

SOcial Cognition and Functioning In Alzheimer's Dementia (SOCIAL) – Remote Monitoring Study

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Introduction

The SOcial Cognition and Functioning in Alzheimer's Dementia (SOCIAL) study investigated social cognition and functioning in a longitudinal cohort of UK older adults with Alzheimer's dementia. Existing research in this area has largely relied on self- or informant-reported questionnaires to assess engagement in social activities. While appropriate in some contexts, such measures are vulnerable to recall bias in people with dementia and may systematically overestimate social functioning. This study aimed to address these limitations through a novel remote-monitoring approach.

Methods

Participants aged 50 years or older were recruited from Camden and Islington NHS Foundation Trust's Memory Services. All had a diagnosis of probable Alzheimer's disease dementia and cognitive scores consistent with mild dementia: Mini-Mental State Examination score ≥ 20 (or equivalent) and were required to possess an ANDROID smartphone.

We collected baseline demographic information, assessed general cognition using the Addenbrooke's Cognitive Examination (ACE-III), and social functioning using the Social Functioning in Dementia scale.

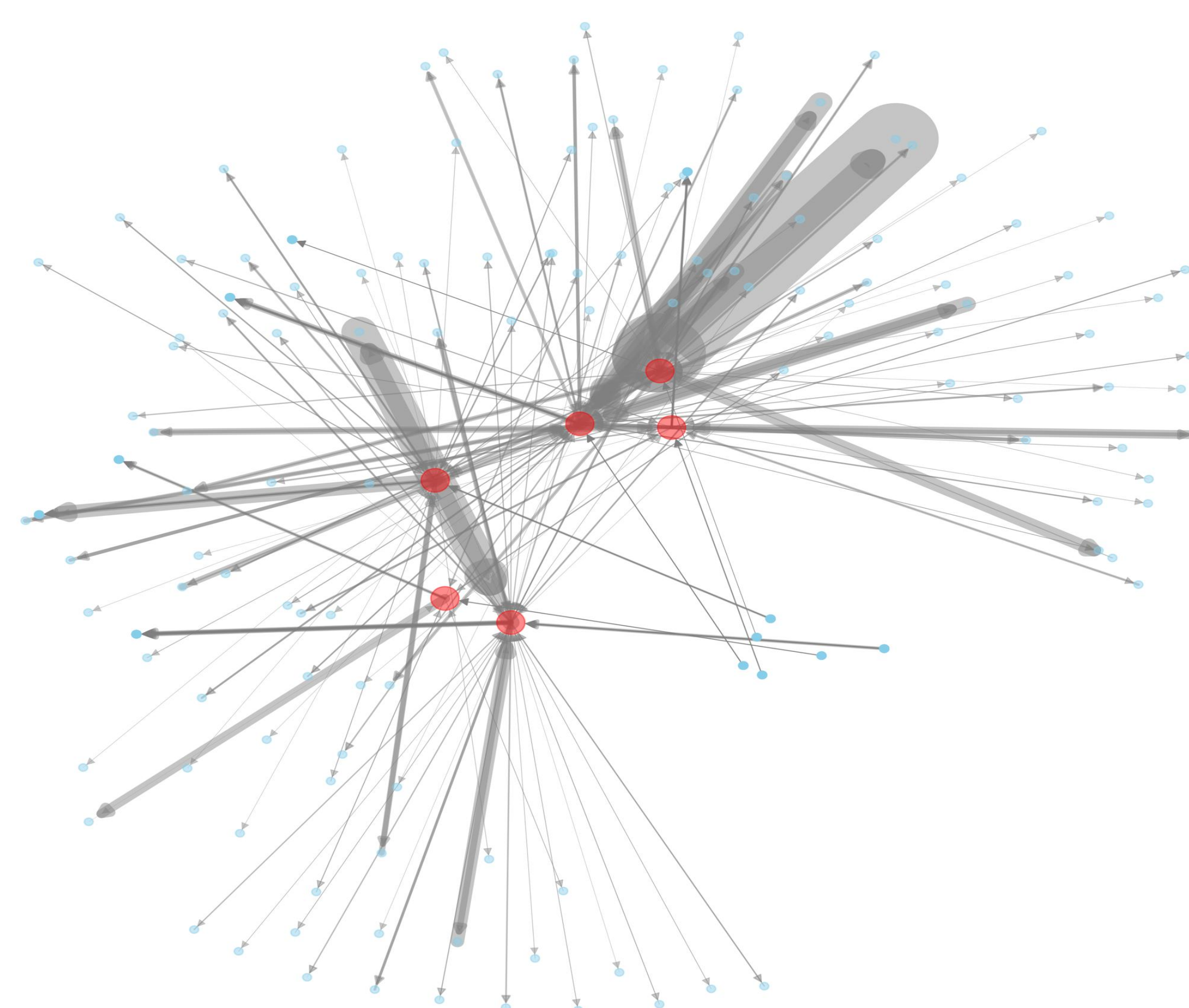
The RADAR-base Passive Mobile App (pRMT App) ran continuously in the background of participants' phones during the subsequent 1 year collecting data relevant to social functioning – including phone call frequency, duration and diversity, text message activity, geolocation, and Bluetooth based proximity measures.

