Smarter social housing: user perspectives on technology adoption for healthy homes

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A NATIONAL AUDIT OF SMOKING CESSATION SERVICES IN ADULT SPECIALIST CANCER CARE HOSPITALS IN IRELAND

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Background Despite the progress made in smoking reduction in Ireland, smoking remains a challenge, particularly in cancer patients where post-diagnosis smoking has detrimental impacts on treatment and survival. This audit was of existing hospital smoking cessation services (SCS) for all patients (including cancer) at the eight specialist adult cancer hospitals (tertiary referral university hospitals) and one specialist radiotherapy hospital.

Methods An audit was conducted online, completed by smoking cessation (SC)/health promotion officers at each hospital in 2021, with questions based on literature review and the (first) consultative National Clinical Stop Smoking Guideline (published 2022).

Results One hospital did not participate due to unavailability of relevant staff. SCS were provided at 7 of 9 (77.8%) hospitals, predominantly to inpatients on admission or during hospital stay (5; 55.5%) but also at lower rate at discharge (3; 33.3%) and in outpatients (4; 44.4%). SCS were provided in the main by medical, nursing and hospital SC officers (6; 66.6%); just 44.4% noted alignment with community SC (for ongoing support). SCS provided included brief intervention and or ongoing support (6; 66.6%), intensive support (4; 44.4%), follow up phone support (2; 22.2%). SCS were delivered mainly (pre-COVID) as individual face-to-face (5; 55.5%) but phone (4; 44.4%), online (3; 33.3%) and group work (1; 11.1%) were also utilised. Nicotine Replacement Therapy was the first-choice in 2021 which almost all provided (7; 77.8%), with fewer offering varenicline (5; 55.5%) or bupropion (2; 22.2%). SCS was promoted on the hospital website in 55.5% despite hospital campuses being smoke-free, however, SC information was provided in appointment letters. Most hospitals (6; 66.6%) provide/promote SC training; and 4 (44.4%) have staff trained to deliver intensive stop-smoking advice.

Six (66.6%) of 9 hospitals provided SCS to cancer patients attending outpatient clinics, day units, inpatients or other departments (e.g., radiology, emergency). However, many hospitals noted low referral rates for cancer patients. While 6 hospitals recorded data on overall SCS uptake, one recorded it specifically for cancer patients. Cancer patients who smoke are automatically referred to SCS (at diagnosis/when starting systemic anti-cancer therapy/radiotherapy) and routinely prescribed SC medications at one hospital. Few oncology staff had received SC intervention training.

Conclusion A hospital visit/admission provides a cue to action for smokers and is an important opportunity for brief intervention by healthcare professionals to promote SC. This first National Clinical Guideline should assist necessary strengthening of hospital SCS and promote smoking cessation support, particularly among cancer patients.

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SMARTER SOCIAL HOUSING: USER PERSPECTIVES ON TECHNOLOGY ADOPTION FOR HEALTHY HOMES

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Background Living in poor quality housing is a significant contributor to public health problems, and represent a considerable societal and economic burden worldwide. However, detecting and responding to a poor home environment remains a challenge, as the causes are often invisible and the impact on health is cumulative and long term. Smart homes are residences augmented with sensors to observe the environment and devices to provide proactive services. Evidence indicates that smart technology can improve home environment management and has potential health benefits. User perspectives on factors for adoption of a smart technology systems are under researched. In response this research examines the factors for adoption, and non-adoption, of a smart technology system to support home environment management for social housing tenants.

Methods 221 social housing tenants were recruited. Participant homes were fitted with sensors to monitor temperature, humidity, and air quality. Participants were provided with a digital dashboard to access their sensor data. Data was collected on participant health, dashboard use, and subsequent changes in home environment. A mixed method sequential research design was employed. Quantitative methods were used to understand determinants and patterns of technology use. Qualitative interviews (n20, strategically sampled) were used to understand factors of feasibility and acceptability.

Results From a user perspective, this study found little evidence of interaction with the sensor data, and almost no evidence of changes in the sensor data as a result of viewing. Ease of use and usefulness were found to be the most important barriers to technology adoption. Both these factors related to how the information was communicated and how effective the dashboard was in converting data into insight. We found that the Housing Association provided important facilitating conditions to the adoption of the smart home technology, specifically for participant trust regarding how the data will be used. We also found that the Housing Association were using the dashboard to successful intervene with high-risk properties and provide wellbeing support for their tenants.

