development project for studying aging and technology in fall prevention. Falls are an important global health problem in an aging global population. Up to 50% of serious falls may be fatal. Falls result from the cumulative effects of cognitive, musculoskeletal and sensory decline on postural control and substantially affect the activities of daily living, leading to a lower quality of life and physical injury. A near-fall, misstep and a prior fall are established risk factors for a more serious fall. The fear of falling may reduce physical activity and further predispose to falling. However, limitations in the reporting and documentation of fall events create "silent events"-events that are neither documented nor acted upon. An "Age-Techcare" Application (App) was designed using open innovation methods with local older adult populations and health care professionals through a mixed-methodology approach. The App comprised a digital diary for the self-reporting of fall events and an exercise video to strengthen balance as a fall-prevention intervention. The older adults recorded four fall events: a near-fall, the fear of falling, a fall, or no-fall. Prompts to watch the video and the number of times the video was watched were also recorded on the App. Reports retrieved from the App were analyzed after a 10-week pilot study among older adults accessing the App on their smartphones (n = 28) and through their smartTV (n = 23). All participants used the App to self-report fall events. Near-falls were the most frequently reported fall event among both smartphone and smartTV groups. The scale of silent falls (including a fear of falling and near falls) is greater than anticipated (according to prevailing literature) and significant, especially among the older cohort of participants who had previously experienced falls and are living alone. The exercise video was regularly accessed within a self-report-fall-prevention feedback loop. Watching a preventive exercise video clip as a preventive intervention is positively associated with self-reporting of all events. We have shown that the utility and effectiveness of an App in the self-management of fall events to raise self-awareness, document risk and prompt preventive action. As we address the health needs of an aging global population, Apps such as this will need to be further developed and interface with health and social care services. The facility for older adults to negotiate ideas and practices of risk and safety the hallmark of the aging-in-place and healthy aging discourse-is important to them in their acceptance of dynamic and diverse technology. Copyright © 2020 Mazuz, Biswas and Lindner.

Date 2020

Archive Ovid MEDLINE(R) PubMed-not-MEDLINE <2020>

Extra Place: Switzerland Mazuz, Keren. Management of Service Organizations M.A., Hadassah Academic College, Jerusalem, Israel. Biswas, Seema. Galilee Medical Center, Nahariya, Israel. Lindner, Uri. Kaplan Medical Center, Rehovot, Israel.

Volume 2

Publication Frontiers in digital health

DOI 10.3389/fdgth.2020.00011

Issue 101771889

Journal Abbr Front. digit. health

Digital care technologies in people with dementia living in long-term care facilities to prevent falls and manage behavioural and psychological symptoms of dementia: a systematic review.

Item Type Journal Article

Author Daniel Kam Yin Chan

Author Luke Kar Man Chan

Author Ye Min Kuang

Author Mai Nhat Vi Le

Author Branko Celler

Abstract Fall prevention and management of behavioural and psychological symptoms of dementia (BPSD) in long-term care (LTC) facility is a major challenge. The objective of this systematic review is to assess the evidence of digital technology in their management. All studies of English-language excluding case-reports were eligible for review. Databases chosen were MEDLINE, EMBASE, Scopus, Web of Science and PSYCINFO from January 2000 to June 2020. Downs and Black checklist was used to check for risk of bias. Papers with a focus in LTC setting, using digital technology as intervention for older adults with dementia, and with measurable outcomes (outcomes that are quantified, not descriptive) were included in the final review. Seventeen original papers (8 RCTs, 8 quasi-experimental and 1 mixed method) were included. Three articles examining position-sensor technology for fall prevention showed mixed results. Two showed no difference and 1 showed small reduction in fall after alarm removal but the positive effect might be due to bias. Overall, the sample sizes were too small to draw meaningful conclusion. Fourteen studies (9 pet robots of which 8 were robotic seal/PARO) were identified for BPSD and results were mixed. Overall, PARO might have modest benefit in BPSD compared to usual care but might be no better than plush toy with more hallucinations or delusions seen in advanced dementia. However, the significant heterogeneity in methodology (intervention intensity, lack of record in psychoactive drug use), clinical tools used (different BPSD scales, different digital technologies) and variability in outcomes made it difficult to draw clear-cut conclusion. Studies involving other digital technologies are scarce and in pilot phases; hence, conclusion is premature. One limitation of the review was that only 9 out of 17 studies were of good quality. The limited research work in position-sensors meant insufficient evidence to prove efficacy for their use in LTC setting. The possible modest benefit of PARO in BPSD (e.g. in agitation, apathy or reduction in psychoactive drugs) was off-set by possible adverse events such as delusions or hallucinations in advanced dementia., Supplementary Information: The online version contains supplementary material available at 10.1007/s10433-021-00627-5. Copyright © The Author(s), under exclusive licence to Springer Nature B.V. 2021.

