

Caregiver Connect: A Mobile Application to Reduce Stress Among Unpaid Dementia Caregivers

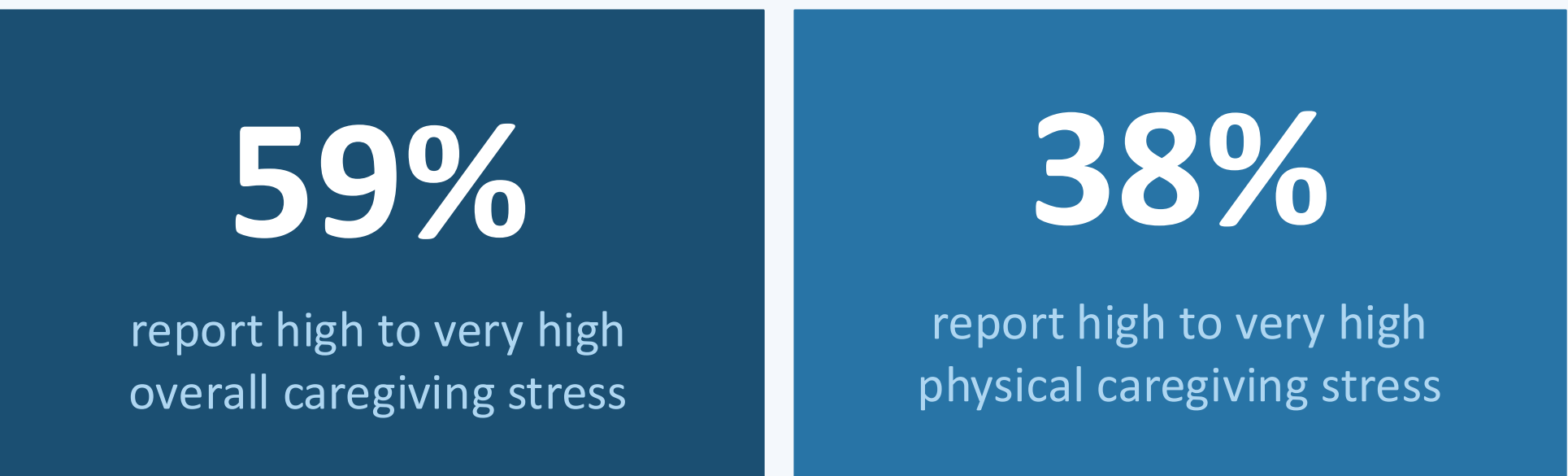
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Introduction

Unpaid caregivers provide the vast majority of dementia care and frequently experience high stress, burnout, and coordination burden. Despite growing interest in digital health tools, most solutions remain fragmented and are not tailored to dementia-specific needs.



Source: Alzheimer's Association, 2025 Facts & Figures

Objective: We developed Caregiver Connect, a dementia-focused mobile application consolidating shared scheduling, medication administration logging, daily tracking, and caregiver communication to reduce coordination burden and caregiver stress.

Methods

Study Design

Two-week pre–post field pilot (n = 12) recruited via social media and word-of-mouth. Participants were unpaid caregivers for a person with dementia.

App Development

Built in Flutter/Dart with a Firebase backend. Role-based access control per patient ensures privacy and appropriate data visibility across caregivers.

Procedure

After consent and onboarding, participants used the app for 14 days and completed momentary caregiving-related stress ratings 3x daily (1–5 scale). Stress ratings were aggregated to daily means. Post-study surveys and brief interviews captured perceived usefulness and barriers.

