

Research Findings

Below is an Integrated Analysis of the clinic Staff and Patient Survey Data

1. Research Description

This research explored challenges and opportunities in appointment scheduling, patient communication and medication adherence within the UMFLINT HEART clinic setting. The study gathered insight from two primary sources:

- Clinic Staff Interview- focused on internal workflows, communication challenges and digital tool usage
- Patient Survey Responses- focused on usability, accessibility, appointment reminders, medication tracking behaviors and trust concerns across age groups (18-75+)

Together, these documents offer a comprehensive view of both provider and patient perspectives, highlighting shared pain points and reinforcing key system design requirements.

2. Research Methods Used

A. Method 1: Quantitative Semi-Structured Staff Interviews Analyzed Using Affinity Diagramming

Participants:

8 clinic staff members across diverse roles including nurses, receptionists, physicians' assistants, pharmacy technicians, medical clerks and administrative staff.

Data Collection Method:

Affinity Analysis – interview responses were grouped into themes such as:

- Scheduling workflows
- Digital tool comfort levels

- Communication barriers
- Missed appointments
- Medication adherence
- Follow-up procedures

These methods allowed the research team to identify shared workflow friction points and system integration gaps across roles

B. Method 2: Survey-Based Affinity Diagramming (Affinity Write-Up)

Participants:

Survey respondents spanning age groups (18-75+)

Data Collection Methods:

Structured survey responses.

Analysis Methods:

Affinity Diagramming – Researchers:

Individual responses were decomposed into discrete insight statements, which were then clustered into thematic categories using multi-level affinity diagramming.

Key clusters included:

Simplicity & cognitive load

- Appointment reminders
- Accessibility barriers
- Medication tracking behaviors
- Trust & privacy concerns
- Preference for human interaction.

This systematic qualitative clustering ensured patterns were not anecdotal but consistently recurring across demographics.

3. Major Research Findings

3.1 Communication & Scheduling Are Central Pain Points

Both documents identify scheduling and communication as primary friction areas:

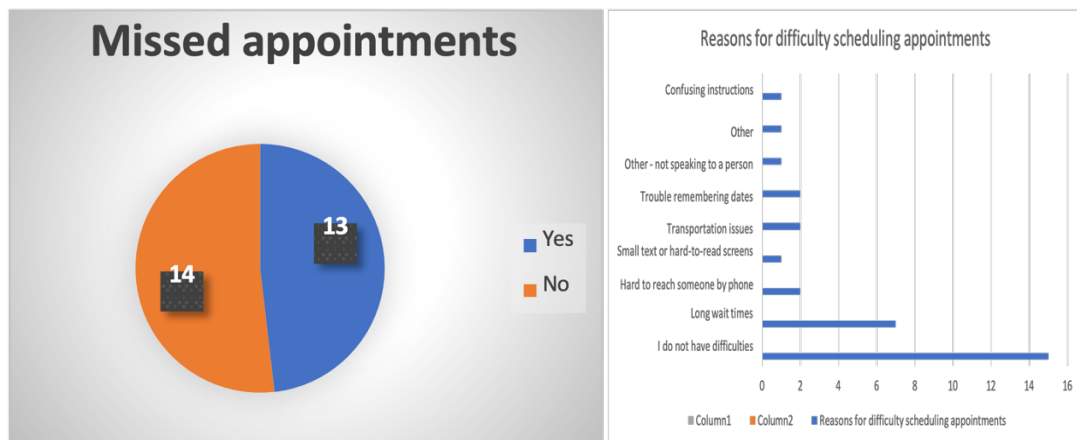
- Staff rely heavily on phone calls for missed appointment follow-up
- Fourteen survey participants reported missing appointments due to forgetfulness or scheduling confusion.

Finding:

These findings indicate a strong need for a proactive, automated reminder system that reduces reliance on manual staff follow-up and improves patient attendance consistency.

Figure 1.0 shows a chart of missed appointments and difficulty scheduling appointments.