Conclusion It is clear from this study that smart home technology is not a panacea. While smart technology was useful for identifying risk, the technology could not identify the exact cause of the risk nor instigate an acceptable intervention. Human intervention was required to fully identify and subsequently offer solutions that addressed the problems. We argue that to improve the home environment for tenants, smart technology capacity must be matched to human capacity.
P45 AGE-11 IQ, EDUCATION LEVEL AND AGE-60 SLEEP QUALITY: A QUANTITATIVE STUDY USING THE NEWCASTLE THOUSAND FAMILIES STUDY BIRTH COHORT

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Background Poor sleep quality has been linked to a number of adverse health outcomes. It is therefore important to understand factors contributing to sleep quality. Previous research has suggested that increased IQ and education duration have a protective effect on sleep quality in old age. A proposed mechanism is that higher intelligence quotient (IQ) and education levels contribute to increased cortical thickness, which in turn contributes to a higher overall sleep quality. That said, there have been very few studies examining this link directly. This study attempts to add to the body of research on the topic with the hypothesis that age-11 IQ and highest achieved education level are significantly associated with subjective sleep quality at age 60.

Methods Poor sleep quality has been linked to a number of adverse health outcomes. It is therefore important to understand factors contributing to sleep quality. Previous research has suggested that increased IQ and education duration have a protective effect on sleep quality in old age. A proposed mechanism is that higher intelligence quotient (IQ) and education levels contribute to increased cortical thickness, which in turn contributes to a higher overall sleep quality. That said, there have been very few studies examining this link directly. This study attempts to add to the body of research on the topic with the hypothesis that age-11 IQ and highest achieved education level are significantly associated with subjective sleep quality at age 60.

Results After excluding participants with incomplete data sets and those who had been diagnosed with sleep apnoea, 251 of 1142 participants were included in the path analysis model. Education level was significantly associated with global PSQI (R = -0.653; 95% CI -1.161, -0.145; p = 0.012) but age-11 IQ was not. The model was stratified by sex, giving an improved fit in the women’s model (n = 141; RMSEA=0.031; CFI=0.997) but a poorer fit in the men’s (n = 110; RMSEA=0.302; CFI=0.841). In women, education level but not age-11 IQ was once again found to be significantly associated with global PSQI (R = -0.872; 95% CI -1.628, -0.115; p = 0.024), but in the men’s model neither age-11 IQ nor education level were significant. Neither social class score was significant in any of the models.

Conclusion The results of this study show a relationship between education level, but not childhood IQ and sleep quality in later life, in women only. Limitations of this study include the lack of brain imaging data, meaning the mechanism of the relationship cannot be ascertained.

P46 BODY SHAPE PHENOTYPES AND BREAST CANCER RISK: A MENDELIAN RANDOMIZATION ANALYSIS

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Background Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among women. Previous observational and Mendelian randomization studies have linked different anthropometric traits to breast cancer risk, with inconsistent results. We aimed to investigate whether body shape defined by combining multiple anthropometric traits (body mass index, height, weight, waist-to-hip ratio (WHR), waist and hip circumference) is causally associated with overall breast cancer risk and its sub-types (luminal A, luminal B, HER2+, triple negative and luminal B/HER2 negative).

Methods We performed a two-sample Mendelian randomization (MR) analysis using summary-level data from previous genome-wide association studies. First, summary statistics for 188 common genetic variants robustly linked to three body shapes were extracted. The three body shape phenotypes reflected the first three principal components (PC1, PC2 and PC3) on six anthropometric traits, thus providing independent dimensions of body shape. Second, summary statistics for the association of these genetic variants and risk of breast cancer were obtained from 133,384 cases and 113,789 controls of European descent in the Breast Cancer Association Consortium (BCAC). Finally, fixed-effects inverse variance weighted (IVW) MR analyses and several sensitivity analyses were performed to assess the risk of breast cancer associated with body shape phenotypes.

Results The body shape principal component 1 (PC1) indicative of overall adiposity was inversely associated with breast cancer risk (IVWrandom-effects Odds ratio (OR) per each standard deviation (1SD) increase of body shape PC1 = 0.89 [95% confidence interval 0.81–0.98]; p = 0.016). PC2 (tall individuals with low WHR) was weakly positively associated with overall breast cancer risk (IVWrandom-effects OR = 1.05 [95% confidence interval 0.98–1.12]; p-value = 0.135), but with a confidence interval including the null. PC3 (tall individuals with large WHR) was not associated with overall breast cancer risk (IVWrandom-effects OR = 1.04 [95% confidence interval 0.89–1.21]; p = 0.619). Some of these associations differed by breast cancer sub-types. For instance, PC2 was positively associated with risk of luminal A breast cancer sub-type (IVWrandom-effects OR = 1.09 [95% confidence interval 1.01–1.18]; p-value = 0.02).

Conclusion Our study provides evidence for potential causal associations between body shape and breast cancer risk and breast cancer sub-types highlighting the importance to also assess body morphology holistically.