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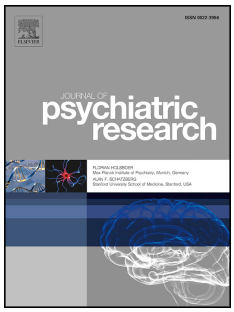

Does attrition affect estimates of association: A longitudinal study

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Does Attrition Affect Estimates of Association: A Longitudinal Study

Abstract

Survey research frequently involves missing cases attributable to refusals to participate, lack of success in accessing all potential respondents or loss to follow-up in longitudinal studies. There is concern that those not recruited or those lost are a select group whose absence from a study may bias the findings of the study. This study provides a test of the extent to which selective loss to follow-up in a longitudinal study may lead to biased findings.

The Mater-University Study of Pregnancy collected baseline information for 7718 pregnant women. Follow-ups occurred five years, 14 years, 21 years and 27 years after the birth, for 6753 eligible women. Participants at baseline were partitioned according to follow-up status for each follow-up. We compare baseline (at recruitment) measures of association, with these same measures of association for those retained in the study (Group A) and those lost to follow-up (Group B) at each phase of data. Using univariate logistic regression we compared the strength of association between maternal mental health and various baseline socio-demographic factors for different rates of loss to follow-up.

Estimates of association at baseline, and at each follow-up are similar irrespective of the rate of loss to follow-up and whether the comparison is with those retained in the study or those lost to follow-up. There were no statistically significant differences in 90.8% of baseline comparisons with Group A, and 96.9% of comparisons with Group B measures of association. We conclude that differential loss to follow-up rarely affects estimates of association. We suggest that loss to follow-up may produce misleading findings only in circumstances where loss to follow-up is combined with a number of other sources of bias.

Keywords: loss to follow-up; magnitude of bias; mental disorder; socio-economic disadvantage

Does Attrition Affect Estimates of Association: A Longitudinal Study

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Does Attrition Affect Estimates of Association: A Longitudinal Study

Introduction

There is ongoing debate about the impact of incomplete data on research findings. This debate is relevant to survey samples with varying response rates, longitudinal studies with respondent loss to follow up, and clinical trials with incomplete data. The widely prevalent view is that incomplete data biases estimates of incidence and prevalence, as well as estimates of association (Hogan, Roy & Korkontzelou, 2004; Zhao, Stockwell & MacDonald, 2009; Fewtrell, Kennedy, Singhal, Martin, Ness, Hadders-Algra, Koletzko, & Lucas, 2008). For example it is suggested that attrition rates of about 20% pose a serious threat to the validity of findings (Fewtrell et al., 2008). The contrary view is that while population estimates are biased by incomplete data, estimates of association are rarely affected (Nohr, Frydenberg, Henriksen & Olsen, 2006: Osler, Kriegbaum, Christensen, Holstein & Nybo Anderson, 2008a, Wolke, Waylen, Samara, Steer, Goodman, Ford & Lamberts, 2009). While there is evidence supporting both these views there are no studies which estimate the frequency with which biased loss to follow-up leads to biased findings.

It is well known that individuals who are 'lost' (or not recruited at all in the case of population surveys) generally differ systematically from individuals who are retained. Study participants with incomplete data are, typically, from a more disadvantaged social background (de Graaf, Bijl, Smit, Ravelli & Vollebergh, 2000; Knudsen, Hotopf, skogen, Overland & Mykletun, 2010), more residentially-mobile (Watson and Wooden, 2009), with higher rates of mental illness (Knudsen et al., 2010, Wolke et al., 2009) and with a history of licit and illicit substance use (de Graaf et al., 2000, Knudsen et al., 2010). In studies concerned with marriage and family life, those lost to follow-up tend to have poorer quality marriages and higher rates of marital breakdown (Korkeila, Suominen, Ahvenainen, Ojanlatva, Rautava, Helenius & Koskenvuo, 2001). On most measures of socioeconomic

disadvantage, poor mental and physical health, those retained in research studies have different profiles.

While the case for the possible effects of sample selection bias is strong and of general concern (Kleinbaum, Morgenstern & Kupper, 1981), the evidence that such bias generally produces misleading findings is lacking. Indeed there are numerous examples of selected (or biased) samples producing valid and important findings. For example, Doll and Bradford Hill's (1956) study of doctors to determine whether smoking may be a cause of lung cancer clearly involved a "biased" sample. The Framingham Heart Study sampled from a predominantly white, middle-class group living near Boston, USA (Kannel, McGee & Gordon, 1976). The Nurses Health Study only recruited registered nurses (see Stampfer, Colditz, Willett et al, 1991). If selected (biased) recruitment arguably produces valid findings, then it is difficult to see why biased recruitment differs, in its effects, from bias in samples which are a consequence of loss to follow up?

