Institution:
Glasgow Caledonian University (GCU)

Unit of Assessment:
3: Allied Health Professions, Dentistry, Nursing and Pharmacy

Title of case study:
Reduced falls and improved physical, mental and social health of older adults - implementation and adoption of the Falls Management Exercise (FaME) programme

Period when the underpinning research was undertaken:
2008-2019

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Dawn A. Skelton	Professor of Ageing and Health	2007 - present
Lex de Jong	Postdoctoral Research Associate	2015 - 2016
Alexandra Mavroeidi	Research Fellow	2016 - 2018

Period when the claimed impact occurred:
2014-present

Is this case study continued from a case study submitted in 2014?
No

1. Summary of the impact

Falls in older adults represent an escalating public health concern. The Falls Management Exercise (FaME) programme, in sedentary older people, reduces the rate of falls and increases physical activity close to recommended levels for health. This led to adoption of FaME by multiple Public Health bodies and widespread implementation across the UK and Norway. FaME halves the number of falls, improves quality of life, physical activity and physical function, reduces fear of falls and produces a return on investment of between £2.89-£50.59 for every £1 invested. Community led FaME group programmes reach over 10,700 older people per week in the UK.

2. Underpinning research

Falls and fractures cost the NHS and social care over £2.3billion annually. Over a third of older people are concerned about falls and often restrict physical activity, affecting their physical and mental health. Although FaME was originally developed by Skelton in a small RCT of 100 women with a history of ≧3 falls in the last year (Age Ageing Letter, 2005), it was included in Department of Health guidance (Prevention Package, 2009) and there was some uptake in NHS led outpatient falls programmes (RCP, 2011).

In a problem/solution based model, Skelton, an exercise physiologist, updated the programme (FaME+) with a public health focus that would have wider reach (including more emphasis on progressive strength training, balance challenging exercises, floor work and walking, extra motivational and behaviour change support, and shortened duration). This FaME+ programme has led to collaborations with 10 universities, NHS trusts and local authorities and a technology company, 15 published papers, an implementation manual and shared grant income of nearly £2.8million.

ProAct65+, was a definitive three-arm, parallel-design cluster RCT involving 1256 people aged ≥65 years recruited from 43 general practices in London, Derby and Nottingham with a 2 year follow-up [R1,R2;G1]. The 6 month FaME+ intervention, led by Postural Stability Instructors (PSIs) reduced falls (54%) alongside a health-enhancing increase of 105 mins of moderate

physical activity a week (1 year post intervention), bringing participants close to the 150 mins/week recommended by the Chief Medical Officer (CMO, 2011). The mean cost per extra person achieving the physical activity target was £1740 [R1, R2; G1].

In the UK, 1 in 5 people aged 75+ live with sight loss. Visually impaired older people fall more and are nearly twice as likely to experience a hip fracture than sighted older people. VIOLET, a proof of concept study based in Northumbria and Glasgow, found group-based FaME+ [R1] was feasible and safe in people with moderate-severe visual impairment with minor communication delivery changes and in smaller groups. de Jong found that participants and instructors felt that visually impaired older adults could be integrated into existing FaME classes with support [R3; G2].

Working with MIRA Health and the University of Manchester, Skelton, de Jong and Mavroeidi showed that innovative digital solutions (games played on the Kinect platform and a TV using FaME+ [R1] exercises) and physiotherapist supervision (for set up and progression) were cost-effective, reduced falls (69%), fear of falls and pain in older people living in sheltered housing [R4; G3].

Finally, to provide guidance for commissioners of falls prevention services, the ground breaking PHISICAL Study examined the implementation of FaME+ commissioned in three distinct (organisation, geography, ethnicity, socio-demographics) localities (Derby City, Leicestershire and Rutland Counties) using the Consolidated Framework for Implementation Research and the Carroll conceptual framework for implementation fidelity [R5; G4]. PHISICAL followed 29 FaME+ programmes, showing similar reductions in falls and improvements in physical activity seen in ProAct65+ [R1] and produced a FaME+ Implementation Toolkit, including advice on areas of fidelity and quality for improvement, to support future large-scale adoption by public health commissioners.

