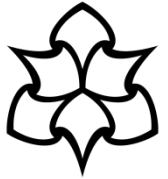


Using technology to reduce social isolation: research on dementia and social isolation

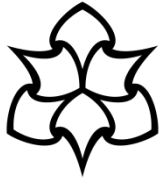
Professor Josie Tetley
Dr Emma-Reetta Koivunen

Ageing and Long Term Conditions Group
Faculty of Health, Psychology & Social Care
Manchester Metropolitan University



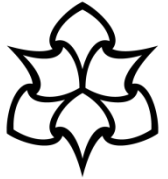
Social isolation among older people with long term health conditions and their carers

- Increased isolation is likely to lead to a loss of sense of self, greater carer burden and can produce other significant health conditions, with associated healthcare costs, secondary to a sedentary lifestyle.
- 8 out of 10 carers reported feeling lonely or socially isolated because of their caring role (Carers UK 2014).
- 40% of people living with **dementia** in UK reported feeling lonely (Alzheimer's Society 2014b).
- Restricted mobility after a **stroke**, risk of falls and loss of confidence contribute to social isolation in over a third of people after stroke, in addition to poorer mental and physical health (Ferreira et al., 2015).



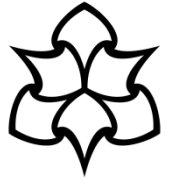
Stroke and dementia in UK

- 850 000 people live with **dementia**
 - Over 500 000 live in the community (Alzheimer's Society 2014a).
- The annual cost of dementia care is estimated to be £26.3 billion
 - £11.6 billion is contributed by the work of unpaid carers (Alzheimer's Society 2014a).
- Estimated 1.2 million **stroke** survivors in UK (Stroke Association 2015)
- The annual health and social care costs of stroke is estimated to exceed £5 billion
 - Informal health care is estimated to cost over £2.42billion
 - Lost productivity as a direct cost result of disabilities brought about by a stroke is estimated £1.33billion



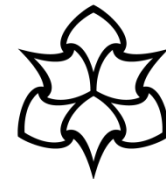
Challenges in going out in the community

- Walking has various health benefits, is free and accessible to many
- Challenges for people living with dementia and their carers
 - Confusion or memory problems
 - Increased carer stress, can hasten admission into long-term care.
 - Only about half of people living with dementia in UK go out daily (Alzheimer's Society 2014b).
 - The estimated police costs of missing person enquiries attributable to dementia range between £22.1 and £40.3 million per year (Alzheimer's Society 2014a).
- Challenges for stroke survivors
 - Over half have some problems with walking, particularly in the community (Bohannon, 1991; Ferreira, 2015)
 - Common problems include decreased speed and loss of symmetry (evenness) of walking (Bohannon, 1991 and others)
 - Challenges to stability and balance



Greater Manchester Academic Health Science Network funded research: Assistive Technology Reducing Social Isolation to support recovery, health and wellbeing

- Project 1: Haptics in stroke rehabilitation
- Manchester Metropolitan University
 - Prof Josie Tetley (Nursing),
 - Dr Rachel Stockley (Physiotherapy)
 - Dr Sue Caton
- Partners: Open University & Lucid Innovation
- Project 2: Dementia wearables
- Manchester Metropolitan University
 - Prof Josie Tetley, Dr Emma Koivunen, Donna Davenport (Nursing),
 - Dr Jenny Fisher (Social Care & Social Work),
 - Dr Matthew Sullivan (Science & the Environment)
- Partner: KMS Solutions Ltd

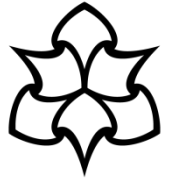


Project 1: Haptics in stroke rehabilitation

The equipment: Haptic bracelets

- Cueing has proven benefit to the walking ability of people after stroke
 - BUT: audio cues are not useful in community settings
- The haptic bracelets provide a rhythmical sensory 'cue' by vibration
 - Thought to use entrainment processes in the brain – following and reproducing a rhythm
 - This could facilitate more even weight bearing when walking producing increased symmetry or evenness
- Worn next to the skin so are discreet
- Can be used in any environment as not affected by noise

