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# Not so simple: the challenge of developing a non-motor symptoms app (NMS Assist) for people with Parkinson's (PwP)

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MOVEMENT DISORDERS

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Title: Not so simple: the challenge of developing a non-motor symptoms app (NMS Assist) for people with Parkinson's (PwP)

## Objective

To evaluate usability and identify the challenges for PwP when using NMS Assist

## Background

The potential for mHealth technologies, such as apps, in Parkinson's hold great potential. Through an iterative process, our multi-disciplinary team developed an app based on NMSQuest(1) called NMS Assist. Designed alongside end users it allows PwP to record NMS within their own environment, access self-help information, trigger service support based on clinical need, and provide the clinical team with detailed clinical information remotely. The degree to which apps such as NMS Assist can be used (usability) by PwP, however, is largely unexplored. There is therefore a need to evaluate app usability in PwP and identify the challenges to optimize usefulness and adherence.

## Methods

Participants were recruited via Parkinson's groups and instructed to interact with NMS Assist by completing six user tasks which represented the core functions of the app. Qualitative and observational data were collected to identify usability. A 'think aloud' approach allowed for audio recording and transcription of user 'thoughts'. Hand/finger movements and screen interactions were recorded using a digital camera (Mr Tappy: [www.mrtappy.com](http://www.mrtappy.com)). Completion rate and error rate for each task were collected, along with user System Usability Scale (SUS) scores. A severity of harm rating was assigned to issues to inform app amendment prioritization.

## Results

Thirteen participants (PwP, n=9 and carers, n=4) participated. PwP: median age=68 (range 44-82) years; MOCA = 28/30 (range 21-30), Hoehn & Yahr =2 (range 1-3), self-reported as experienced app (EA) or inexperienced app (IA) users. EA users and IA users completed 83% and 35% of app tasks without critical error respectively. Median SUS score for all participants = 80/100 (range 44-95). Severity of harm ratings identified three key issues: navigation – many IA users did not utilize the scroll function to navigate; content - too technical; and accessibility - small font size.

## Conclusions

Seemingly simple aspects of an app intended for use by PwP, if overlooked, can severely affect usability. Involvement of a multidisciplinary team including PwP in app co-design, use of instructional videos to facilitate navigation, adequate font size, and eliminating medical jargon may mitigate issues and optimize usability. NMS Assist holds great potential for improving management of NMS in PwP.