3. References to the research

- [R1] Iliffe S, Kendrick D, Morris R, Masud T, Gage H, Skelton D, et al. Multicentre cluster randomised trial comparing a community group exercise programme and home-based exercise with usual care for people aged 65 years and over in primary care. Health Technol Assess. 2014;18(49):vii-xxvii, 1-105. doi: https://doi.org/10.3310/hta18490

- [R2] Gawler S, Skelton DA, Dinan-Young S, Masud T, Morris RW, et al; ProAct65+ team. Reducing Falls among older people in general practice: the ProAct65+ exercise intervention trial. Arch Gerontol Geriatr. 2016;67:46-54. doi: https://doi.org/10.1016/j.archger.2016.06.019

- [R3] Adams N, Skelton D, Bailey C, Howel D, Coe D, Lampitt R, et al. Visually Impaired OLder people's Exercise programme for falls prevenTion (VIOLET): a feasibility study. Public Health Res. Southampton (UK): NIHR Journals Library. 2019;7(4). doi: https://doi.org/10.3310/phr07040

- [R4] Stanmore EK, Mavroeidi A, de Jong LD, Skelton DA, et al. The effectiveness and cost-effectiveness of strength and balance Exergames to reduce falls risk for people aged 55 years and older in UK assisted living facilities: A multi-centre, cluster randomised controlled trial. BMC Med. 2019;17(1):49. doi: https://doi.org/10.1186/s12916-019-1278-9

- [R5] Carpenter H, Audsley S, Coupland C, et al. PHysical activity Implementation Study In Community-dwelling AduLts (PHISICAL): Study Protocol. Injury Prevention. 2019 Oct;25(5):453-458. doi: https://doi.org/10.1136/injuryprev-2017-042627

Grants

- [G1] NIHR HTA – A multi-centre cluster trial in primary care comparing a community group exercise programme with home based exercise and with usual care for people aged 65 and over (ProAct65+). £1.7 million. PI: Iliffe. Co-Is: Kendrick, Skelton, et al. June 2008-June 2014. ISRCTN43453770. Sponsor: University College London.

- [G2] NIHR PHR - Adapting a falls prevention exercise programme with and for older people with visual impairment: a feasibility study (VIOLET). £463k. PI: Adams. Co-Is: Skelton, Bailey, et al. May 2015-Nov 2017. ISRCTN16949845. Sponsor: Northumbria University.

- [G3] Innovate UK – Small Business Research Initiative (SBRI) Healthcare Phase 2 award, NHS England. A multi-centre, cluster randomised controlled trial comparing falls prevention Exergames with remote monitoring against standard falls prevention programmes for community dwelling older adults at risk of falls. £354k. PI: Stanmore. Co-Is: MIRA Ltd, Todd, Skelton, et al. July 2016-Dec 2018. NCT02634736. Sponsor: Manchester University.

- [G4] NIHR CLAHRC - PHysical activity Implementation Study In Community-dwelling AduLts (PhISICAL) Implementation of FaME: A community based programme for falls prevention. £250k. PI: Orton. Co-Is: Kendrick, Skelton et al. Sept 2015-Dec 2018. Sponsor: Nottingham University.

