

Patient Reported Outcomes Research in Trauma: testing the usability of an ePRO system

Christel McMullan(1,2,3), Ameeta Retzer(1), Anita Slade(1), Tony Belli(3), Elin Haf Davies(4), Gary McNamara(4), Luke Flavell(5), Jackie Flavell(5), Melanie Calvert(1,3,6,7) Grace Turner(1,2)

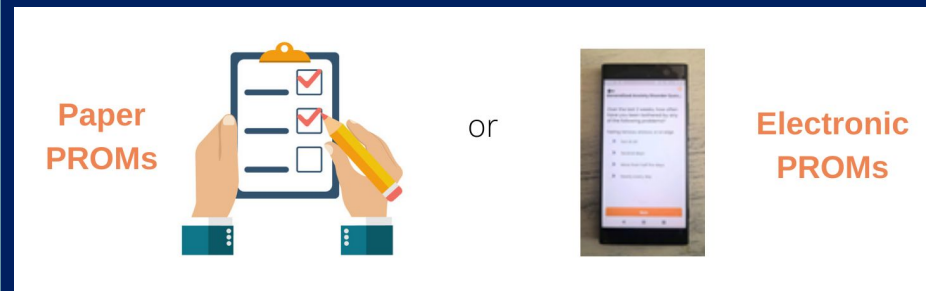
(1)CPROR, University of Birmingham, UK; (2)CTSR, University of Birmingham, UK; (3)NIHR Surgical Reconstruction & Microbiological Research Centre, Birmingham, UK; (4)Aparito Ltd; (5)Patient partners; (6)Birmingham Health Partners Centre for Regulatory Science and Innovation, Birmingham, UK; (7)NIHR ARC/NIHR Birmingham BRC, UK;

BACKGROUND

Each year, 1.4 million people attend A&E in England with a traumatic brain injury (TBI) & over 50 million people worldwide have sustained a TBI. Advances in critical care, imaging and the reorganisation of trauma health systems means that more people live with the damage caused by the TBI for longer.

PATIENT REPORTED OUTCOMES MEASURES (PROMs)

are questionnaires completed by patients that can be used to monitor long-term effects of health conditions.



AIMS

To develop and assess the feasibility of an electronic patient reported outcome measure (ePROM) system for inclusion within routine clinical care & TBI research.

Questionnaires selected

Generic

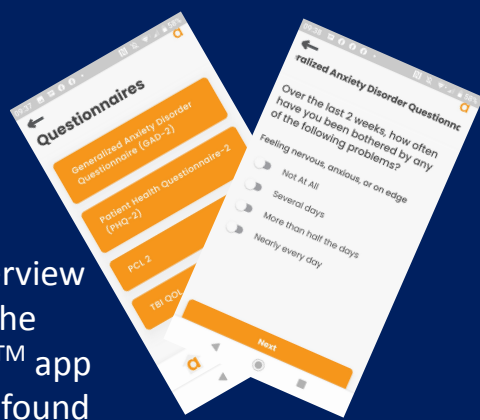
- **Depression:** Patient Health Questionnaire (PHQ-2)
- **Anxiety:** General Anxiety Questionnaire (GAD-2)
- **PTSD:** PTSD Checklist (PCL-2)

Disease-specific

- TBI QOL SF (Satisfaction with daily activities)

Atom5™

- Designed by [Aparito Ltd](#)
- Patient facing app
- Android/iOS
- Configurable to suit TBI patients' needs
- Clinician dashboard



An overview of the Atom5™ app can be found [here](#)

Positive comments

- Very positive overall about Atom5™
- Easy to download, use & navigate
- Nice layout & colours
- Would use it again

Negative comments

- Confusion around questionnaire names
- Font too small
- Some difficulty to read/stay focused throughout TBI-QOL (20 questions)

USABILITY STUDY

- 4 PROMs were programmed (PHQ-2; GAD-2; PCL-2; TBI-QOL SF)
- Participants complete ePROMs on app at home;
- 9 cognitive interviews with people with a TBI
- 5 women/4 men
- Range of ages and cognitive abilities
- Recruited from Headway UK

PROMs programmed on Aparito Atom5™ with help of PPI group

QUALITATIVE STUDY

- 28 one-to-one, semi-structured interviews:
- TBI survivors and family members/carers (n=15);
- Healthcare Professionals or Researchers working in TBI related clinical areas (n=9);
- Staff members/volunteers from third sector organisations (n=4).

Participants' attitudes towards PROMs & ePROMs (McMullan et al, 2020)

- Enthusiastic about PROMs & ePROMs
- PROMs help to focus consultations on what is important to patients (memory loss, anxiety, lack of concentration)
- ePROMs: flexible, timesaving, facilitate evaluation of symptoms & impact on quality of life
- Key features of ePROMs: conciseness, lay language, should reflect patients' cognitive and physical ability

Advantages of ePROMs

- Less burdensome for patients & clinicians;
- Fewer data entry errors;
- Easy real-time data/remote monitoring & response
- Ability to send/receive feedback easily;

PROMs amended on Aparito Atom5™ with help of PPI group

FEASIBILITY STUDY

- Participants complete ePROMs prior to follow-up clinic appointment;
- 6 case studies (interviews + observations of clinic appointments);
- 20 semi-structured interviews.

Next steps

- Updating Atom5™ app
- Conducting feasibility study in clinical setting

CONCLUSION

- Participants' positive attitudes & experience towards ePROMs in this study demonstrate the potential to capture PROs electronically in routine clinical practice and TBI research.
- It is anticipated that the PRiORiTY study will increase capacity for trauma-specific knowledge and expertise in relation to PROMs, as well as inform system development in other areas of trauma research.

