

Can Robots Help? Perceptions of Healthcare Professionals Experienced in the Field of Older Persons' Care on the Use of Semi-Humanoid and Humanoid Robots: A Pilot Qualitative Study

PROJECT BRIEF

This qualitative pilot study, conducted in Malta, examined whether semi-humanoid robots could complement nurses and allied health professionals experienced in older persons' care. Ten healthcare professionals explored the Pepper robot (SoftBank Robotics) through video simulations and structured use-case discussions. Ratings were given for usefulness, safety, workload impact, and trust. Reflexive thematic analysis revealed four key themes shaping attitudes towards robotic integration.

Healthcare Professionals

Semi-Humanoid Robots

Thematic Analysis

Digital Health

Older Persons' Care

Malta

METHODOLOGY

A qualitative pilot design was employed. Semi-structured interviews incorporated the validated 12-item Digital Competence Scale (DCS; Schwarz et al., 2024), four Pepper video simulations, four structured use-case discussions, and general questions. Participants rated each scenario on a 5-point Likert scale. Data were analysed using reflexive thematic analysis (Braun & Clarke, 2022). Ethical approval was granted by the FICT Research Ethics Committee, University of Malta.

Study Sample

N = 10 | Setting: Malta, Long-Term Care
5 Nurses · 5 Allied Health Professionals
Dietetics · OT · Podiatry · Physiotherapy · SLP
Robot: Pepper (SoftBank Robotics) — semi-humanoid, multimodal, 15+ languages

STEP 1: Initial Contact & Snowball Sampling

Researchers identified contacts via professional associations & peer networks



STEP 2: Eligibility Screening

Healthcare professionals with experience in older persons' care



STEP 3: Total Sample: N = 10

Group A: 5 Nurses | Group B: 5 Allied Health Professionals



STEP 4: Data Collection — 10 Interviews

Sections: Digital Competence · Pepper Simulations & Use-Case Discussions · General Questions



OUTCOME: 4 KEY THEMES IDENTIFIED

Workload Relief · Robotic Boundaries · Implementation · Ethical Fit

RESULTS & CONCLUSIONS

Key Thematic Findings

✓ **Workload Relief:** Robots suited for repetitive tasks, monitoring & social engagement — freeing staff for higher-value care. *"There are times when we are rushed off our feet... If a robot could handle some of that, we could spend more time with our patients."*

✗ **Robotic Boundaries:** Emotional, therapeutic & complex care roles viewed as exclusively human. *"The moment a patient is distressed or confused, you need a person there — not a machine."*