Quality of the Research

ProAct65+, funded by the NIHR HTA, was the first definitive parallel-design multi-centre cluster RCT with a 2 year follow up to show that a group exercise programme could substantially increase physical activity and reduce falls in sedentary older people even a year after intervention cessation [R1, R2; G1] highlighting its utility as a public health initiative. VIOLET, funded by NIHR PHR, was the first proof of concept study to show that group falls exercise was feasible and safe in significantly visually impaired older people [R3; G2]. In a highly competitive Healthcare Phase 2 Award, NHS England funded the development and evaluation of the falls prevention Exergames (MIRA) based on FaME [R4; G3] and is the first Exergame study to show substantial return on investment. In a novel and comprehensive implementation study (PHISICAL), funded by NIHR CLAHRC East Midlands and Leicestershire County Council, FaME was rolled out in 3 distinct localities and barriers and facilitators to implementation were considered when producing the first UK falls prevention implementation manual for commissioners of services [R5; G4]. Research and implementation of FaME into practice was recognised in the conferring of Fellowships to Skelton from the Royal College of Physicians of Edinburgh, the Chartered Society of Physiotherapy and a lifetime achievement award from the British Geriatrics Society.

4. Details of the impact

FaME+, designed to reduce falls and improve the health and physical activity of older people, is delivered by PSIs in community settings in the UK. Independently published service evaluations have demonstrated life changing impacts on physical health, physical activity and confidence in those older people accessing FaME+. This has been achieved through a pathway of impact on falls guidelines and policy, the provision of education and implementation materials and demonstrable return on investment for commissioners of these services.

Life-changing health impacts to older people taking part in FaME+ sessions

FAME+ has a significant reach in the UK. An independent ROSPA impact report showed wide implementation and reach in three areas (Devon, Greater Manchester and Leicestershire, Rutland and Derby) [S1]. A survey of PSIs (n=656, 18% of qualified PSIs) suggested that FaME+ reached 10,729 older adults in an average week and over a one-year period (Jan 2019-Jan 2020) 68,796 people [S2], as sessions run in 12-24 week blocks. Extrapolating to 50% of all trained PSIs and with programmes throughout the year, over 2 million older people a year would

be receiving FaME+ [S2]. The MIRA platform has extended the reach of FaME+ with more than 4904 patients using it since its release [S3], and since 2018 there are over 10 licences specifically for falls prevention in older people used in rehab facilities, care homes and sheltered housing facilities.

Significantly, there have been multiple service evaluations of 'effectiveness' by independent community and health organisations demonstrating the physical, mental and social health impacts to FaME+ participants. These include reductions in falls of 43-58% [S4;S6], improvements in balance confidence of 55-100% [S2,S5-S7] and quality of life (42%) [S6], >10% reduced fear of falling [S4;S2;S5], improvement in timed up and go (20-50%) [S4-S6;S10], balance [S2;S5;S10], and functional skills such as getting off the floor [S5], increased self-reported physical activity [S2;S5;S7], improved mental wellbeing [S4;S6], and increased social interaction and participation [S2;S4-S6] leading to a reduction in social isolation.

Impact on Falls Guidelines and Policy to increase adoption and improve implementation

Due to the efficacy and cost-effectiveness of FaME+ [R1], it is one of only two structured exercise programmes supported by PHE Cost-effective Commissioning (2018) for falls prevention. Local providers implement FaME+ as evaluations show a greater return on investment than PHE suggested (£2.28 for every £1) (PHE 2018). Dance to Health reported a return on investment of £2.89 for every £1 invested [S4] whereas, Staying Steady (Gateshead) reported that for every £1 spent on FaME+ returned £50.59 [S7] to the public purse and Steady Steps (Edinburgh Leisure) estimated that every £1 used on FaME+ saved £18 [S6].

In 2019, FaME+'s efficacy led to adoption by the CMO Physical Activity Recommendations for Health, Public Health Wales and the National Prudent Healthcare Falls Prevention Taskforce, The Royal Osteoporosis Society in 'Strong, Steady, Straight', the Chartered Society of Physiotherapy 'Physiotherapy Works – Falls: A Community Approach and Prevention and Management of Falls in the Community: A Framework for Action for Scotland (2014/2016). The Centre for Ageing Better report 'Raising the bar on strength and balance' (2019) recommended FaME+ as the best public health programme for prevention of falls and maintenance of physical function.

