

Participant difficulties in operating the mobile router and issues with app design/interface impeded testing. Phone calls to participants (191, 12.7 hours) were periodically made if data had not been received <14 days since consent or <21 days since previous test. Issues with one or both apps was the primary reason (37%) for lack of data, followed by connectivity issues (26%).

**Discussion** There are substantial technical and practical issues in providing hardware and implementing digital apps for self-testing visual function with technologically inexperienced patients. Significant support infrastructure is required for patients and device management. Limited control over apps and the requirement for an internet connection added complexities to the testing process in this population. These challenges need to be addressed before implementing digital technologies for self-monitoring that require active patient engagement.

OP69

#### ASSOCIATION OF ATTRITION WITH MORTALITY: FINDINGS FROM 11 WAVES OVER THREE DECADES OF THE WHITEHALL II STUDY

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**Background** Attrition, which is loss of participants as a study progresses, is a considerable methodological challenge in longitudinal studies. This current study examined whether two forms of attrition; 'withdrawal' and 'non-response' have different associations with mortality, and whether the associations differed across time in multi-wave cohort studies.

**Methods** Participants were 10 012 civil servants who participated at the baseline of Whitehall II cohort study, which has 11 waves every three years with average follow-up of 28 years. We performed competing-risks analyses to estimate Sub-distribution hazard ratios and 95% Confidence Intervals of the associations between response status (response, withdrawal, non-response) and cardiovascular and non-cardiovascular mortality. Likelihood ratio test was used to investigate whether the hazards of two types of attrition differed from each other. We then examined whether the hazards of mortality differed across waves by applying linear regression. The mortality was tracked by the National Health Services central registry from baseline to August 2017.

**Results** On average, 58% of attrition at each wave was due to non-response rather than withdrawal. There were 495 deaths recorded from cardiovascular disease and 1367 deaths from other causes. Study participants lost due to attrition had 1.55 (95% confidence interval 1.26 to 1.89) times higher hazard of cardiovascular mortality, and 1.56 (1.39 to 1.76) times higher hazard of non-cardiovascular mortality compared to responders after adjustment for sex, age, ethnicity, marital status, employment grade, smoking habit, alcohol drinking, and physical activity. There was no significant difference across the two forms of attrition; withdrawal and non-response in either hazards of cardiovascular mortality (p-value = 0.284), or hazards of non-cardiovascular mortality

(p-value = 0.377). There was no linear trend in hazards over the 11 waves (cardiovascular mortality p=0.111, non-cardiovascular p=0.611).

**Conclusion** To minimise the possible selection bias, researchers should examine whether exposures and outcomes independently cause a non-participation, and if so, it is recommendable to use statistical approach such as multiple imputation or inverse probability weighting for attrition in longitudinal studies.

OP70

#### COHORT STUDY OF ADVERSE PREGNANCY OUTCOMES IN WOMEN WITH CHRONIC KIDNEY DISEASE

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**Background** Chronic kidney disease (CKD) estimated to affect 3% of all pregnancies, and this is expected to rise due to increasing prevalence of maternal age and obesity. Previous studies have shown varying results regarding pregnancy outcomes across different renal conditions. This study aimed to assess the association between pre-pregnancy CKD and the risk of adverse pregnancy outcomes. We further evaluate the associations among women with congenital renal disease, renal failure or kidney transplantation.

**Methods** This population-based cohort included women who had singleton births in Sweden between 1982 and 2012. Using data from the Medical Birth Register, a total of 2,778,596 babies were born to 1,418,274 mothers. We identified 10,885 babies who were born to women with pre-pregnancy CKD (classified according to ICD-8, ICD-9 and ICD-10). Outcome measures included pre-eclampsia (PE), emergency and elective caesarean sections (CS), spontaneous pre-term birth (PTB<37 weeks' gestation), medically indicated PTB, stillbirth and small for gestational age (SGA). Multivariate logistic regression models were conducted using Stata 16 and adjusting for several socio-demographic and perinatal confounders.

**Results** Compared to women without CKD (reference group), the odds of the following outcomes were higher among women with pre-pregnancy CKD: PE adjusted odds ratio [aOR (95% confidence intervals)]: [1.75 (1.59, 1.92)]; emergency CS [1.37 (1.27, 1.47)]; elective CS [1.67 (1.55, 1.80)]; spontaneous PTB [1.29 (1.16, 1.44)]; medically indicated PTB [1.92 (1.74, 2.11)] and SGA [1.32 (1.19, 1.47)]. Moreover, the odds were higher for women with renal failure and kidney transplantation, compared to women without CKD. Additionally, women with congenital renal disease had higher odds of PE [aOR: 7.99 (4.97, 12.8)] and medically indicated PTB [6.71 (3.82, 11.8)].

**Conclusion** Despite advances in antenatal care, the risk of adverse pregnancy outcomes among women with CKD are higher compared to women with no CKD. Planning for pregnancy should be optimized before conception in women with kidney failure or who have had a kidney transplantation.