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GENERATING OUTCOME MEASURES FROM DIGITAL MENTAL HEALTH PLATFORM FOOTPRINTS VIA NATURAL LANGUAGE PROCESSING

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This work demonstrates the development of an Adult Session **Wants and Needs Outcome Measure** aimed at supporting service delivery within the digital mental health platform, **Qwell**.

horizon
CENTRE FOR DOCTORAL TRAINING

PHASE 1: ROBERTA REGRESSION TO IDENTIFY POSITIVE SESSIONS

PHASE 2: TOPIC MODELING OF POSITIVE SESSIONS

PHASE 3: FOCUS GROUPS WITH PARTICIPANTS AND CLINICIANS

PHASE 4: DEFINING INITIAL OUTCOME MEASURE ITEMS

INTRODUCTION

With automated inference of patient outcomes currently scarce, this research focused on the development of **outcome measures** in the context of 'single sessions' for counselling. We developed machine learning methods to extract topics related to the **wants and needs** of service users on digital mental health platforms.

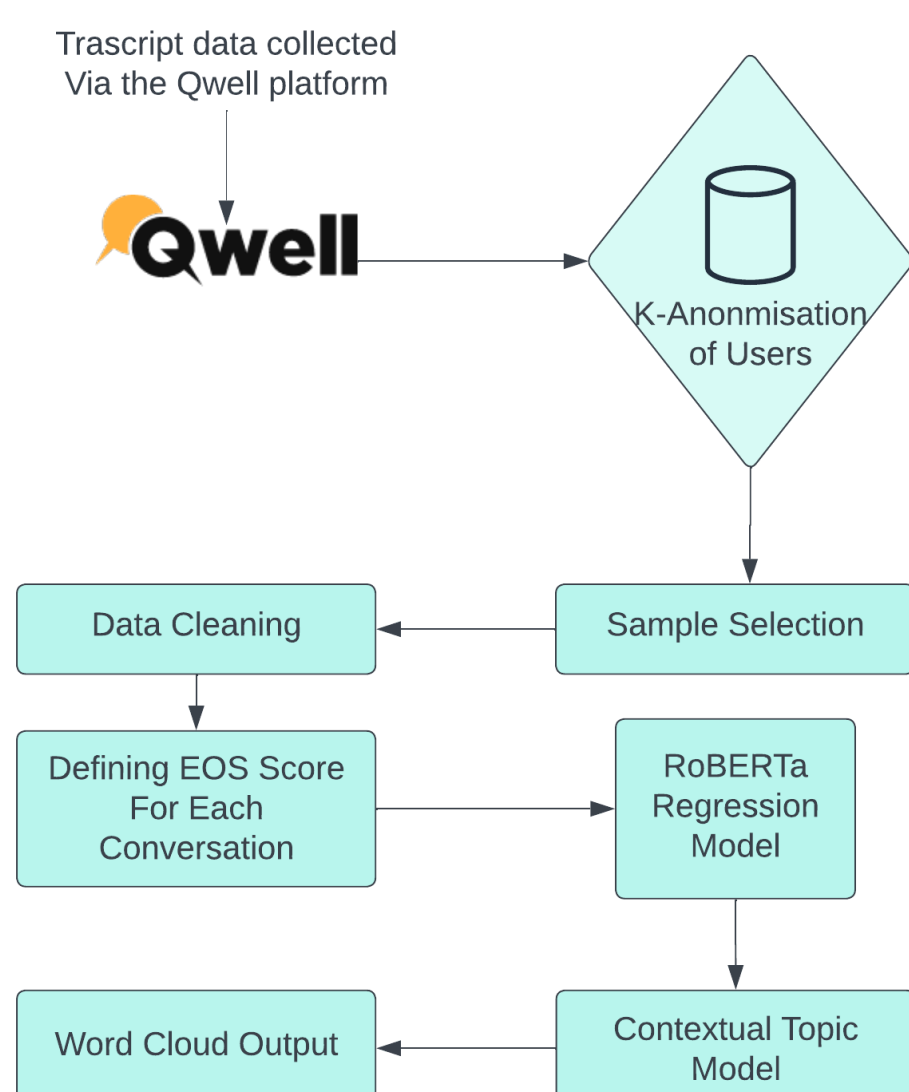
METHODOLOGY

A multi-phased design process approach was taken for the development of the outcome measure, guided by **participatory research** – focus groups of clinicians and participants with lived experience of engaging with **digital mental health platforms**. ML models were contextualized by predictive measures of session success, as measured by an in-app survey completed by the user.

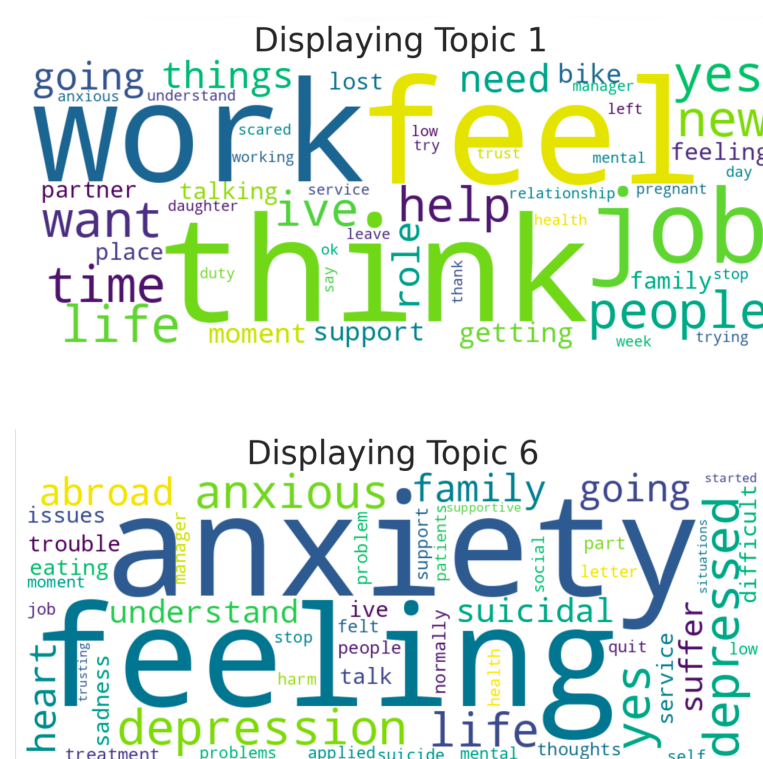
RESULTS

This work established a process for creating a new outcome measure via the computational analysis of transcript data via **Natural Language Processing** (Transformer Models and Topic Modelling), while incorporating insights from **clinical experts** and individuals. This process supports generation of new measurement categories for use by councillors on digital mental health platforms.

MACHINE LEARNING PROCESS AND OUTPUTS



Analysis was based on Digital Footprint data in the form of **254** strictly anonymized conversation transcripts from **192 service users**



CONCLUSION

The research showed how contemporary machine learning methods (with a focus on Transformer Models and Contextualised Topic Modelling) might be combined with digital footprint data, in the form of seldom explored text data generated on digital mental health platforms. This resulted in framework of mental health support topics, allowing increased understanding of service user wants and needs.