

AR MEETS ULTRASOUND : PATIENT INTERACTIVE SCANS TO REDUCE ANXIETY AND COMPREHENSION IN PRENATAL CARE



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INTRODUCTION

- ANXIETY DURING PRENATAL ULTRASOUND IS COMMON — OFTEN DUE TO LACK OF UNDERSTANDING OR INABILITY TO INTERPRET ULTRASOUND IMAGES.
- TRADITIONAL SCANS CAN FEEL PASSIVE FOR EXPECTANT PARENTS.
- AUGMENTED REALITY (AR) OFFERS A WAY TO MAKE THE EXPERIENCE MORE INTERACTIVE AND COMPREHENSIBLE.

AIM

- TO EXPLORE HOW AR INTEGRATION IN REAL-TIME ULTRASOUND SCANS CAN:
- IMPROVE MATERNAL UNDERSTANDING OF FETAL ANATOMY.
 - REDUCE PATIENT ANXIETY DURING SCANS.
 - ENHANCE CLINICIAN–PATIENT COMMUNICATION.

METHODOLOGY

- PARTICIPANTS: PREGNANT INDIVIDUALS (N=10) EXPERIENCE OF SCANS ATTENDANCE
- DESIGN: COMPARATIVE PILOT STUDY — STANDARD SCAN VS. AR-ASSISTED SCAN.
- INTERVENTION: REAL-TIME PROJECTION OF FETAL MODEL (3D/AR OVERLAY) VISIBLE TO PATIENT.
- MEASURES: ANXIETY SCALE (PRE/POST), COMPREHENSION QUESTIONNAIRE, QUALITATIVE FEEDBACK.

RESULTS (PILOT FINDINGS)

- ANXIETY REDUCTION: 25% LOWER POST-SCAN ANXIETY SCORES ($P < 0.05$).
- COMPREHENSION: 70% IMPROVEMENT IN IDENTIFYING FETAL ANATOMY CORRECTLY.
- FEEDBACK: PARTICIPANTS DESCRIBED THE AR EXPERIENCE AS “REASSURING,” “ENGAGING,” AND “HELPFUL FOR BONDING.”



DISCUSSION

- AR ENCOURAGES ACTIVE PARTICIPATION AND BETTER UNDERSTANDING OF SCAN FINDINGS.
- COULD IMPROVE SATISFACTION, BONDING, AND REDUCE RELIANCE ON POST-SCAN EXPLANATIONS.
- CHALLENGES: TECHNOLOGY INTEGRATION, STAFF TRAINING, DATA SECURITY, AND COST.

CONCLUSIONS / FUTURE WORK

- AR-ENHANCED ULTRASOUND SHOWS PROMISE AS A TOOL FOR PATIENT ENGAGEMENT.
- NEXT STEPS: LARGER COHORT, INTEGRATION WITH TELEMEDICINE, AND REFINEMENT OF AR MODELS.