

Perceptions and use of technology to support self-management for older adults living with multiple health conditions within an ecosystem of care



E. Murphy*, J. Doyle**, C. Hannigan*, S. Smith**, J. Dinsmore*,

*Trinity Centre for Practice & Healthcare Innovation, Trinity College Dublin
**NetwellCASALA, Dundalk Institute of Technology



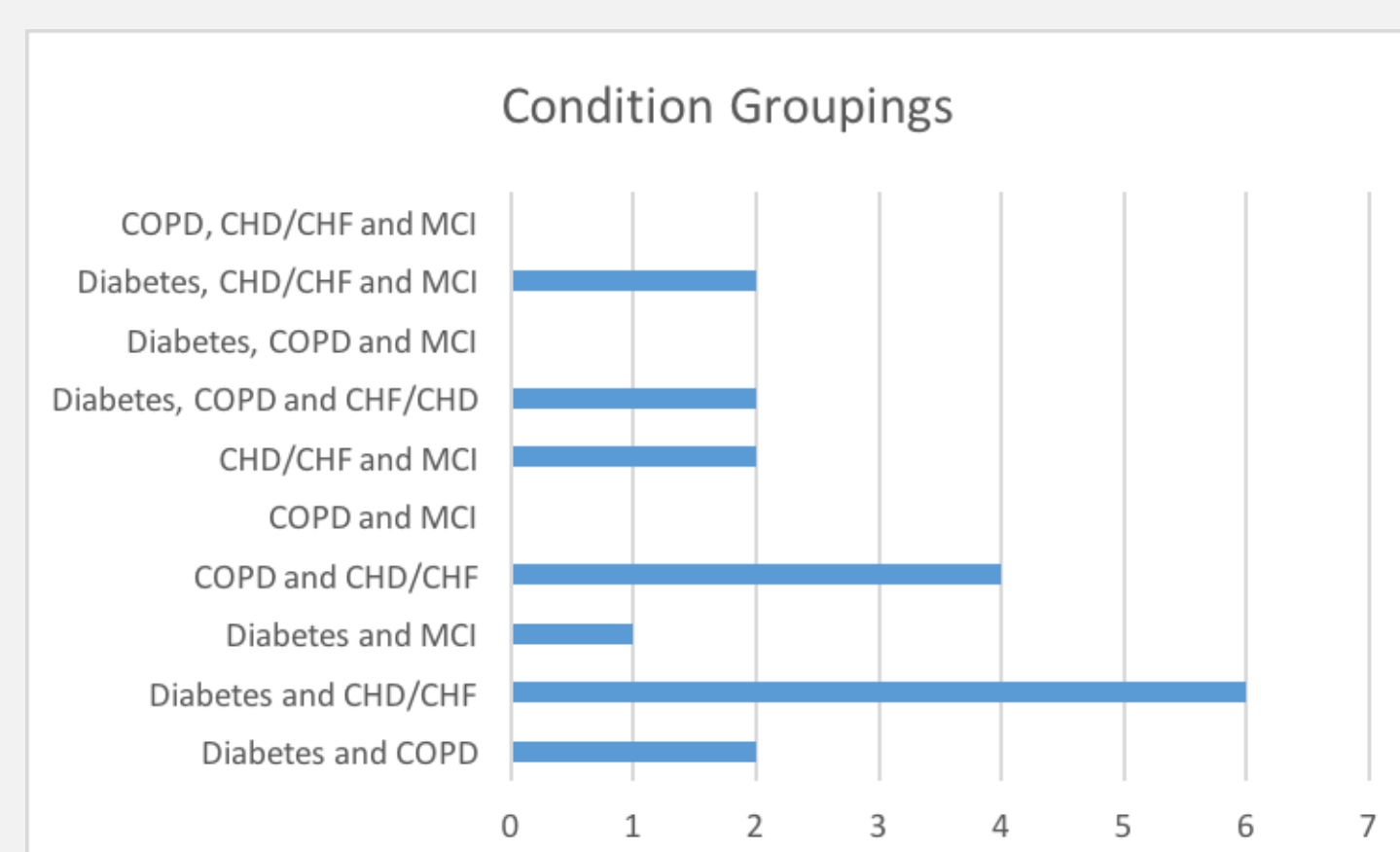
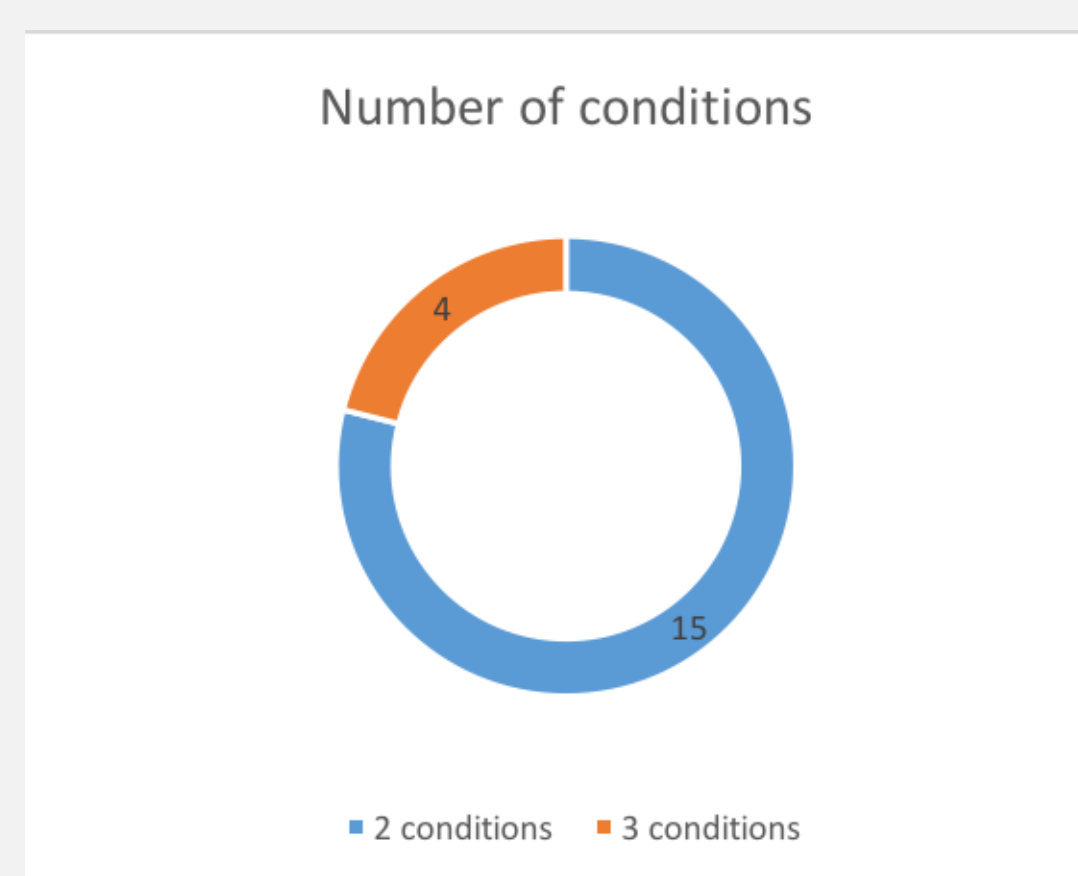
Funding: European Union Horizon 2020 Programme