Date 2022

Archive Ovid MEDLINE(R) PubMed-not-MEDLINE <2022>

Extra Place: Germany Chan, Daniel Kam Yin. University of New South Wales, Sydney, NSW 2052 Australia. Chan, Daniel Kam Yin. Department of Aged Care and rehabilitation, Bankstown-Lidcombe Hospital, Bankstown, NSW 2200 Australia. Chan, Luke Kar Man. Griffith University, Southport, QLD 4215 Australia. Kuang, Ye Min. Department of Aged Care and rehabilitation, Bankstown-Lidcombe Hospital, Bankstown, NSW 2200 Australia. Le, Mai Nhat Vi. University of New South Wales, Sydney, NSW 2052 Australia. Celler, Branko. University of New South Wales, Sydney, NSW 2052 Australia.

Volume 19

Publication European journal of ageing

DOI 10.1007/s10433-021-00627-5

Issue 3

Journal Abbr Eur. j. ageing

Economic evaluation of the e-Health StandingTall balance exercise programme for fall prevention in people aged 70 years and over

Item Type	Journal Article
Author	Meghan Ambrens
Author	Kimberley S. van Schooten
Author	Thomas Lung
Author	Lindy Clemson
Author	Jacqueline C. T. Close
Author	Kirsten Howard
Author	Stephen R. Lord
Author	G. A. Rixt Zijlstra
Author	Anne Tiedemann
Author	Trinidad Valenzuela
Author	Corneel Vandelanotte
Author	Jessica Chow
Author	Garth McInerney
Author	Lillian Miles
Author	Ashley Woodbury
Author	Kim Delbaere

Abstract BACKGROUND: globally, falls and fall-related injuries are the leading cause of injury-related morbidity and mortality in older people. In our ageing society healthcare costs are increasing, therefore programmes that reduce falls and are considered value for money are needed. OBJECTIVE: to complete an economic evaluation of an e-Health balance exercise programme that reduced falls and injurious falls in community-dwelling older people compared to usual care from a health and community-care funder perspective. DESIGN: a within-trial economic evaluation of an assessor-blinded randomised controlled trial with 2 years of followup. SETTING: StandingTall was delivered via tablet-computer at home to older community-dwelling people in Sydney, Australia. PARTICIPANTS: five hundred and three individuals aged 70+ years who were independent in activities of daily living, without cognitive impairment, progressive neurological disease or any other unstable or acute medical condition precluding exercise. MAIN OUTCOME MEASURES: cost-effectiveness was measured as the incremental cost per fall and per injurious fall prevented. Cost-utility was measured as the incremental cost per quality-adjusted life year (QALY) gained. MAIN RESULTS: the total average cost per patient for programme delivery and care resource cost was $8,321 (standard deviation [SD] 18,958) for intervention participants and $6,829 (SD 15,019) for control participants. The incremental cost per fall prevented was $4,785 and per injurious fall prevented was $6,585. The incremental cost per QALY gained was $58,039 (EQ5D-5L) and $110,698 (AQoL-6D). CONCLUSION: this evaluation found that StandingTall has the potential to be cost-effective in specific subpopulations of older people, but not necessarily the whole older population. TRIAL REGISTRATION: ACTRN12615000138583.

Date	2022-06-01
Library Catalogue	PubMed
Extra	PMID: 35679193
Volume	51
Publication	Age and Ageing
DOI	10.1093/ageing/afac130

Issue   6
Journal Abbr   Age Ageing

Effectiveness of a self-managed digital exercise programme to prevent falls in older community-dwelling adults: Study protocol for the Safe Step randomised controlled trial

Item Type	Journal Article
Author	Pettersson B.
Author	Lundin-Olsson L.
Author	Skelton D.A.
Author	Liv P.
Author	Zingmark M.
Author	Rosendahl E.
Author	Sandlund M.

Abstract Introduction Exercise interventions have a strong evidence base for falls prevention. However, exercise can be challenging to implement and often has limited reach and poor adherence. Digital technology provides opportunities for both increased access to the intervention and support over time. Further knowledge needs to be gained regarding the effectiveness of completely self-managed digital exercise interventions. The main objective of this study is to compare the effectiveness of a self-managed digital exercise

programme, Safe Step, in combination with monthly educational videos with educational videos alone, on falls over 1 year in older community-dwelling adults. Methods and analysis A two-arm parallel randomised controlled trial will be conducted with at least 1400 community-living older adults (70+ years) who experience impaired balance. Participants will be recruited throughout Sweden with enrolment through the project website. They will be randomly allocated to either the Safe Step exercise programme with additional monthly educational videos about healthy ageing and fall prevention, or the monthly education videos alone. Participants receiving the exercise intervention will be asked to exercise at home for at least 30 min, 3 times/week with support of the Safe Step application. The primary outcome will be rate of falls (fall per person year). Participants will keep a fall calendar and report falls at the end of each month through a digital questionnaire. Further assessments of secondary outcomes will be made through self-reported questionnaires and a self-test of 30 s chair stand test at baseline and 3, 6, 9 and 12 months after study start. Data will be analysed according to the intention-to-treat principle. Ethics and dissemination Ethical approval was obtained by The Regional Ethical Review Board in Umea (Dnr 2018/433-31). Findings will be disseminated through the project web-site, peer-reviewed journals, national and international conferences and through senior citizen organisations' newsletters. Trial registration number NCT03963570.Copyright © © Author(s) (or their employer(s)) 2020. Re-use permitted under CC BY. Published by BMJ.

