among a set of various health markers, reflects functional abilities and risks of adverse outcomes. Furthermore, the FI accounts for the variation in mortality among individuals of the same chronological age (CA). Thus, the FI is a reliable measure of biological age (BA). Unlike the FI, other popular BA-estimating algorithms use CA directly as a biomarker or indirectly to derive model parameters. However, genetic, pharmaceutical, and intervention studies have shown that aging is delayable or reversible, indicating that CA is not the direct cause of aging. The popular Klemera-Doubal (K-D) method proposes two equations for BA estimation: BE uses CA to derive equation parameters, and BEC directly incorporates CA as an additional biomarker. BA estimates by the K-D method, especially by BEC, have been shown to outperform CA. Using Louisiana Healthy Aging Study (LHAS) data, we constructed an FI from a battery of health items selected using machine learning methods for their ability to predict mortality. We compared the FI with CA and the two K-D BA estimates and found that the FI was the better predictor of mortality, especially among nonagenarians. The results were replicable with the FI calculated from different sets of selected health items using NHANES and HRS datasets. These results demonstrate the FI as the best-performing measure of BA.

CHARACTERISING POLYPHARMACY IN THE VERY OLD: FINDINGS FROM THE NEWCASTLE 85+ STUDY

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Polypharmacy is potentially harmful and under-researched amongst the fastest growing section of society, the very old (85+). This study aimed to characterise polypharmacy using data from the Newcastle 85+ Study – a prospective cohort of people living in north east England who turned 85 in 2006 (n=845). The prevalence of polypharmacy was examined using cut-points of 0, 1, 2-4, 5-9 and ≥10 medicines – so-called 'no polypharmacy', 'monotherapy', 'minor polypharmacy', 'polypharmacy' and 'hyperpolypharmacy.' Crosstabulations and Upset plots identified the most frequently prescribed medicines and medication combinations within these categories, at age 85. Mixed effects models assessed whether gender and socioeconomic position were associated with prescribing changes over time (age 85.5-90.5 years). Polypharmacy (49.6%) was more common than minor polypharmacy (24.6%) and hyperpolypharmacy (16.0%). Within these categories, cardiovascular, non-opioid analgesic and gastrointestinal medications were most frequently prescribed. Medication combinations were many and varied. Aspirin and statins were most commonly co-prescribed amongst people with minor polypharmacy and polypharmacy. Non-opioid analgesics, statins, aspirin and loop diuretics were most common in hyperpolypharmacy. Medications varied by gender and socioeconomic status. Nitrates and oral anticoagulants were more frequently prescribed for men. Bisphosphonates, analgesics and antidepressants were more common in women. Cardiovascular medications, including loop diuretics, were more frequently prescribed for socioeconomically disadvantaged people (25th centile Index of Multiple Deprivation (IMD)), with tricyclic antidepressants and selective beta-2 agonists more common amongst the least disadvantaged (>75th centile IMD). By highlighting prescribing patterns, this study informs our understanding of how polypharmacy may contribute to adverse outcomes in later life.

USABILITY ASSESSMENT OF A SENSOR-CONTROLLED DIGITAL GAME FOR OLDER ADULTS WITH HEART FAILURE

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The inability of older persons with heart failure (HF) to self-manage has contributed to poor health outcomes. Our team from nursing, digital game design, and mobile computing developed an innovative sensor-controlled digital game (SCDG) called 'Heart Mountain' to offer a portable, and enjoyable tool to facilitate engagement in HF self-management. We installed the SCDG application, which featured older adult game avatars on the participants' smartphones. The SCDG utilized data from an activity tracker and weight scale to trigger game rewards, knowledge content and messages based on participants' real-time behaviors. In this study we assessed the usability of a SCDG prototype with 10 HF older adults in Central Texas. Observations on the usability of the SCDG app by older adults were noted on a usability heuristics checklist. Acceptance and satisfaction were collected by an open-ended survey guided by Intrinsic Motivation Inventory after a week of playing the game. Participants (60% males, 60% white, ages 63-84) were able to play the game and use the devices after a training session that lasted for 15 minutes. We will present results on participants' ease of use of the SCDG app, satisfaction with the knowledge content, quizzes and rewards features of the SCDG, and perceptions on acceptance and satisfaction with the SCDG for heart failure self-management. Our project will generate insights on designing digital gaming solutions that are acceptable to older adults and can be applied to improve self-management of chronic diseases like heart failure.

POLYGENETIC SCORE IS ASSOCIATED WITH T2D; EVIDENCE FROM THE HEALTH AND RETIREMENT STUDY

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Type 2 diabetes (T2D) is a complex chronic disorder influenced by genetic and environmental factors. Studies that use a combined polygenetic score (PGS), calculated based on the number of risk alleles an individual may have, are rarely applied to a representative national sample. We used data from the Health and Retirement Study (HRS), a nationally representative study of older U.S. adults 50-years or older to examine the impact of PGS and behavioral risk factors (education, poverty ratio, BMI, smoking status, alcohol consumption and physical activity) with incident T2D. We used ethnic-straitified Poisson generalized estimating equation (GEE) models with robust standard errors to estimate prevalence ratios (PRs) and risk ratios (RRs). Our sample included genotyped Black (N=2,823) and White (N=11,178) men and women. The highest PRs for T2D were among those in the 5th PGS quintile in both Whites