

Multivariate predictors of mortality included age (Hazard ratio (95% CI)), 1.03 (1.01, 1.05), male sex, 2.17 (1.39, 3.39), poor mobility, 2.11 (1.34, 3.30) and cognitive impairment 2.19 (1.31, 3.65). **Conclusions:** Cognitive impairment and dementia are major predictors of mortality in remote Indigenous Australians.

**F3-02-04 A COMMUNITY-BASED APPROACH TO ADDRESSING CAREGIVER STRAIN IN INDIGENOUS CAREGIVERS OF PEOPLE WITH DEMENTIA**

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**Background:** This team has previously demonstrated substantial rates of dementia in remote Indigenous communities in the Kimberley region of Western Australia, with reported high levels of carer strain. We aimed to develop a carer strain scale for Indigenous Australians, and to determine the effectiveness of our Strong Carers, Strong Communities project to reduce carer strain through empowering Indigenous caregivers. **Methods:** These projects were conducted in remote Indigenous communities in the north-west of Western Australia. The KICA Carer Strain scale was adapted from the 6-item Zarit Burden Interview. The Strong Carers, Strong Communities study is a clustered randomised trial, mixed methods design, involving Community A caregivers receiving a health education program and usual care. Community B is engaged in a participatory action research (PAR) process where caregivers meet to decide ways caregiver lives can be improved, facilitated by Indigenous caregiver champions and researchers. Measurement tools include KICA Carer Strain, Growth Empowerment Measure, KICA Depression and workshops and interviews. **Results:** The KICA Carer Strain scale was completed by 197 Indigenous caregivers. The scale was readily accepted by caregivers. The mean score was 2.4, with 112 (56.9%) scoring  $>8/24$ . It has good internal consistency ( $\alpha = 0.825$ ). In the first communities involved in the Strong Carers, Strong Communities study 62 carers completed baseline, mean age of 42 (range 18-83yrs), 71% were women. KICA Carer Strain scores differed at baseline with Community A mean score of 2.4, community B mean of 3.5. Community B caregivers identified improving the respect between generations as their key goal, and the breadth of activities, leading up to a community wide expo celebrating elders will be described. The protocol and results on the effect of the program on carer strain, empowerment, and mood in the first paired communities will be reported. **Conclusions:** The KICA Carer Scale appears to be a useful measure for caregiver strain with Indigenous Australians. Further research into the validity of the tool is also required. The Strong Carers, Strong Communities study will provide evidence based knowledge on methods to empower family caregivers of Indigenous peoples living with dementia and other aged care conditions.

**TUESDAY, JULY 26, 2016  
FEATURED RESEARCH SESSIONS  
F3-03**

**SMART ASSISTIVE DEVICES FOR DEMENTIA: FROM FIXED DECISION TO SITUATION-AWARE DELIBERATIVE SUPPORT OF SOCIAL ACTIVITIES IN PEOPLE WITH DEMENTIA**

**F3-03-01 PERVASIVE COMPUTING AND SENSING APPROACHES TO ASSESSING AND ADVANCING SOCIAL ENGAGEMENT ACTIVITIES**

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**Background:** Social interaction is a fundamental domain of function necessary for cognitive and behavioral health. Strategies for assessing social contact and engagement have relied on self-report which is susceptible to bias and is challenging to acquire from those that are socially isolated. The development of objective measures of social engagement and related behaviors that are captured unobtrusively and in the course of everyday life may help overcome these shortcomings. Advances in pervasive computing and embedded sensing provide a means to transform the capture of these behaviors. **Methods:** The home-based assessment platform developed by ORCATECH consisting of simple embedded sensors and monitored devices (passive IR motion activity sensors, contact sensors, telephone and personal computer use monitors) and responses to a weekly on-line questionnaire provided the data from which were generated continuous metrics across basic domains of function relevant to social engagement: total activity and mobility, computer use, telephone use, visitor records, time out-of-home. The aggregate measures were developed from community dwelling older adults followed in the Intelligent Systems for Assessing Aging Changes, the Ambient Independence Measures for Assessing Care Transitions (AIMS) and Life Laboratory Cohort studies. Time out-of-home was examined as a potential primary indicator of social health. A longitudinal mixed effects model was used to relate the daily time out-of-home to physical ability (daily walking speed), cognitive status (CDR) and emotional state (mood, loneliness). **Results:** Data from participants followed for up to nine years was used to develop summary metrics of daily function: total daily activity, number of room transitions, time out-of-home, sleep and nighttime behavior (e.g., time-in-bed, trips to the bathroom), social interaction (telephone use, visitors), medication adherence, and cognitive function (computer use). A longitudinal tobit mixed effects regression model related daily time out-of-home to physical ability, cognitive status, and emotional state. More hours spent out-of-home was associated with better physical ability, cognitive function and emotional state (all  $p < 0.001$ ). Weather, season, and date also affected time out-of-home. **Conclusions:** Home-based continuous assessment methodologies can identify trends in social engagement activities and related behaviors that are ecologically valid and meaningfully related to key health indicators.

**F3-03-02 COMPUTATIONAL DESCRIPTION OF WAYFINDING BEHAVIOR IN OUTDOOR ENVIRONMENTS OF PEOPLE WITH DEMENTIA USING ONTOLOGIES AND SENSOR DATA**

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