Date	2020
Archive	Embase
URL	http://bmjopen.bmj.com/content/early/by/section
Extra	Place: United Kingdom Publisher: BMJ Publishing Group (E-mail: subscriptions@bmjgroup.com)
Volume	10
Publication	BMJ Open
DOI	10.1136/bmjopen-2019-036194
Issue	5
Journal Abbr	BMJ Open

eHealth for Addressing Balance Disorders in the Elderly: Systematic Review

Item Type	Journal Article
Author	Andréa G. Martins Gaspar
Author	Luís Velez Lapão

Abstract BACKGROUND: The population is aging on a global scale, triggering vulnerability for chronic multimorbidity, balance disorders, and falls. Falls with injuries are the main cause of accidental death in the elderly population, representing a relevant public health problem. Balance disorder is a major risk factor for falling and represents one of the most frequent reasons for health care demand. The use of information and communication technologies to support distance healthcare (eHealth) represents an opportunity to improve the access and quality of health care services for the elderly. In recent years, several studies have addressed the potential of eHealth devices to assess the balance and risk of falling of elderly people. Remote rehabilitation has also been explored. However, the clinical applicability of these digital solutions for elderly people with balance disorders remains to be studied. OBJECTIVE: The aim of this review was to guide the clinical applicability of eHealth devices in providing the screening, assessment, and treatment of elderly people with balance disorders, but without neurological disease. METHODS: A systematic review was performed in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) statement. Data were obtained through searching the PubMed, Google Scholar, Embase, and SciELO databases. Only randomized controlled trials (RCTs) or quasiexperimental studies (QESs) published between January 2015 and December 2019 were included. The quality of the evidence to respond to the research question was assessed using Joanna Briggs Institute (JBI) Critical Appraisal for RCTs and the JBI Critical Appraisal Checklist for QESs. RCTs were assessed using the Cochrane risk of bias tool. We provide a narrative synthesis of the main outcomes from the included studies. RESULTS: Among 1030 unduplicated articles retrieved,
21 articles were included in this review. Twelve studies explored different technology devices to obtain data about balance and risk of falling. Nine studies focused on different types of balance exercise training. A wide range of clinical tests, functional scales, classifications of faller participants, sensor-based tasks, intervention protocols, and follow-up times were used. Only one study described the clinical conditions of the participants. Instrumental tests of the inner ear were neither used as the gold-standard test nor performed in pre and postrehabilitation assessments. CONCLUSIONS: eHealth has potential for providing additional health care to elderly people with balance disorder and risk of falling. In the included literature, the heterogeneity of populations under study, methodologies, eHealth devices, and time of follow-up did not allow for clear comparison to guide proper clinical applicability. This suggests that more rigorous studies are needed.

Date	2021-04-28
Library Catalogue	PubMed
Extra	PMID: 33908890 PMCID: PMC8116987
Volume	23
Publication	Journal of Medical Internet Research
DOI	10.2196/22215
Issue	4
Journal Abbr	J Med Internet Res

Item Type Journal Article
Author Marina Arkkukangas
Author Sara Cederbom
Author Michail Tonkonogi

Fall **Author** Oie Umb Carlsson prevention intervention technologies: A conceptual framework and survey of the state of the art

Item Type	Journal Article
Author	Julian Hamm
Author	Arthur G. Money
Author	Anita Atwal
Author	Ioannis Paraskevopoulos

Abstract In recent years, an ever increasing range of technology-based applications have been developed with the goal of assisting in the delivery of more effective and efficient fall prevention interventions. Whilst there have been a number of studies that have surveyed technologies for a particular sub-domain of fall prevention, there is no existing research which surveys the full spectrum of falls prevention interventions and characterises the range of technologies that have augmented this landscape. This study presents a conceptual framework and survey of the state of the art of technology-based fall prevention systems which is derived from a systematic template analysis of studies presented in contemporary research literature. The framework proposes four broad categories of fall prevention intervention system: Pre-fall prevention; Post-fall prevention; Fall injury prevention; Cross-fall prevention. Other categories include, Application type, Technology deployment platform, Information sources, Deployment environment, User interface type, and Collaborative function. After presenting the conceptual framework, a detailed survey of the state of the art is presented as a function of the proposed framework. A number of research challenges emerge as a result of surveying the research literature, which include a need for: new systems that focus on overcoming extrinsic falls risk factors; systems that support the environmental risk assessment process; systems that enable patients and practitioners to develop more collaborative relationships and engage in shared decision making during falls risk assessment and prevention activities. In response to these challenges, recommendations and future research directions are proposed to overcome each respective challenge.

Date	2016-02-01
Library Catalogue	ScienceDirect
URL	https://www.sciencedirect.com/science/article/pii/S1532046415002932
Accessed	19/04/2023, 15:27:55
Volume	59
Publication	Journal of Biomedical Informatics
DOI	10.1016/j.jbi.2015.12.013
Journal Abbr	Journal of Biomedical Informatics

Older adults' experiences with mHealth for fall prevention exercise: usability and promotion of behavior change strategies.