Results

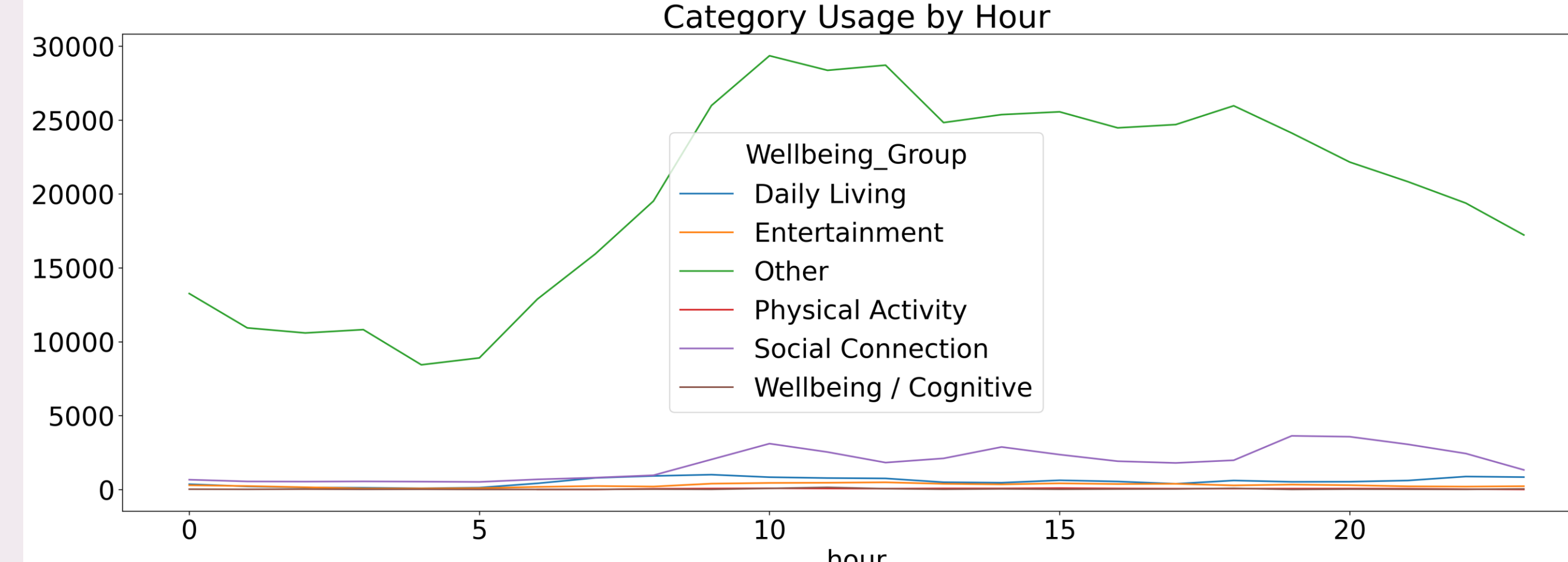
Six of 12 eligible participants agreed to take part (50%); 3/6 who refused cited privacy concerns and the other gave no reason – another 28 SOCIAL study participants had no smartphone or an incompatible Apple phone. Data were collected for mean 170 days per participant (range 92–286). The six participants included three women (50%), five with White ethnicity (83%), mean age 78.3 (SD 6.8), mean ACE-III 78.2 (SD 13.0).

Longitudinal analyses showed that daily phone unlock frequency increased significantly over time. Higher unlock frequency was also observed among individuals with greater ACE-III scores. A significant interaction indicated that the rate of increase over time was attenuated at higher ACE levels, suggesting differential behavioural trajectories linked to cognitive impairment. Participants initiated more calls than they received. Socially oriented activity clustered in the morning and evening, consistent with routine communication patterns rather than continuous engagement. The daily movement was generally low, but spikes in distance travelled suggested infrequent long-distance travel.