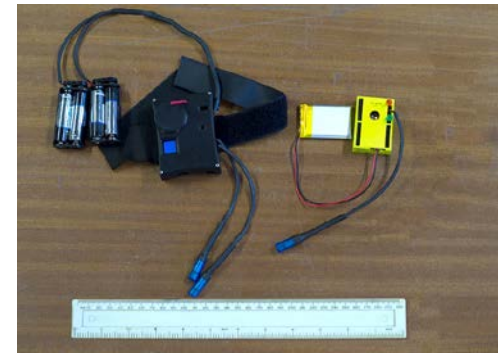


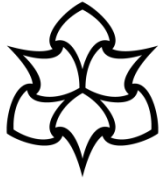


Project 1: Haptics in stroke rehabilitation

The equipment: Haptic bracelets

- A haptic cueing device may help stroke survivors to improve their walking in community settings
 - Restores rhythm and symmetry of walking
 - Need a system that is acceptable to stroke survivors
- Potential to increase ability to being mobile in community, with reduction of social isolation





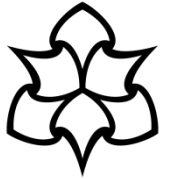
Project 1: Haptics in stroke rehabilitation

Aims

- To produce a haptic bracelet that,
 - Is fit for purpose
 - Can be used by therapists as an adjunct to rehabilitation
 - Is acceptable to people after stroke
- And indicate its effectiveness

Methodology

- Focus groups
 - Stroke survivors input into the design to make to it fit for purpose and wearable
- Gather the views of physiotherapists about what functionality they want the device to have to help with rehabilitation
- Test the prototype in a small group of stroke survivors to see the effect on walking and acceptability

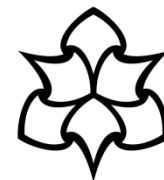


Project 1: Haptics in stroke rehabilitation

Participants views on the ‘product’

People hoped the product would provide them with:

- More confidence and make them feel safer when walking
- Greater ability to take bigger strides rather than little steps.
- A way to combat the silly mistakes participants reported making due to tiredness.
- Reduced pain (knees, hips)



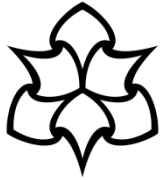
Project 1: Haptics in stroke rehabilitation

Participant views - why does this matter

‘I particularly wobble and I am a bit unsure about losing my balance if I have to climb stairs, just the fact that you are taking one foot off the floor makes me feel totally unstable unless I’m holding onto something’.

‘Balance again is the thing and it takes a lot of your confidence away of course when you are not sure of turning round quickly or crossing the road’.

‘I’d like to be able to just walk in a straight line rather than be dragged about as somebody who appears to have had a drink or something because then when you try to correct yourself sometimes that’s when you feel like you are going to stumble and get tied in knot’.

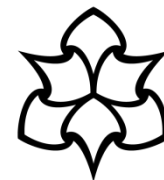


Project 2: Dementia & wearables

The equipment: wristbands (KMS Solutions)

- Simple-to-use wristband and smartphone application that enable
 - A person living with dementia to contact a carer if they are outside alone and require assistance, or
 - A carer can contact or locate the person living with dementia if they are concerned of their whereabouts.
- The wristband connects the wearer to the carer with one button