In any event to characterise bias as a dichotomous variable is simply incorrect. Samples are selected according to particular criteria and different variables in those samples may differ in their distribution in the population in varying ways. The likelihood of invalid findings is likely to be affected by the strength of the association between the predictors chosen, and the strength of the association between these predictors and the outcome of interest, as well as the degree to which the extent of loss to follow-up is associated with those predictors. To dismiss the findings of samples based upon a somewhat arbitrary percent of the sample retained is a crude heuristic unsupported by a body of findings.

Despite the importance of the claim, it is difficult to know how credible the assertion is that biased loss to follow-up invalidates findings. In particular it is not clear when, and under what conditions, incomplete data leads to misleading estimates of an association. There is a need to know more about three of the presumed consequences of sample attrition. Firstly we

know little about how the rate of attrition is related to biased findings. Secondly there is little known about the relationship between the baseline magnitude of association and how that might be related to biased findings. Thirdly we know little about whether biased findings are systematic (for example, a function of the percent lost to follow-up) or variable both in magnitude and direction.

It is possible that the problem of incomplete data has greater theoretical than practical significance (Fergusson and Boden, 2015). Indeed, it is difficult to find studies which demonstrate significant bias created by incomplete data. There are several studies which suggest that the impact of incomplete data may be minimal (Kempen and van Sonderen, 2002, Osler et al., 2008b); but few studies which suggest that the impact of incomplete data may be moderate (Greene et al., 2011), or major (Howe et al., 2013). It is important here to distinguish the impact of missing data on population estimates of prevalence or incidence from the impact of incomplete data on the estimates of association (Fergusson and Boden, 2015). It is to this latter point that this paper is addressed.

Methods

The Mater–University of Queensland Study of Pregnancy (MUSP) is an ongoing longitudinal study of pregnant women and their children who attended their first pregnancy-related clinical visit at the Mater Misericordiae Hospital, Brisbane, Australia (Najman et al., 2005; Najman et al., 2015). The study began with the collection of baseline information during 1981 to 1983. This information was collected for 7718 pregnant women who agreed to participate, out of a total of 7816. Follow-up phases were conducted for 6753 eligible participants. Eligibility criteria were as follows: having a child discharged alive from the hospital, not adopted prior to discharge, with completion of the baseline (during pregnancy) and 5 days after giving birth surveys. Follow-up data were collected on maternal and child demographics, lifestyle, and mental health at six months, five years, 14 years, 21 years and 27

years after giving birth (Najman et al., 2005). This study has included the last four follow-up waves in the analyses.

At each follow-up, participants were re-contacted using telephone and/or address contact details they had provided at baseline or at the previous wave (including contact details of up to four relatives or friends). Participants were invited to attend an interview at the study hospital. Those who could not attend an interview were sent a questionnaire by post. Those who agreed to an interview, but were unable to travel to the study hospital, were interviewed in their homes. A participant was defined as having responded to a particular wave of data either by being interviewed in person or by completing the postal questionnaire; these participants were classified as Group A (responders). Those who were not able to be located, did not respond or did not agree to participate at a particular phase of data collection were classified as Group B (lost to follow-up).

Ethics approval was gained from relevant committees at The University of Queensland and the Mater Misericordiae Hospital, South Brisbane, Australia.

Statistical Methods

Participants at baseline were partitioned over four data collections spanning a 27-year follow-up period. At recruitment some 99% of those eligible to participate in the study were successfully recruited. At each subsequent follow-up we were able to compare the findings (based upon data obtained at recruitment) for those lost to follow-up with those who were retained in the study at a specific phase of data collection. We take, for this paper, three sets of findings – namely the association between three measures of health; mental disorder, pregnancy planning and maternal smoking pre-pregnancy) and some 14 social and demographic factors strongly associated with these measures. We have selected strong associations for this test of the impact of biased loss to follow-up, on the basis that weak and non-significant associations will less frequently raise concerns about biased findings. In the current study those lost to follow-up had higher rates of mental disorder, unplanned

pregnancy and smoking rates, as well as higher rates of most predictor risk factors. The research question is whether losing large numbers of persons who cluster on social and economic disadvantage and adverse measures of health produce estimates of association which are likely to be misleading.