Impact on Education to increase adoption and improve implementation

Skelton is a Founding Director of Later Life Training Ltd (LLT), a not for profit national training provider. Since Aug 2014, LLT has trained 1200 PSIs [S2]) to use FAME+ [R1;R2;S8]. The syllabus, informed by Skelton's research, was updated in 2017 to reflect the verbal and adapted delivery skills required to work with visually impaired older adults [R3;S8]; allowing inclusion of people with sight loss into FaME+ classes. In 2016-2018, LLT trained 30 Dance Choreographers in the UK in principles and delivery of FaME+ to support the Dance to Health initiative, reaching a wider audience in public health [R1;S4].

Skelton adapted the FaME+ Implementation Toolkit quality assurance (QA) checklist for PSI self-reflection and assessment to improve quality and fidelity to the delivery of FaME+ [R5;S9] and in 2019 LLT provided this to all qualified PSIs [S8]. The FaME+ Implementation Toolkit for Commissioners, endorsed by NICE in October 2019 [R5;S9], has been downloaded >800 times and 94% found it useful and rated it 4/5 for building the case for investment, planning for implementation and monitoring and evaluation [S10].

Beyond LLT, Skelton, with MIRA Health, delivered a webinar on Exergames based on FaME+ to >200 people and the recording attracted over 350 views [R4;S3]. In 2015, she was invited to initiate a strategic rollout of FaME+ [R1] by the Norwegian University of Science and Technology, establishing core trainers for the Norwegian National Falls Prevention Programme, Sterk og stødig, (462 instructors trained in 59 Norwegian municipalities), reaching 4000 older people [S11]. They now have 75 municipalities (out of 422 across Norway) (Oct 2020) signed up for continued strategic roll-out.

5. Sources to corroborate the impact

- [S1] ROSPA Insight report on FaME implementation Covid-19 [Confidential report PDF] supported by a letter of corroboration for the Insight Report provided by ROSPA public health advisor.

- [S2] Survey of UK postural stability instructors experience of delivering FaME and perceived health benefits to participants conducted by Later Life Training Ltd (November 2020). https://www.laterlifetraining.co.uk/psi-survey-may-sept-2020-reach-to-older-participants-and-the-way-psis-work/

- [S3] MIRA Rehab Ltd letter of corroboration from the Chief Research Officer and Co-founder [PDF] (19th May 2020)

- [S4] Dance to Health Sheffield Hallam University Final Evaluation (March 2020). https://www.dancetohealth.org/dance_news/health/Dance_to_Health_Sheffield_Hallam_University_Final_Evaluation

- [S5] NICE shared learning database - Oldham Falls Prevention FaME Classes (Feb 2018) - https://www.nice.org.uk/sharedlearning/oldham-exercise-falls-prevention-service

- [S6] Short-term effectiveness of a community-implemented falls prevention referral service (October 2018) - https://doi.org/10.1080/09638288.2017.1337241 and Edinburgh Steady Steps Return on Investment evaluation (2019) - http://evaluationsupportscotland.org.uk/media/uploads/resources/edinburgh_leisure_-_evaluation.pdf

- [S7] Gateshead Older Peoples Assembly (2017) – FaME participant improvements and programme Return on Investment – http://www.gatesheadopa.org.uk/news/sroi/

- [S8] Later Life Training Ltd: letter of corroboration from company directors [PDF] (October 2020)

- [S9] NICE Endorsed Resource – FaME Implementation Toolkit (30th Oct 2019) - https://www.nice.org.uk/guidance/cg161/resources

- [S10] Impact of FaME Implementation Toolkit, Associate Professor, Public Health, University of Nottingham (15th January 2021) [PDF]

- [S11] Active Seniors through Strong and Steady programme (Sterk og stødig), Norway – Letter of corroboration from Professor at Norwegian University of Science and Technology [PDF] (22nd Oct 2020)