

Evaluating the Usability of Telephone-Based Telemedicine in a Centralised Primary Care Setting: Insights From Patients and Clinicians in Malta

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Received: December 16th, 2025 | **Accepted:** December 23rd, 2025

ABSTRACT

Telemedicine has become a routine element of healthcare delivery, particularly following the operational pressures of the COVID-19 pandemic. Despite this global shift, little is known about telemedicine usability in small island health systems where geographical barriers are minimal. In Malta, telephone consultations form the core of national primary care telemedicine services, yet user experience has not been extensively examined. This study evaluates the usability of telephone-based telemedicine from the perspectives of patients and clinicians using a mixed-methods design informed by the TUQ. A total of 60 doctors and 99 patients participated. Usability ratings were consistently high, with demographic factors showing no significant association with satisfaction. Older age, however, was negatively correlated with intention to reuse telemedicine. Qualitative comments highlighted convenience as a key advantage and the absence of physical examination as a limitation. Findings indicate that telephone-based telemedicine is well integrated into Malta's hybrid care model.

KEYWORDS

Telehealth, Telemedicine, Usability, Patient Experience, Clinician Satisfaction, Primary Care

INTRODUCTION

Telemedicine has increasingly become an integral element of contemporary healthcare systems, a trend accelerated by the operational pressures introduced during the COVID-19 pandemic. During this period, many health systems rapidly adopted remote consultation models to maintain continuity of care, manage infection risks and sustain access for vulnerable populations (Bashshur et al., 2020). The COVID-19 pandemic also produced broader societal and behavioural effects, including desensitisation to health-related information due to prolonged exposure, which further shaped public engagement with remote care models (Uludag, 2022). Although initially driven by necessity, the widespread uptake of telemedicine prompted a re-evaluation of how digital and remote solutions can be integrated into routine service delivery. In the post-pandemic era, telemedicine is no longer viewed as a temporary substitute but as a complementary mode of care that supports improved accessibility, system efficiency and patient-centred service models (OECD, 2023). As such, understanding how users experience telemedicine is central to determining its long-term viability and guiding future service design.

DOI: 10.4018/IJSRSH.398503

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Usability is a critical determinant of telemedicine success, shaping not only the quality of individual encounters but also the sustainability of remote care systems more broadly. A telemedicine service that is easy to use, reliable and communicatively clear can enhance user confidence, streamline clinical workflows and encourage continued engagement. Conversely, usability problems—such as unclear processes, communication breakdowns or technological limitations—can reduce the effectiveness of remote care and hinder long-term adoption. The Telemedicine Usability Questionnaire (TUQ) offers a structured approach to assessing these dimensions by examining usefulness, ease of use, interaction quality, interface clarity, reliability and satisfaction (McLean et al., 2013). Alongside usability frameworks, theoretical models such as Unified Theory of Acceptance and Use of Technology (UTAUT) and UTAUT2 help explain behavioural intention, emphasising that telemedicine adoption depends on both user perceptions and contextual influences, including digital literacy, past experience and system support (Venkatesh et al., 2012). Together, these frameworks highlight that telemedicine is not only a technological tool but a relational, communicative and behavioural process.

Despite this extensive theoretical foundation, the global evidence base is unevenly distributed. Much of what is known about telemedicine usability comes from countries with large populations and geographically dispersed services, where remote consultations address significant barriers to in-person care. In such settings, telemedicine is frequently adopted to reduce travel burden, mitigate specialist shortages or improve service reach in rural and underserved regions. However, these contextual drivers do not directly translate to small island states, where healthcare facilities are highly accessible and physical distance poses minimal constraint. In small, centralised systems, telemedicine serves different purposes—such as managing demand, optimising triage, reducing waiting room congestion and improving patient convenience—yet the literature offers limited insights into how users in these contexts experience remote care (Mold et al., 2021).

Malta represents a unique and underexamined case within this global landscape. As a small island nation with a nationalised and centrally coordinated Primary Health Care (PHC) service, Malta offers consistent access to healthcare across short geographical distances. Telemedicine was introduced widely during the pandemic and continues to form part of routine service delivery, primarily through telephone-based consultations. Malta's digital health ecosystem also includes national platforms such as the MyHealth portal and electronic prescription systems, which support continuity of care and facilitate integration between telemedicine and routine service delivery. Unlike settings where video consultations predominate, Malta's model relies almost exclusively on voice-only interactions. This creates a distinctive environment for evaluating usability, particularly regarding communication quality, diagnostic confidence and clinicians' medico-legal considerations. Despite its widespread implementation, empirical research examining the user experience of telemedicine in Malta remains sparse (Zammit et al., 2023), and existing studies have tended to focus on service utilisation patterns or operational audits rather than on patient and doctor perceptions.

Furthermore, little is known about how international usability frameworks such as TUQ and acceptance models like UTAUT/UTAUT2 operate in a small island context where remote care is not technologically demanding. Telephone-based consultations remove many barriers associated with digital interfaces, yet they introduce unique limitations, especially the lack of visual assessment. This distinction raises important questions about how users interpret the value, reliability and safety of telemedicine within such a system.

This study addresses these gaps by providing one of the first mixed-methods evaluations of telephone-based telemedicine usability within Malta's PHC service. By integrating the perspectives of both patients and clinicians and grounding the analysis in established usability and acceptance models, the study offers new insights into how telemedicine functions within a small, centralised healthcare system. The findings contribute to the broader discourse on telemedicine implementation by highlighting how contextual factors shape user experience and by offering evidence that may inform service development and policy refinement in similar health system environments.

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