Smartphone apps for the diagnosis and management of vertigo: a systematic review of the literature and mobile applications

Delphine Nkuliza[1], James Arwyn-Jones[2], Kristijonas Milinis[3], Elliot Heward[4], Hannah Blanchford[5], Reshma Ghedia[6], Ben Tudor-Green[7], John Hardman[8], and Chloe Swords[9]

[1]Canterbury Christ Church University
[2]Chelsea and Westminster Healthcare NHS Trust
[3]Liverpool University Hospitals NHS Foundation Trust
[4]East Lancashire Hospitals NHS Trust
[5]St George's University Hospitals NHS Foundation Trust
[6]Barts Health NHS Trust
[7]Plymouth Hospitals NHS Foundation Trust
[8]Royal Marsden Hospital NHS Trust
[9]Cambridge University Hospitals NHS Foundation Trust

March 14, 2022

Abstract

Background Vertigo can have a negative impact on the quality of life of patients. Mobile health apps have the potential to promote autonomy, and improve symptoms through self-management and vestibular rehabilitation exercises. This study aimed to systematically evaluate the quality of apps for vertigo using the published literature and smartphone stores. Design A systematic review of the literature, utilising Embase, Medline, Cochrane and clinicaltrials.org, and Apple and Google Play Stores were used to identify mobile device apps relating to vertigo. Apps were evaluated for characteristics, content, healthcare involvement and quality using the Mobile App Rating Score (MARS) system (a standardised tool for assessing app quality). Results The literature search identified no eligible articles. The app search identified and evaluated 32 eligible apps. Four main categories of apps were identified: exercise provision, information provision, symptom monitoring and assessment. Six apps included healthcare professionals in their development. MARS scoring ranged between 1.8 and 4.05 (maximum 5), with only 25% of apps scoring the minimum acceptability score of 3. The highest scoring apps were those providing rehabilitation exercises and symptom monitoring. Conclusion There is great potential in the use of mobile apps to help monitor and manage vertigo. This article demonstrates that despite numerous readily available vertigo apps, few are of an acceptable standard. There is scope for apps to improve. We propose involving health professionals and patients in their development to ensure high quality evidence-based information and evaluating their efficacy through future patient-centred trials.
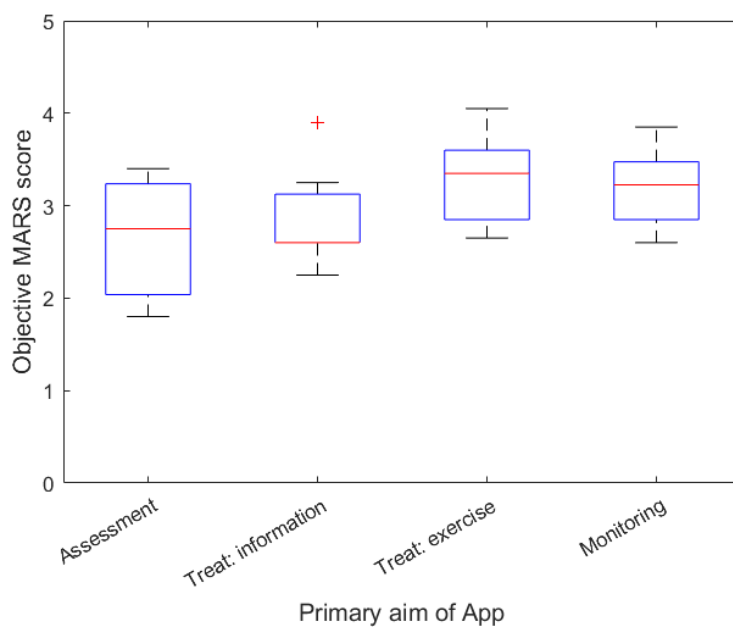
Hosted file

`Main_document_final.docx` available at https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications

Hosted file

`Figure 1.docx` available at [https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a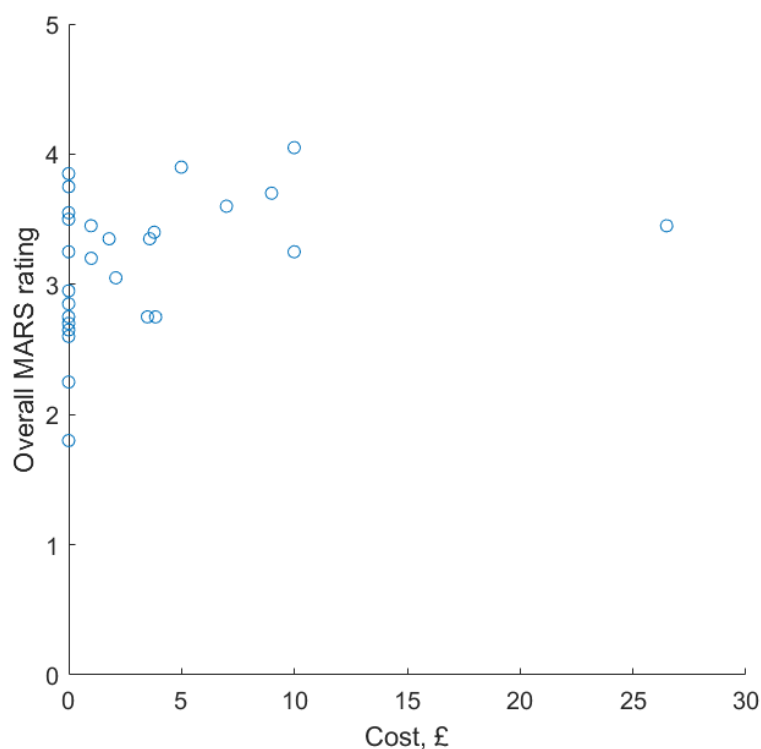-systematic-review-of-the-literature-and-mobile-applications](https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications)

Hosted file

Figure 2.doc available at https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications

Hosted file

Table_1.docx available at https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications

Hosted file

Table_2.docx available at https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications

Hosted file

Table_3.docx available at https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications

Hosted file

Table_4.docx available at https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications

Hosted file

Table_5.docx available at https://authorea.com/users/465117/articles/559832-smartphone-apps-for-the-diagnosis-and-management-of-vertigo-a-systematic-review-of-the-literature-and-mobile-applications