Abstract   Background: With the rapidly growing aging population, older adults need to stay healthy and active for a longer time. Mobile health (mHealth) solutions could help support, prevent, or delay functional decline and falls in old age. Purpose: The aim was to explore older persons' experiences of a mobile application for fall prevention exercise, and to identify what possible behavior change techniques to include in the further development of the application. Methods: Two focus groups were conducted with 12 older adults (seven women and five men) 70 to 83 years of age. A qualitative content analysis was performed. Results: Two main results emerged: 1) external facilitators for using the application; and 2) internal facilitators for using the application and perceived gains, in addition 10 behavior change techniques were identified. Conclusion: With support, an application could be adapted for older adults to manage, motivate, and adhere to fall prevention exercise. To achieve long-term adherence to health behavior changes, behavior change strategies and techniques are recommended to be included in further development of the fallprevention application.

Date   2021

Archive   Ovid MEDLINE(R) <2021>

Extra   Place: England Arkkukangas, Marina. Department of Neuroscience, Physiotherapy, Uppsala University, Uppsala, Sweden. Arkkukangas, Marina. Centre for Clinical Research Sormland, Uppsala University, Uppsala, Sweden. Arkkukangas, Marina. Research and Development in Sormland, SE-63217, Eskilstuna, Sweden. Cederbom, Sara. Faculty of Health Sciences, Department of Physiotherapy, OsloMet - Oslo Metropolitan University, Oslo, Norway. Tonkonogi, Michail. School of Education, Health and Social Studies, Department of Medicine, Sport and Fitness Sciences, Hogskolan Dalarna, Falun, Sweden. Umb Carlsson, Oie. Research and Development in Sormland, SE-63217, Eskilstuna, Sweden. Umb Carlsson, Oie. Department of Health and Caring Sciences, Disability and Habilitation, Uppsala University, Uppsala, Sweden.

Volume   37

Publication   Physiotherapy theory and practice

DOI   10.1080/09593985.2020.1712753

Issue   12

Journal Abbr   PHYSIOTHER. THEORY PRACT.

Older adults' preferences for, adherence to and experiences of two selfmanagement falls prevention home exercise programmes: a comparison between a digital programme and a paper booklet

Item Type   Journal Article

Author   Mansson L.

Author   Lundin-Olsson L.

Author   Skelton D.A.

Author   Janols R.

Author   Lindgren H.

Author   Rosendahl E.

Author   Sandlund M.

Abstract BACKGROUND: Fall prevention exercise programmes are known to be effective, but access to these programmes is not always possible. The use of eHealth solutions might be a way forward to increase access and reach a wider population. In this feasibility study the aim was to explore the choice of programme, adherence, and self-reported experiences comparing two exercise programmes - a digital programme and a paper booklet. METHOD(S): A participant preference trial of two self-managed fall prevention exercise interventions. Community-dwelling adults aged 70years and older exercised independently for four months after one introduction meeting. Baseline information was collected at study start, including a short introduction of the exercise programme, a short physical assessment, and completion of questionnaires. During the four months intervention period, participants self-reported their performed exercises in an exercise diary. At a final meeting, questionnaires about their experiences, and postassessments, were completed. For adherence analyses data from diaries were used and four subgroups for different levels of participation were compared. Exercise maintenance was followed up with a survey 12months after study start. RESULT(S): Sixty-seven participants, with mean age 77+/-4years were included, 72% were women. Forty-three percent chose the digital programme. Attrition rate was 17% in the digital programme group and 37% in the paper booklet group (p =.078). In both groups 50-59% reported exercise at least 75% of the intervention period. The only significant difference for adherence was in the subgroup that completed >=75% of exercise duration, the digital programme users exercised more minutes per week (p =.001). Participants in both groups were content with their programme but digital programme users reported a significantly higher (p =.026) degree of being content, and feeling supported by the programme (p =.044). At 12months follow-up 67% of participants using the digital programme continued to exercise regularly compared with 35% for the paper booklet (p =.036). CONCLUSION(S): Exercise interventions based on either a digital programme or a paper booklet can be used as a self-managed, independent fall prevention programme. There is a similar adherence in both programmes during a 4-month intervention, but the digital programme seems to facilitate long-term maintenance in regular exercise. TRIAL REGISTRATION: ClinTrial: NCT02916849.

Date 2020

Archive Embase

Extra Place: United Kingdom Publisher: NLM (Medline)

Volume 20

Publication BMC geriatrics

DOI 10.1186/s12877-020-01592-x

Issue 1

Journal Abbr BMC Geriatr

Overview | Behaviour change: digital and mobile health interventions | Guidance | NICE

Item Type Web Page

Abstract This guideline covers interventions that use a digital or mobile platform to help people eat more healthily, become more active, stop smoking, reduce their

Date 2020-10-07

URL https://www.nice.org.uk/guidance/ng183

Accessed 26/04/2023, 14:56:39

Extra Publisher: NICE

Reaching Older People With a Digital Fall Prevention Intervention in a Swedish Municipality Context—an Observational Study

Item Type	Journal Article
Author	Saranda Bajraktari
Author	Magnus Zingmark
Author	Beatrice Pettersson
Author	Erik Rosendahl
Author	Lillemor Lundin-Olsson
Author	Marlene Sandlund