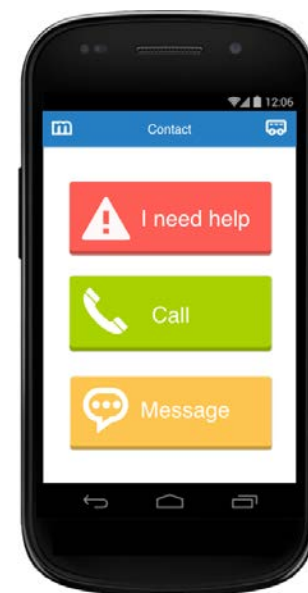
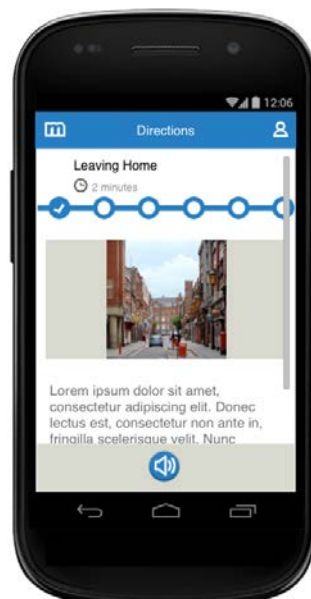
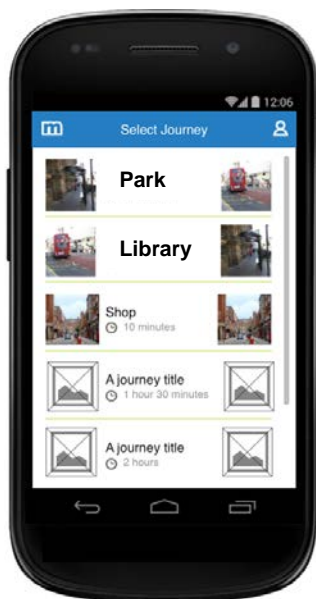


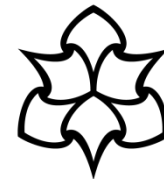


Project 2: Dementia & wearables

The equipment: smartphone app (KMS Solutions)

- Journeys can be saved on the application and the wearer will receive guidance when they are out;
- The carer will be alerted if the wearer goes off route – and when they arrive to their destination;
- The device also has a simple to use call and text function





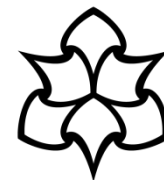
Project 2: Dementia & wearables

Aims

- To assess the potential acceptability and usability of the devices
- To test the use of the devices in everyday life contexts
- To evaluate impact of the devices to reducing social isolation and improving health outcomes
- To produce case studies to share learning

Methodology

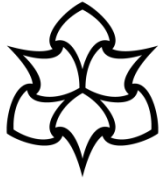
- Focus groups
- Technology testing in everyday lives of people living with dementia
- Data collection about use experiences in daily life through interviews and participant observation
- Data collection about the device use from the platform and with use diaries



Project 2: Dementia & wearables

Initial findings from focus groups - on equipment

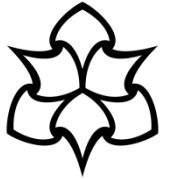
- Research participants have been very positive about the technology
- *“I want one of these” (Female carer)*
- Wristband more interesting than smartphone – familiar technology
- *“Well it’s very similar to the one I have got anyway, so yes” (Female, living with dementia)*



Project 2: Dementia & wearables

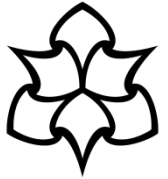
Initial findings from focus groups on tracking

- Focus on how the technology can help with safety and independence – no one in current sample has been concerned of ethics of tracking
- *“I know people say it takes your liberty away. It doesn’t, I am sorry I would be very happy walking around with a thing on my wrist if I get lost that’s not my liberty, that’s security for me. I would be very happy with that, yes, yes very happy with that.”
(Female, living with dementia)*



Technology ageing and social isolation

- Our research shows that technology can really make a difference
- The reality of implementation is complicated
- There is a need to link up existing and new developments (Herbert v GPRS)
- How can we make this better?
- There is no one solution



Thank you for listening – any questions?

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Professor of Nursing

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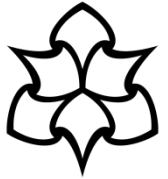
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Ageing and Long Term Conditions Group

Faculty of Health, Psychology & Social Care

 @ALTMMU



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