Data Visualisation in Midwifery: The Challenge of Seeing what Datasets Hide

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Abstract. Information visualisation is transforming data into visual representations to convey information hidden within large datasets. Information visualisation in medicine is underdeveloped. In midwifery, the impact of different graphs on clinicians' and patients' understanding is not well understood. We investigate this gap and its potential consequences.

Keywords. data visualisation, midwifery

1. Introduction

Data visualisation is transforming data, information and knowledge into visual representations that convey meaningful patterns and trends hidden within large datasets [1]. Ineffective data visualisation negatively impacts clinical care and patient safety [2]. Effective visualisation mitigates comprehension, interpretability and data navigation issues [3]. Data visualisation in clinical medicine is underdeveloped [4]. This is especially true for midwifery. Finding appropriate ways to visualise data is challenging [5], and depends on objectives, context and audience [5]. Studies confirm the effectiveness of data visualisation. This paper investigates how data visualisation could be better applied in midwifery.

2. Method

A multi-database search was conducted using the terms "data visualisation" and "midwifery". Duplicates, irrelevant papers and those which spoke of data visualisation but failed to present any form data visualisation in were removed. This resulted in a collection of just 10 papers for use in this review.

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3. Results

Our review identified that midwifery uses extremely limited and primitive data visualisation methods. Bar charts [6] and line graphs [7] dominated, with only one work [8] using any graphical representation. No works addressed visualisation methods for midwifery. Midwives are not being exposed to approaches that could improve their understanding and assimilation of clinical data, and accordingly lack awareness of approaches to and benefits of data visualisation.

4. Discussion

Direct patient care will continue to be the driving concern, but how midwives engage with patient data and research must evolve in the era of big data [9, 10]. Many consider data science as the next evolution for midwifery, yet few midwives understand what data visualisation is and the impact it may have [9, 10]. Increasingly, effective information visualisation may hold the key to understanding complex data in electronic health record datasets. Midwives must embrace data visualisation and the knowledge it can convey.

5. Conclusion

We have investigated the use of data visualisation within the domain of midwifery. Research is needed to assist midwives who work with or present data to do so using appropriate data visualisation. Without this, midwives will continue to be constrained by the challenge of seeing what datasets hide.

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