Abstract BackgroundThere is robust evidence that falls in old age can be prevented by exercise programs that include balance training, functional exercises, and strength training. For the interventions to have a population health impact, outreach to the population of focus with suitable interventions is needed. While digital interventions are promising there is limited knowledge on the characteristics of who is reached. The aim of this study was to describe the recruitment process, estimate reach rate at the population level and to describe participants characteristics and representativeness in a digital fall prevention intervention study.MethodsIn a municipality-based observational study, reach of a digital fall prevention intervention was evaluated. The intervention included a digital exercise programme (Safe Step) and optional supportive strategies, complemented with a range of recruitment strategies to optimize reach. Recruitment during a period of 6 months was open to people 70 years or older who had experienced a fall or a decline in balance the past year. Reach was based on data from the baseline questionnaire including health and demographic characteristics of participants. Representativeness was estimated by comparing participants to a sample of older people from the Swedish National Public Health Survey.ResultsThe recruitment rate was 4.7% (n = 173) in relation to the estimated population of focus (n = 3,706). Most participants signed up within the first month of the intervention (n = 131). The intervention attracted primarily women, older people with high education, individuals who used the internet or digital applications almost every day and those perceiving their balance as fair or poor. Safe step participants lived more commonly alone and had higher education and better walking ability in comparison to the Swedish National Public Health Survey.ConclusionsWith a range of recruitment strategies most participants were recruited to a digital fall intervention during the first month. The intervention attracted primarily highly educated women who frequently used the internet or smart technologies. In addition to digital fall prevention interventions, a higher diversity of intervention types (digital and non-digital) is more likely to reach a larger group of older people with different needs.Clinical Trial RegistrationClinicalTrials.gov, NCT04161625 (Retrospectively registered), https://clinicaltrials.gov/ct2/show/NCT04161625.

Date	2022
Library Catalogue	Frontiers
URL	https://www.frontiersin.org/articles/10.3389/fpubh.2022.857652
Accessed	20/04/2023, 14:00:45
Volume	10
Publication	Frontiers in Public Health

Recruitment strategies and reach of a digital fall-prevention intervention for community-dwelling older adults

Item Type	Journal Article
Author	Beatrice Pettersson
Author	Saranda Bajraktari
Author	Dawn A Skelton
Author	Magnus Zingmark
Author	Erik Rosendahl
Author	Lillemor Lundin-Olsson
Author	Marlene Sandlund

Abstract Background: To have an impact on the population's health, preventive interventions have to reach a large proportion of the intended population. Digital solutions show potential for providing wider access to fall preventive exercise. However, there is a lack of knowledge about how to reach the target group. The aim of this study was to describe the recruitment process used in the Safe Step randomised controlled trial and the characteristics of the participants reached. Methods: Several recruitment methods, both digital and non-digital, were adopted to reach the intended sample size. Sociodemographic parameters from the baseline questionnaire were used to describe participant characteristics. The characteristics were also compared to a representative sample of older adults in the Swedish population. Results: In total, 1628 older adults were recruited. Social media proved to be the most successful recruitment strategy, through which 76% of the participants were recruited. The participants reached had a mean age of 75.9 years, lived in both urban and rural locations, were already frequent users of the Internet and applications (smartphone/tablet) (79.9%), had higher education (71.9%), and a large proportion were women (79.4%). In comparison with the general population participants in the Safe Step study were more highly educated ($p < 0.001$), women in the study more frequently lived alone ($p < 0.001$) and men more often reported poorer self-rated health ($p = 0.04$). Within the study, men reported a faster deteriorating balance ($p = 0.003$) and more prescribed medication ($p < 0.001$) than women. Conclusion: Recruitment via social media is a useful strategy for reaching older adults, especially women and frequent users of the Internet, for a fully self-managed and digital fall prevention exercise intervention. This study underlines that a range of interventions must be available to attract and suit older adults with different functional statuses and digital skills.

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Library Catalogue	DOI.org (Crossref)
URL	http://journals.sagepub.com/doi/10.1177/20552076221126050
Accessed	20/04/2023, 14:41:38
Volume	8
Publication	DIGITAL HEALTH
DOI	10.1177/20552076221126050
Journal Abbr	DIGITAL HEALTH

The "Aachen fall prevention App" - a Smartphone application app for the selfassessment of elderly patients at risk for ground level falls.