Analysis

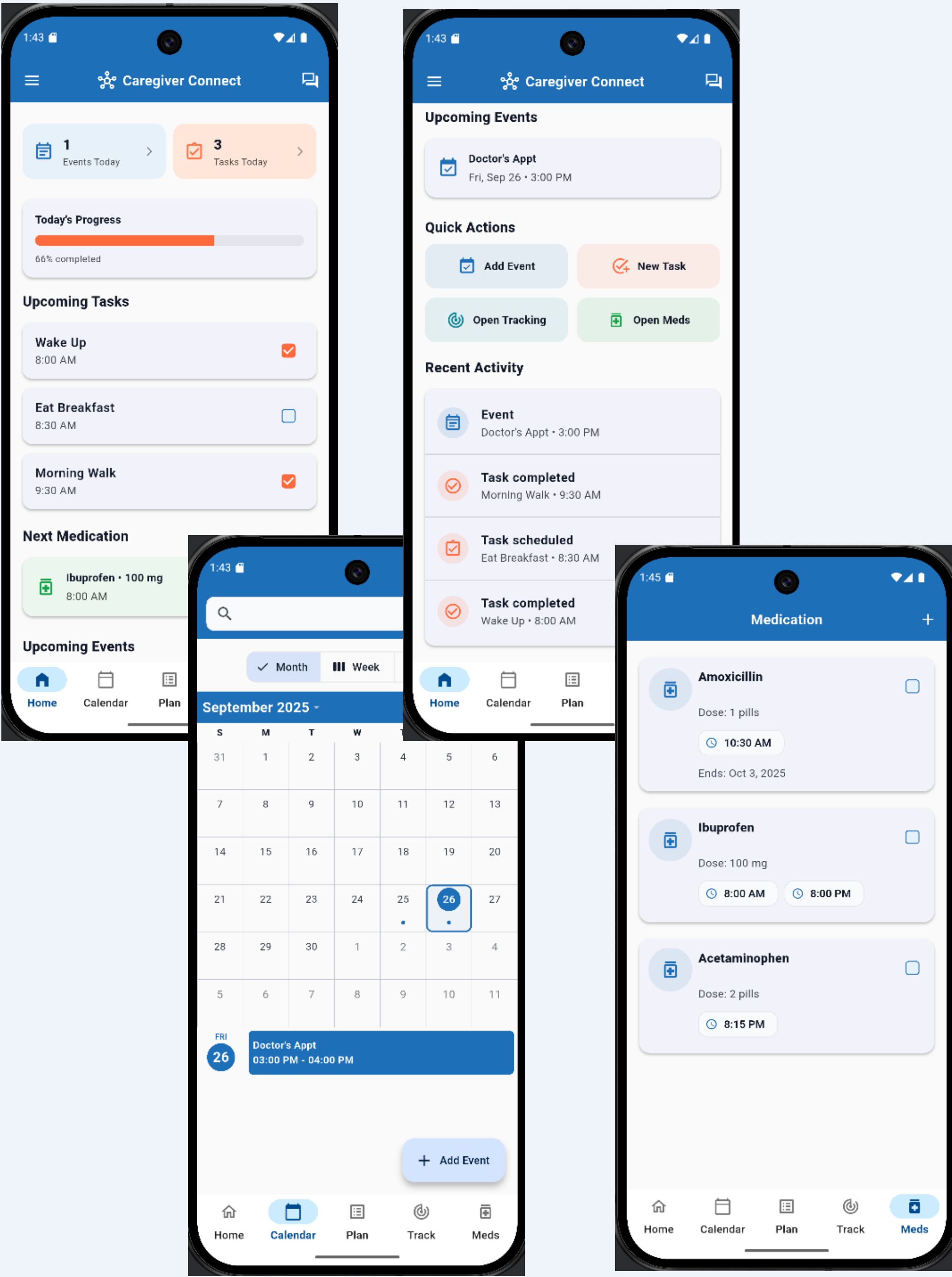
Paired t-test comparing Day 1 vs. Day 14 mean daily stress scores. Qualitative thematic analysis of post-study interview transcripts.

Limitations

- Small sample (n = 12)**
Insufficient for strong statistical inference or subgroup analyses.
- Short duration (2 weeks)**
May not capture long-term stress trajectories or habituation effects.
- No control group**
Cannot rule out regression to the mean, time effects, or attention effects.
- Non-validated measure**
Single-item stress rating; future work will use the Zarit Burden Interview or similar validated instrument.