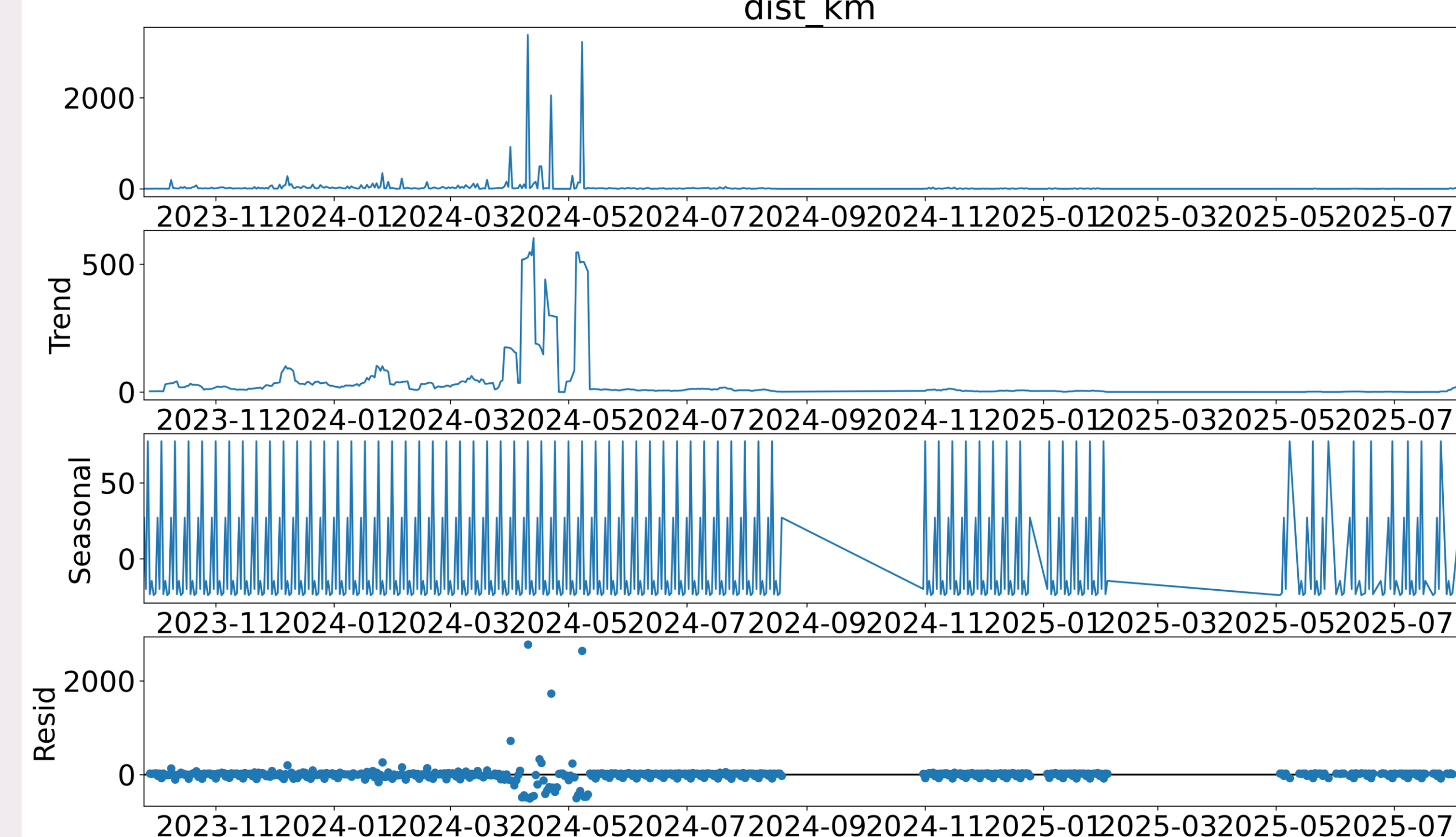
Directional & Weighted Call Graph



Category Usage by Hour



dist_km



Conclusion

Remote monitoring systems offer valuable complementary data to traditional clinical assessments, with potential to support a sensitive, continuous, and person-centred understanding of health, and behaviour.

Limitations

Privacy concerns limited participant recruitment. Participation was further restricted by the inability to support iOS devices. In addition, battery drain led to the deactivation of certain data-collection features including Bluetooth, gyroscope and accelerometer.