Item Type	Journal Article
Author	Peter Rasche
Author	Alexander Mertens
Author	Christina Brohl
Author	Sabine Theis
Author	Tobias Seinsch
Author	Matthias Wille
Author	Hans-Christoph Pape
Author	Matthias Knobe

Abstract BACKGROUND: Fall incidents are a major problem for patients and healthcare. The "Aachen Fall Prevention App" (AFPA) represents the first mobile Health (mHealth) application (app) empowering older patients (persons 50+ years) to self-assess and monitor their individual fall risk. Self-assessment is based on the "Aachen Fall Prevention Scale," which consists of three steps. First, patients answer ten standardized yes-no questions (positive criterion >= 5 "Yes" responses). Second, a ten-second test of free standing without compensatory movement is performed (positive criterion: compensatory movement). Finally, during the third step, patients rate their subjective fall risk on a 10-point Likert scale, based on the results of steps one and two. The purpose of this app is (1) to offer a low-threshold service through which individuals can independently monitor their individual fall risk and (2) to collect data about how a patient-centered mHealth app for fall risk assessment is used in the field., RESULTS: The results represent the first year of an ongoing field study. From December 2015 to December 2016, 197 persons downloaded the AFPA (iOS TM and Android TM; free of charge). N = 111 of these persons voluntarily shared their data and thereby participated in the field study. Data from a final number of n = 79 persons were analyzed due to exclusion criteria (age, missing objective fall risk, missing self-assessment). The objective fall risk and the self-assessed subjective risk measured by the AFPA showed a significant positive relationship., CONCLUSIONS: The "Aachen Fall Prevention App" (AFPA) is an mHealth app released for iOS and Android. This field study revealed the AFPA as a promising tool to raise older adults' awareness of their individual fall risk by means of a low-threshold patient-driven fall risk assessment tool.

Date	2017
Archive	Ovid MEDLINE(R) PubMed-not-MEDLINE <2017 to 2019>
Extra	Place: England Rasche, Peter. Chair and Institute of Industrial Engineering and Ergonomics of RWTH Aachen, Bergdriesch 27, 52072 Aachen, Germany. Mertens, Alexander. Chair and Institute of Industrial Engineering and Ergonomics of RWTH Aachen, Bergdriesch 27, 52072 Aachen, Germany. Brohl, Christina. Chair and Institute of Industrial Engineering and Ergonomics of RWTH Aachen, Bergdriesch 27, 52072 Aachen, Germany. Theis, Sabine. Chair and Institute of Industrial Engineering and Ergonomics of RWTH Aachen, Bergdriesch 27, 52072 Aachen, Germany. Seinsch, Tobias. Chair and Institute of Industrial Engineering and Ergonomics of RWTH Aachen, Bergdriesch 27, 52072 Aachen, Germany. Wille, Matthias. Chair and Institute of Industrial Engineering and Ergonomics of RWTH Aachen, Bergdriesch 27, 52072 Aachen, Germany. Pape, Hans-Christoph. Division of Orthopaedic Trauma, Department of Surgery, University Hospital Zurich, 8091 Zurich, Switzerland. Knobe, Matthias. Department of Orthopaedic Trauma, University of Aachen Medical Center, Pauwelsstrase 30, 52074 Aachen, Germany.
Volume	11
Publication	Patient safety in surgery

DOI 10.1186/s13037-017-0130-4
Issue 101319176
Journal Abbr Patient Saf Surg

The effectiveness of e-interventions in preventing falls in community-dwelling older adults: a systematic review and meta-analysis - Prevention Library - SCIE

Item Type Web Page
URL https://www.scie.org.uk/prevention/research-practice/getdetailedresultbyid?id=a116f00000uuuz0aaf
Accessed 19/04/2023, 15:14:29
Website Title Social Care Institute for Excellence (SCIE)

Mobile/ digital technologies and falls prevention/detection, non behavioural

Papers looking at mobile/digital technologies impact and effectiveness on falls prevention, not through behaviour change, but other means, such as sensors and wearable technology.

An Independent Evaluation of ARMED service

Item Type Web Page

Abstract We have now published our Executive Summary and the full independent evaluation report, with key findings and recommendations.

URL https://www.dhi-scotland.comhttps://www.dhi-scotland.com/news/evaluation-of-armed

Accessed 20/04/2023, 14:10:56

Discrete wearable technology proven to help stop falls in elderly | iStoppFalls Project | Results in brief | FP7 | CORDIS | European Commission

Item Type Web Page

URL https://cordis.europa.eu/article/id/188521-discrete-wearable-technology-proven-to-helpstop-falls-in-elderly

Accessed 19/04/2023, 15:11:50

Effectiveness of Digital Tools For Researching Fall Risk Factors

Item Type Blog Post

Author ConductScience

Abstract 1 in every 3 older adults (over 65 years old) will experience a fall that may put his/her life in danger due to fall-related injuries. This […]

Date 2020-01-13T18:00:08+00:00

URL https://conductscience.com/effectiveness-of-digital-tools-for-researching-fall-riskfactors/

Accessed 20/04/2023, 14:40:25

Blog Title Conduct Science

Falls prevention – technology as a part of a multi-domain approach

Item Type Journal Article

Author Nada Wakeford

Library Catalogue Zotero

FallSkip device is a useful tool for fall risk assessment in sarcopenic older community people