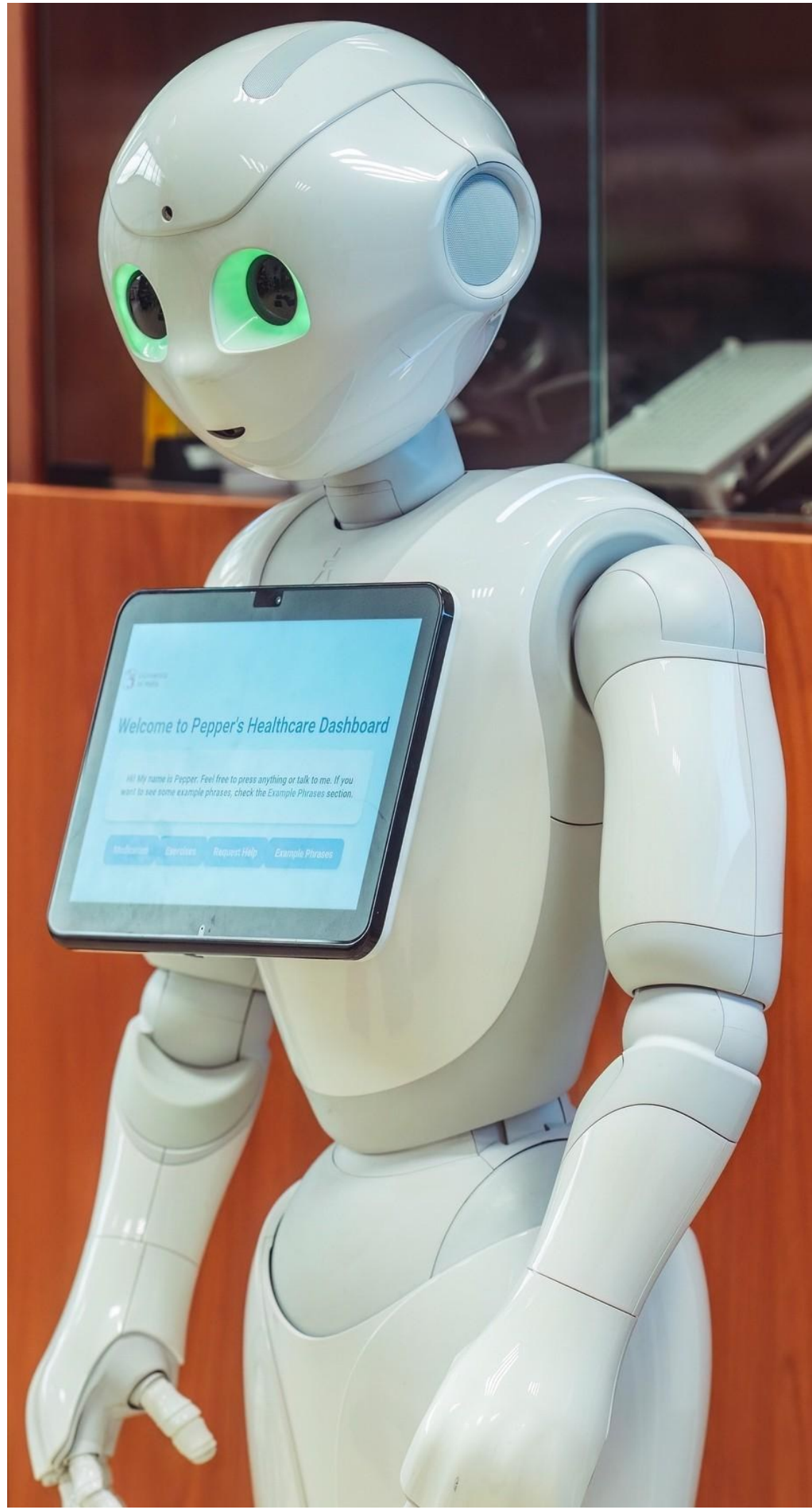
⚠ **Implementation:** Technical reliability, staff training & dehumanisation risk identified as key barriers. *"My worry is what happens when it breaks down mid-shift, or when staff haven't been trained properly."*

🌐 **Ethical Fit:** Cultural, linguistic & ethical adaptation essential; human-first design required. *"Language, culture, familiarity — these things matter. The robot needs to fit into their world."*

Conclusion: High digital competence does not guarantee robot acceptance as relational care values set firm limits. Robots are best suited for repetitive, non-emotional tasks; emotional and therapeutic roles must remain with human professionals; the HEARTS project provides an evidence-based foundation for responsible robotic integration in Malta's care sector.

Video Simulation & Use-Cases	Useful.	Safety	Workload	Trust
Staff training simulation	4.7	4.6	4.6	4.6
Exercise guidance	4.6	4.5	4.5	4.5
Help-request initiation	4.5	4.6	4.5	4.5
Wayfinding	4.6	4.5	4.6	4.5
Health data collection	4.4	4.3	4.4	4.3
Appointment scheduling	4.1	4.0	4.3	4.0
Medication reminders	4.0	3.8	4.2	3.9
Conversational interaction	3.4	3.2	3.8	3.3

Mean Ratings Per Use Case (N=10) | 5-point Likert scale



Pepper (SoftBank Robotics): Healthcare Dashboard

Pepper is a multimodal robot: it interacts simultaneously through speech, touch, vision, facial expression recognition, and a chest-mounted tablet display, enabling both verbal and non-verbal communication with users (SoftBank Robotics, 2023).

Participants viewed four video simulations of Pepper performing care tasks, including the Healthcare Dashboard interaction shown here, forming the basis of structured use-case discussions on perceived usefulness, safety, workload impact, and trust.

FUTURE WORK

- ▶ Refine robot task scope and interface design based on HCP's feedback from this study.
- ▶ Address technical reliability, staff training & multilingual support.
- ▶ Co-design ethical and data governance frameworks with care professionals.
- ▶ Conduct larger-scale studies to validate findings before any deployment is considered.

REFERENCES

- Braun, V., & Clarke, V. (2022). Thematic analysis: A practical guide. SAGE.
- Schwarz, J. et al. (2024). Digital Competence Scale (DCS). DigComp.
- SoftBank Robotics (2023). Pepper robot: Technical specifications. softbankrobotics.com



Invitation to Participate