We present the associations between these risk factors and health at baseline, and then examine these same associations (using risk factors and health all measured at baseline) separately for those lost to follow-up (Group B) and those who are retained in the study (Group A) at each subsequent phase.

Univariate logistic regression models were used to obtain estimates of associations. First, odds Ratios (ORs) and 95% confidence intervals (CIs) for the association between mental health and each of the risk factors were calculated for all participants at baseline. For each of Groups A and B and the four follow-up times (5, 14, 21, 27 years), ORs with CIs were calculated for the association between health and each of the risk factors and ORs with CIs. We then fitted linear logistic regression models for discrete response survey data which used full likelihood estimation and Jackknife variance estimations to compare the ORs of Group A/B with the ORs at baseline providing an OR (95% CI) for each comparison. We use these models to determine whether the estimates of association for those retained in the study (Group A) and those lost to follow-up (Group B) differ from the baseline estimate of the same association.

Measures

Mental disorder was measured using the Mental Disorder Screening Tool (MDST) derived from the Delusions-Symptoms-States-Inventory/states of Anxiety and Depression (DSSI/sAD) personal disturbance scale of Bedford et.al (Bedford, Foulds & Sheffield, 1976) and using Mokken scale analysis (Saiepour et al., 2014). These items were administered at the first clinic visit (recruitment questionnaire). Pregnancy planned/wanted was measured using four items administered at the recruitment questionnaire. The mother was asked

whether she planned to get pregnant, whether she meant to avoid pregnancy at this time, whether she wanted to get pregnant and whether her method of family planning failed. For the four items the Cronbach Alpha reliability co-efficient was 0.89. The sample was dichotomised into planned/other pregnancies. At recruitment (generally early in pregnancy) mothers were also asked how often they had smoked cigarettes in the last week. The sample was dichotomised into smokers/non-smokers. The risk factors considered were employment, marital status, ethnicity, country of birth, smoking status (before and during pregnancy), alcohol consumption (before and during pregnancy), use of illicit drugs (during pregnancy), type of accommodation, receipt of government benefits, having a problem with the law, whether the pregnancy was planned and satisfaction with life. For the relevant analyses the smoking and pregnancy planned variables were excluded from analysis. The risk factors (and hypothesised outcomes) were chosen because they were likely to be strongly related and associated with loss to follow-up. The aim of this study was to determine whether loss to follow-up affected significant and strong associations.

Results

Women (N = 6753) were recruited at 5-39 weeks' gestation and were aged between 13.2 and 46.9 years (median: 24.3). Of all participants, 4843 (71.7%) responded to the 5-year follow-up; 4609 (68.3%) responded to the 14-year follow-up; 3667 (54.3%) responded to the 21-year follow-up; and 3558 (52.7%) responded to the 27-year follow-up. For each phase of data collection respondents are partitioned into those lost to follow-up at that phase (Group B) and those retained in the study (Group A).

Findings

Full details of the associations at baseline, and these same associations following loss to follow-up appear in Appendix A. As the data in Appendix A shows, estimates of association at baseline and at each follow-up, for both those retained in the study and those lost to follow-up are remarkably similar. Table 1 provides a more concise form of these findings. Those

receiving a government benefit experience mental illness (MDST) at baseline substantially more frequently, the odds ratio is 2.54(2.21,2.93), than mothers not receiving a benefit. While these estimates of association appear to vary somewhat at each subsequent follow-up (see Appendix A, Table 1), and with different levels of loss to follow-up, none of these variations are statistically significant (all comparisons are with group A – those retained in the study). For 68 comparisons with the baseline association and the association at each follow-up, there are no statistically significant differences. We have also compared the findings for the group subsequently lost to follow-up (Group B) with the baseline association, for all 17 variables in Table 1. Despite the higher rates of loss to follow-up for measures of socioeconomic and lifestyle disadvantage, and the higher rates of mental illness characteristic of those lost to follow-up, the estimates of association in the group lost to follow-up and the baseline associations, are similar. The findings suggest that the rate of loss to follow-up (in Table 1) does not affect the estimate of the magnitude of association between socioeconomic disadvantage, adverse lifestyles and mental disorder.