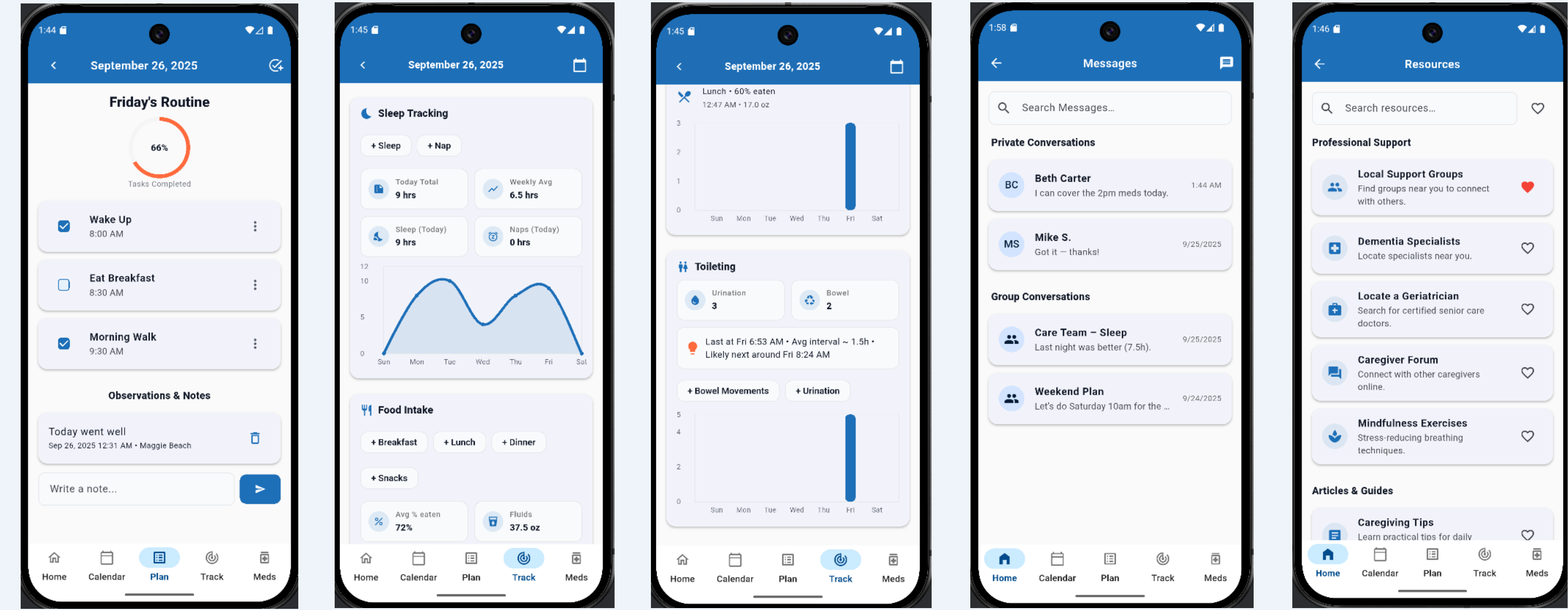
Future Work

- Longer controlled studies with validated instruments (e.g., Zarit Burden Interview)
- Larger, diverse samples with a randomized control group
- Accessibility improvements: simplified mode for less tech-comfortable users
- Summary dashboards for care coordinators and clinicians



System: Caregiver Connect

- Home Dashboard**
Daily progress overview, upcoming tasks, next medication reminder, and quick-access navigation.
- Shared Calendar**
Coordinates appointments and schedules across multiple caregivers; reduces conflicts and repetitive messages.
- Medication Admin (MAR)**
Timestamped medication administration record with dosage tracking, reminders, and clear handoff documentation.
- Care Plan & Notes**
'Single source of truth' for tasks, observations, and updates — replaces scattered notes and repeated messages.
- Daily Tracking**
Sleep, meal, and toileting logs with trend charts. Provides shared visibility into day-to-day health patterns.
- Messaging**
Private and group messaging for the full care team. Streamlines caregiver coordination without switching apps.
- Resource Hub**
Curated links to professional support, dementia specialists, support groups, and mindfulness exercises.



Results



Discussion

- Single source of truth**
Shared calendar and care notes eliminated duplicated communication and confusion across caregivers.
- Medication confidence**
The MAR reduced anxiety about dosing errors and improved handoff clarity between caregivers.
- Reduced mental load**
Consolidating previously scattered information lowered cognitive burden during caregiving.
- Barriers**
Learning curve for less tech-comfortable users; difficulty logging during high-demand caregiving moments.

Key Takeaways

Significant Stress Reduction Mean daily stress dropped from 3.81 to 1.79 over 14 days (p < .001), suggesting the app may reduce caregiving burden.	Coordination is Key Shared calendar and MAR were rated most useful; centralized information reduced confusion and medication anxiety.	Design for Crisis Moments Daily tracking was harder to log during high-demand moments — future design must accommodate crisis-time usability.	Preliminary Findings Results motivate longer, controlled studies using validated instruments with larger and more diverse caregiver samples.
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References

- [1] Alzheimer's Association. 2025 Alzheimer's Disease Facts and Figures. alz.org/alzheimers-dementia/facts-figures
- [2] Kelly RJ et al. Mobile health applications for informal caregivers of older adults. Informatics for Health and Social Care. 2020;45(3):225–240.
- [3] Boots LMM et al. Internet-based supportive interventions for caregivers of patients with dementia. Int J Geriatric Psychiatry. 2014;29(4):331–344.