Item Type Journal Article

Author Pilar Pérez-Ros

Author Maria Amparo Sanchis-Aguado

Author Juan V. Durá-Gil

Author Francisco M. Martínez-Arnau

Author Juan M. Belda-Lois

Abstract PURPOSE: Fall prevention is a major health concern for the ageing population. Sarcopenia is considered a risk factor for falls. Some instruments, such as Time Up and Go (TUG), are used for screening risk. The use of sensors has also been shown to be a viable tool that can provide accurate, cost-effective, and easy to manage assessment of fall risk. One novel sensor for assessing fall risk in older people is the Fallskip device. The present study evaluates the performance of the FallSkip device against the TUG method in fall risk screening and assesses its measurement properties in sarcopenic older people. METHODS: A cross-sectional study was made in a sample of community-dwelling sarcopenic and non-sarcopenic older people aged 70 years or over. RESULTS: The study sample consisted of 34 older people with a mean age of 77.03 (6.58) years, of which 79.4% (n = 27) were females, and 41.2% (n = 14) were sarcopenic. The Pearson correlation coefficient between TUG time and FallSkip time was 0.70 (p < 0.001). The sarcopenic individuals took longer in performing both TUG and FallSkip. They also presented poorer reaction time, gait and sit-to-stand - though no statistically significant differences were observed. The results in terms of feasibility, acceptability, reliability and validity in sarcopenic older people with FallSkip were acceptable. CONCLUSIONS: The FallSkip device has suitable metric properties for the assessment of fall risk in sarcopenic community-dwelling older people. FallSkip analyses more parameters than TUG in assessing fall risk and has greater discriminatory power in evaluating the risk of falls.

Date 2022-05

Library Catalogue PubMed

Extra PMID: 34652070

Volume 17

Publication International Journal of Older People Nursing

DOI 10.1111/opn.12431

Issue 3

Journal Abbr Int J Older People Nurs

Mobile Technology for Falls Prevention in Older Adults

Item Type Journal Article

Author Katherine L Hsieh

Author Lingjun Chen

Author Jacob J Sosnoff

Abstract   Falls are the leading cause of accidental death in older adults that result from a complex interplay of risk factors. Recently, the need for person-centered approach utilizing personalization, prediction, prevention, and participation, known as the P4 model, in fall prevention has been highlighted. Features of mobile technology make it a suitable technological infrastructure to employ such an approach. This narrative review aims to review the evidence for using mobile technology for personalized fall risk assessment and prevention since 2017 in older adults. We aim to identify lessons learned and future directions for using mobile technology as a fall risk assessment and prevention tool. Articles were searched in PubMed and Web of Science with search terms related to older adults, mobile technology, and falls prevention. A total of 23 articles were included. Articles were identified as those examining aspects of the P4 model including prediction (measurement of fall risk), personalization (usability), prevention, and participation. Mobile technology appears to be comparable to gold-standard technology in measuring well-known fall risk factors including static and dynamic balance. Seven applications were developed to measure different fall risk factors and tested for personalization, and/or participation aspects, and 4 were integrated into a falls prevention program. Mobile health technology offers an innovative solution to provide tailored fall risk screening, prediction, and participation. Future studies should incorporate multiple, objective fall risk measures and implement them in community settings to determine if mobile technology can offer tailored and scalable interventions.

Date   2022-05-29

Library Catalogue   Silverchair

URL   https://doi.org/10.1093/gerona/glac116

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Publication   The Journals of Gerontology: Series A

DOI   10.1093/gerona/glac116

Journal Abbr   The Journals of Gerontology: Series A

Modern technology against falls – A description of the MoTFall project

Item Type   Journal Article

Author   Olsson Möller U

Author   Malmgren Fänge A

Author   Kristensson J

Author   Smedberg D

Author   Falkvall F

Author   Ekvall Hansson E

Abstract To meet future challenges from an older and physically less active population innovative solutions are needed. Modern Technology against Falls (MoTFall) aims to prevent falls, increase physical activity and improve self-rated health among older people by means of an information and communication technology based system. The project has developed technology-based solutions, focusing on personcentred care. A participatory research design was applied in the development of a mobile application, a wearable inertial movement measurement unit (IMMU), called the Snubblometer (?snubbla? is ?stumble? in Swedish) and a web-based education programme for health care professionals. The mobile application includes a fall risk index, exercises and information related to falls prevention. By linking the app to the IMMU, person-centred interventions can be developed and implemented in various health care settings and with different target populations. The IMMU has shown good validity and reliability for measuring postural sway and high sensitivity and specificity for measuring a near fall. The education programme is directed at non-graduate health care professionals in nursing homes and home care. The technical solutions have potential for use in research and in clinical practice.

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Journal Abbr Health Informatics J

Rapid review of digital technologies to prevent falls in people living with dementia

Item Type Journal Article

Author Charlotte Eost-Telling

Author Alex Hall

Author Yang Yang

Author Barbara Hanratty

Author Martin Knapp

Author Louise Robinson

Author Chris Todd

Library Catalogue Zotero

The Developments and Iterations of a Mobile Technology-Based Fall Risk Health Application.