Background

- In this study we have explored what technologies older people with multimorbidity (PwMs) are currently using and how they and their networks of care perceive technology to support their health conditions.
- This research is part of **ProACT** - an EU-funded Horizon 2020 project that aims to **develop and evaluate a digital integrated care ecosystem** to support **older people with multimorbidity (PwM)**.
- This study is part of an extensive **user requirements** study to elicit requirements for the design of the digital care system.
- While older adults generally have positive opinions and attitudes towards trying and using new technologies (Mitzner et al., 2010), **health status** itself is a **moderating factor for computer use and digital literacy** (Heart and Kalderon, 2013).

Methodology

- Semi-structured qualitative interviews and focus groups were conducted with **19** older PwMs, **7** informal carers, **16** formal care workers, **6** general practitioners, **4** pharmacists, and **15** other healthcare professionals (including public health nurses, physiotherapist, geriatrician, clinical nurse specialists and other HCPs).
- Inclusion criteria** for participants with multimorbidity:
 - Over 60 years of age
 - Managing two or more conditions:
 - Diabetes
 - Chronic Obstructive Pulmonary Disorder (COPD)
 - Coronary Heart Disease (CHD) or Congestive Heart Failure (CHF)
 - Mild Cognitive Impairment (MCI)
- PwM participant profiles:** We engaged with 19 people (8 males and 11 females) with multimorbidity between the ages of 60 and 86 (Mean: 73.39 years). The figures below illustrate the numbers and types of conditions of the PwM participants.



References

- Mitzner, T. L., Boron, J. B., Fausset, C. B., et al. (2010). Older adults talk technology: Technology usage and attitudes. *Computers in Human Behavior*, 26(6), pp. 1710-1721.
- Heart, T and Kalderon, E. (2013) Older adults: Are they ready to adopt health-related ICT?. *International Journal of Medical Informatics*, 82(11), pp.1 -23

Results

- Eleven** of the 19 PwMs reported using devices to monitor their health.
- Eight** PwMs reported owning and using a laptop or PC; **Fourteen** reported owning and using a mobile phone (eight of these were smartphone users); **Seven** participants own and use tablet devices.
- PwMs** reported **using their phone as a reminder** to help with self-managing (e.g. to take medications) and to help with scheduling appointments and reminders.
- Ensuring that technology is accessible and easy to use is important to PwMs;

"Declining ability of faculties over time needs to be built into the systems. While you might start off with a system that would be very dependent on the individual himself or herself in their 60s but by the time you get them into - you know my age - you are probably beginning to think in terms of, you know, more of it being done by a carer - because of the declining faculties" (PwM).

- HCPs reported very little technology usage** for communicating about patients or supporting integration. Referrals, patient notes etc. are all **typically communicated** on paper, via post.
- Where IT systems were already in use, for example by GPs or pharmacists, there were **concerns expressed about security of data** should external devices have access to deliver or receive data to/from their system.
- GPs** were hesitant to recommend the use of devices for self-monitoring symptoms at home. They were **wary of creating additional anxiety and burden for the PwM**, and were also concerned about the accuracy of some devices (e.g. pulse oximetry and spirometry sensors).

"The other thing I guess is to watch out for increased anxiety around measuring things. You know some patients can be quite fixated on their blood pressure with their home blood pressure monitors, and they will come screaming through the door if it is above a certain level" (GP).

Conclusions

- Older adults with multimorbidity perceive **technology** as a mechanism to **sustain living independently** in their own home but have concerns around accessibility and ease of use.
- Healthcare professionals were more cautionary in their perception of the role of new technology to support PwMs, primarily due to privacy and security concerns. Both PwMs and GPs highlighted the **potential for digital monitoring to create additional anxiety about health conditions**.
- This study is the first step in an **iterative user-centred design process** to create a novel digital integrated care system.



The ProACT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 689996. This document reflects the views only of the authors, and the European Union cannot be held responsible for any use which may be made of the information contained therein.