Detailed data are provided in a **supplementary file: ‘Survey Findings.pdf’**



3.2 Strong Demand for Appointment Reminders

Across both datasets:

- Staff report patients respond positively to text reminders
- Seventeen participants indicated they would use a clinic-supported mobile app, with appointment reminders ranking among the most requested features.

Findings:

Automated appointment reminders (push notifications, SMS, vibration alerts) are strongly validated by both provider and patient data.

3.3 Medication Adherence Is a Shared Concern**Staff report:**

- Forgetfulness
- Confusing dosing schedules
- Multiple prescriptions

Patients report:

- Using memory, alarms, pill organizers
- Occasional missed doses.
- Vision-related barriers

Finding:

There is a gap between patient confidence and actual adherence challenges. Structured medication tracking features (add medication, mark as taken, reminders, history view) are strongly supported.

3.4 Simplicity and Accessibility Are Critical**Patients across age groups demand:**

- Fewer steps
- Large text
- Clear interface
- Reduced cognitive load

Staff report:

- Varied comfort with digital systems
- Need for role-specific training.

Finding:

Usability must prioritize:

- Clean layouts
- Minimal navigation layers
- Accessibility-first design (large text, high contrast)
- Simple onboarding for both staff and patients.

3.5 Trust and Privacy Influence Adoption

- Clear privacy information increases trust
- Doctor endorsement improves confidence
- Some distrust apps entirely

Staff also noted:

- Older adults prefer phone calls

Finding:

Adoption depends on:

- Transparent privacy policies
- Institutional endorsement
- Optional human support channels

Digital tools must supplement not replace human interaction

3.6 System Fragmentation Creates Workflow Inefficiencies

Staff use:

- EMR/HER systems
- Excel spreadsheets
- Role-specific tools

Finding:

Lack of standardization increases miscommunication and inefficiency. Integration or standardization across roles is a major design opportunity.

4. Integrated Synthesis of Both Studies

When the team was combining both research, several cross-validated conclusions emerge:

- Simplicity is not optional – it is foundational.
- Reminder systems are the most strongly supported features.
- Medication tracking is particularly critical for users 50+.
- Accessibility must be prioritized (large text, fewer steps)
- Trust and privacy transparency directly affect adoption.
- Human support must remain available alongside digital systems.
- Systems integration across staff roles improves workflow efficiency.

Summary of Research Findings

The research, conducted through clinic staff interviews and an affinity diagram analysis of patient survey responses, provided valuable insights into the challenges and opportunities related to appointment scheduling, patient communication, and medication adherence. By examining both provider and patient perspectives, the study uncovered consistent themes that highlight the need for a simple, accessible, and integrated digital healthcare solution.

One key lesson from this research is that simplicity is essential for successful adoption.

Patients across age groups expressed frustration with complex applications that involve too many steps, confusing navigation, or cluttered interfaces. At the same time, clinic staff reported varying levels of comfort with digital tools and emphasized the need for additional training when adopting new systems. These findings underscore that digital solutions must prioritize ease of use, intuitive design, and minimal cognitive load.

A system that appears technologically advanced but increases mental effort is likely to face resistance from both patients and staff. The research also identified appointment reminders as a particularly impactful area for improvement. Staff noted that missed appointments are common and require time-consuming follow-up calls, while patients, especially older adults explicitly expressed the need for phone reminders, alarms, and digital notifications. This alignment between operational challenges and user demand strongly supports the implementation of

automated reminder systems, which could reduce staff workload while improving patient attendance and overall clinic efficiency. Medication adherence emerged as another critical area of concern. While many patients expressed confidence in managing their medications, they also acknowledged challenges such as forgetting doses, highlighting the need for tools that support consistent and reliable medication routines.

Overall, the findings demonstrate a clear opportunity to improve both patient experience and clinic operations through a thoughtfully designed digital solution. The strong alignment between provider challenges and patient needs emphasizes that successful systems must be simple, accessible, and supportive rather than complex or burdensome. Prioritizing intuitive design, automated appointment reminders, and medication adherence support can reduce cognitive load for patients, ease staff workload, and improve reliability in care routines. Together, these insights provide a strong foundation for designing a digital healthcare tool that enhances efficiency while better supporting patients in managing their health.