Item Type Journal Article

Author Katherine L Hsieh

Author   Mikaela L Frechette

Author   Jason Fanning

Author   Lingjun Chen

Author   Aileen Griffin

Author   Jacob J Sosnoff

Abstract   Falls are a prevalent and serious health concern across clinical populations. A critical step in falls prevention is identifying modifiable risk factors, but due to time constraints and equipment costs, fall risk screening is rarely performed. Mobile technology offers an innovative approach to provide personalized fall risk screening for clinical populations. To inform future development, this manuscript discusses the development and testing of mobile health fall risk applications for three unique clinical populations [older adults, individuals with Multiple Sclerosis (MS), and wheeled-device users]. We focus on key lessons learned and future directions to improve the field of fall risk mHealth. During the development phase, we first identified fall risk factors specific to each population that are measurable with mobile technology. Second, we determined whether inertial measurement units within smartphones can measure postural control within the target population. Last, we developed the interface of each app with a usercentered design approach with usability testing through iterative semi-structured interviews. We then tested our apps in real-world settings. Our cumulative work demonstrates that mobile technology can be leveraged to provide personalized fall risk screening for different clinical populations. Fall risk apps should be designed and tailored for the targeted group to enhance usefulness and feasibility. In addition, fall risk factors measured with mobile technology should include those that are specific to the population, are measurable with mobile technology, and can accurately measure fall risk. Future work should improve fall risk algorithms and implement mobile technology into fall prevention programs. Copyright © 2022 Hsieh, Frechette, Fanning, Chen, Griffin and Sosnoff.

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Journal Abbr   Front. digit. health

Use of information technology for falls detection and prevention in the elderly Social Care Online

Item Type Web Page

URL https://www.scie-socialcareonline.org.uk/use-of-information-technology-for-fallsdetection-and-prevention-in-the-elderly/r/a1CG0000004UFUcMAO **Accessed** 19/04/2023, 15:25:39

Wearable tech prevent resident falls at Cardiff Council

Item Type Web Page

Author Elspeth Massey

Abstract Residents in Cardiff are trialling smart watches to help them avoid falls. Cardiff Council is using wearable tech to help identify when someone is at risk.

Date 2020-09-09T10:00:14+00:00

URL https://www.digitalsocialcare.co.uk/cardiff-council-adopts-wearable-tech-to-helpprevent-resident-falls/

Accessed 19/04/2023, 15:12:40

Website Title Digital Social Care

Mobile/ digital technologies and falls prevention UK market examples other than FLORENCE

Articles looking at mobile/digital technologies available in the UK.

1 Discovery Phase Review SOUTHWARK.pdf

Item Type Attachment
URL https://www.local.gov.uk/sites/default/files/documents/1%20%20Discovery%20Phase%20Review%20SOUTHWARK.pdf
Accessed 20/04/2023, 14:43:57

Keep On, Keep Up: healthy ageing with digital | Reason Digital

Item Type Web Page
Abstract Forget the idea that ageing and digital don't mix. We tackled the issue of healthy ageing by introducing the world to the Keep On Keep Up app.
Date 2019-01-03T10:15:23+00:00
URL https://reasondigital.com/keep-on-keep-up-app/
Accessed 20/04/2023, 15:02:36
Extra Section: Tech for good

NHS App messaging service

Item Type Web Page
Abstract Patients can receive in-app messages from their surgery, instead of other traditional communication methods like SMS (text message) or letter. The NHS App messaging service provides a secure inbox that allows patients to start receiving messages from health and care services via the NHS App.
URL https://digital.nhs.uk/services/nhs-app/nhs-app-guidance-for-gp-practices/guidance-on-nhs-app-features/nhsapp-messaging-service
Accessed 27/04/2023, 11:01:28
Website Title NHS Digital

Preventing falls in Tameside with Safe Steps

Item Type Web Page
Abstract Tameside is taking part in a 12 month pilot working with Health Innovation Manchester and app Safe Steps to reduce falls in hospital and care homes.
URL https://healthinnovationmanchester.com/news/preventing-falls-in-tameside-with-safe-steps/
Accessed 20/04/2023, 14:56:01
Website Title Health Innovation Manchester

Preventing falls in the community with the Safe Steps mobile app | Local Government Association

Item Type Web Page
Abstract Falls can have a devastating impact on an older person's life, causing physical injury and a loss of confidence and independence. This project aims to improve prevention and management of falls to reduce the impact on older residents and the health and social care system.
URL https://www.local.gov.uk/case-studies/preventing-falls-community-safe-steps-mobile-app **Accessed** 27/04/2023, 11:02:26

Preventing falls: New programme works in care homes

Item Type Web Page
Author Amelia Beeston

Abstract What could help with preventing falls? A programme has been shown to be effective in care homes in the 3 to 6 months after it was introduced.

Date 2022-08-08T08:00:00+00:00

URL https://evidence.nihr.ac.uk/alert/falls-prevention-programme-effective-care-homes/

Accessed 27/04/2023, 10:54:57

Extra DOI: 10.3310/nihrevidence_52138

Website Title NIHR Evidence

Safe Steps

Item Type Web Page

URL https://www.safesteps.tech/falls-prevention

Accessed 27/04/2023, 10:57:32

Website Title safesteps — Saving Lives

SystmOne Toolkit - Falls Risk Assessment Toolkit

Item Type Web Page

URL https://www.fallsrisk.co.uk/systmone

Accessed 27/04/2023, 10:53:36

Text Marketing with Awesome Support | FireText

Item Type Web Page

URL https://www.firetext.co.uk/

Accessed 27/04/2023, 11:00:23