

Performance, impact and experiences of using wearable devices for seizure detection in community-based settings: a mixed methods systematic review

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Contributions: (I) Conception and design: M Sasseville, MP Gagnon, EB Assi, DK Nguyen; (II) Administrative support: None; (III) Provision of study materials or patients: None; (IV) Collection and assembly of data: M Sasseville, E Attisso, MP Gagnon; (V) Data analysis and interpretation: M Sasseville, E Attisso, JMW Supper, MP Gagnon, S Ouellet, S Amil, EB Assi; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

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Background: There is growing scientific evidence that wearable devices for seizure detection (WDD) perform well in controlled environments. However, their impact on the health and experience of patients with epilepsy (PWE) in community-based settings is less documented. We aimed to synthesise the scientific evidence about the performance of wearable devices used by PWE in community-based settings, and their impact on health outcomes and patient experience.

Methods: We performed a mixed methods systematic review. We performed searches in PubMed, Google Scholar, Web of Science and Embase from inception until December 2022. Independent reviewers checked studies published in English for eligibility based on predefined inclusion and exclusion criteria. We collected information about studies, wearable devices, their performance, and their impact on health outcomes and patient experience. We used a narrative method to synthesise separately data for each question. We assessed the quality of included studies with the QUADAS-C and MMAT tools.

Results: On a total of 9,595 publications, 10 studies met our eligibility criteria. Study populations included mostly PWE who were young (≤ 18 years) and/or their caregivers. Participants were living at home in most studies. Accelerometer was the wearable device mostly used for seizure detection. Wearable device performance was high (sensitivity $\geq 80\%$ and false alarm rate $\leq 1/\text{day}$), but some concerns remained due to false alarms according to qualitative studies. There was no significant effect of wearable device on quality of life (QoL) measures and no study reported quantitatively other health outcomes. Qualitative studies reported positive effect of wearable devices on QoL, seizure management and seizure-related injuries. Overall, patients reported that the device, especially the accelerometer, was suitable, but when the device was too visible, they found it uncomfortable. Study quality was low to medium.

Conclusions: There is low quality scientific evidence supporting the performance of WDD in a home environment. Although qualitative findings support the positive impacts of wearable devices for patients and caregivers, more quantitative studies are needed to assess their impact on health outcomes such as QoL and seizure-related injuries.

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**Stephen G. Hildebrand, Johnnie B.
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Environmental Impact Assessment Alan Gilpin,1995 This book examines the crucial role of EIA in government decision making in Europe the Nordic countries North America Asia and the Pacific

Participatory Research

Methodologies Alpaslan Özerdem, Richard Bowd, 2016-05-13 Participatory research methodologies have been used since the 1970s as a tool to garner accurate information about communities in which development practitioners operate Their usefulness as a collection of research techniques has been evident in academic disciplines such as politics sociology anthropology and economics among others This informative text assesses the use of participatory methods as a research tool in the contexts of development and reconstruction after conflict and disasters by identifying cross cutting themes and establishing a comparative lessons learned framework that can help inform future uses of them both for practitioners and researchers More importantly rather than adopting a prescriptive perspective this book provides a critical analysis of such methodologies Specifically the reader will benefit from the collation of the experiences of those who utilize participatory research methods in different countries and contexts and from different academic and practitioner perspectives **Expert Workshop on Life-cycle Analysis of Energy Systems, Methods and Experience** Organisation for Economic Co-operation and Development, International Energy Agency, 1993 *Qualitative and Quantitative Methods in Libraries* Anthi Katsirikou, Christos H. Skiadas, 2010 This volume is a valuable resource of research papers and applications presented at the Qualitative and Quantitative Methods in Libraries International Conference QQML2009 on the methodological tools used in library and information science It provides the reader with a better understanding and holistic view on the subject and contains a plethora of invaluable methodologies and applications to a variety of information and library science Qualitative and Quantitative Methods in Libraries will be suitable to students as a textbook as well as to scientists and professionals

Environmental Analysis The NEPA Experience Stephen G. Hildebrand, Johnnie B. Cannon, 1993-06-09 Environmental Analysis reviews information gathered during NEPA assessments summarizes the state of the art in methods and approaches and defines future opportunities and new approaches required to link high quality science to the decision making process Individual chapters address the process itself present examples of recent experience with ecological impact assessment evaluate social impact assessment and the important role the public must play discuss the difficult challenge of assessing cumulative effects of multiple impacts consider the regional and global implications of NEPA and examine the important role of follow up studies in the process The authors of the 59 individual papers comprising this book represent the major sectors that have been key participants in the decision making process from the beginning These sectors include academia national laboratories federal agencies state agencies private industry and foreign nations Environmental Analysis will be interesting reading for environmental scientists engineers policy makers and lawyers in government and academia private consultants and non government environmental organizations **The European Impact Assessment and the Environment** Kilian Bizer, Sebastian Lechner, Martin Führ, 2010-08-03 This volume contains papers presented in a workshop of international experts in September 2008 in Berlin The experts discussed how environmental consequences of EU legislation can be incorporated in a more effective way In other words this contribution focuses on the question of which measures can

strengthen the consideration of environmental effects in the EU impact assessment procedure and in the subsequent legislative decision making process This allows drawing conclusions for the impact assessment process in Germany This volume begins with an introductory paper Bizer Lechner F hr which served as the basis for discussion in our workshop The questions raised in this paper are addressed by the authors of the subsequent chapters Stephen White DG Environment EU Commission discusses the impact assessment from an internal perspective within the Commission Pendo Maro European Environmental Bureau reviews the impact assessment practice from the perspective of an environmental NGO Martin Schmidt et al discuss the potential for more formalism to strengthen environmental issues within impact assessments and favour a checklist

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