(Table 1 about here)

In Table 2, we examine predictors of the mother having an unplanned pregnancy and the extent to which loss to follow-up of respondents is reflected in variations from the baseline estimate of this association. Comparing Group A estimates of association with those at baseline we find these are similar except in three instances (of 64 comparisons). In each of these three instances (accommodation – renting; country of birth – non-English speaking x 2) the baseline associations involve a baseline statistically significant association that is of modest magnitude and an estimate of the same association in Group A that is significantly lower. When we compare the same findings for Group B (baseline associations compared to the association for those lost to follow-up) we find two of 64 comparisons where the estimates are significantly different. In the first disagreement the baseline estimate of association between being not married and having an unplanned pregnancy is OR

4.36(3.81,4.98), while in Group B at the 5 year follow-up, this estimate is OR = 4.91(4.13,5.84). In the second statistically significant difference, the baseline association suggests that migrants who are in Australia from a non-English speaking country are less likely to have an unplanned pregnancy (OR 0.76(0.65,0.89). For Group A at the 21 year follow-up, the OR for the same association is 0.51(0.41,0.64). This difference is statistically significant but arguably would not suggest that the 21 year finding, affected by 45.7% LTFU, is greatly misleading.

(Table 2 about here)

Table 3 examines 16 predictors of maternal smoking before pregnancy. Of the 64 comparisons, 15 involve a statistically significant difference between the baseline estimate of association and the estimate provided from Group A at varying levels of loss to follow-up. For example, for the variable receiving a benefit the baseline association with smoking pre-pregnancy is an OR 2.62(2.29,3.00), while at the 5 and 14 year follow-ups these estimates are respectively OR 1.84(1.48,2.28) and OR 1.90(1.55,2.33) – both significantly differ from the baseline estimate. For the variable drinking before pregnancy (alcohol), all four follow-ups show that Group A has a slightly stronger association of pre-pregnancy smoking and pre-pregnancy drinking than is presented in the baseline estimate. Indeed in most instances the findings for which Group A differs from the baseline estimate agree with the evidence of a statistically significant association and the estimates are in the same direction as the baseline estimate, but the estimated magnitude of the associations differ between baseline and some follow-ups. When we compare the estimates of association for Group B with the baseline estimates in Table 3, there are 64 comparisons, of which four are statistically different depending upon the follow-up involved. In two of these four comparisons, the direction and magnitude of these associations are different and would possibly lead to a misleading/incorrect conclusion.

(Table 3 about here)

A summary of the overall level of statistically significant differences between the baseline association and estimates of the same association at each follow-up, for those retained in the study (Group A) and those LTFU (Group B) is presented in Table 4. Two notable findings are apparent. Firstly, of 196 comparisons, the association at baseline and for those retained in the study are similar for 90.8% of comparisons. Secondly, the rate of loss to follow-up appears to be unrelated to differences between baseline and follow-up estimates of association. The loss of 28.3% of respondents (at the 5yr f/u) does not produce fewer disagreements with the baseline estimate than does the loss of 47.3% of the sample at the 27 year follow-up.

(Table 4 about here)

Discussion

It has become routine for public health and medical journals to require analyses to include adjustments for missing data. It is not clear how commonly these adjustments materially affect findings or the conclusions drawn from the findings. Concern with incomplete data appears to be particularly relevant to longitudinal studies (Little, 2009; Jelicic et al., 2010), even though concerns associated with missing data also involve cross-sectional studies, particularly if these studies have modest response rates. Those 'lost' in longitudinal studies and those not recruited in cross-sectional studies may share similar characteristics and are likely to constitute a similar threat to the validity of findings (Grievink et al., 2006;Bradley et al., 2014).

The findings of this paper suggest that differential loss to follow-up, even if it applies to both the dependent and independent variables and is associated with the rate of loss to follow-up, rarely significantly affects estimates of association.

Participants with poorer baseline mental health, who had an unplanned pregnancy or who were smokers early in their pregnancy, were more likely to be lost to follow-up. Higher loss to follow-up was also more common for the social and demographic factors we have included

as predictors. Consequently the percentage of these groups remaining in the study at follow-up understate their prevalence in the study. Our finding that measures of association are rarely affected by this bias is possibly counterintuitive. Our results show that even high levels of attrition (both on the dependent and independent variables) rarely affect estimates of the associations in practice. With a type I error rate of 5%, even if the null hypothesis was always true, we would still expect to see about 3 false positives from say 60 comparisons.

Furthermore, changes in ORs associated with varying rates of loss to follow-up did not vary consistently; estimates of association associated with varying rates of loss to follow-up appeared to fluctuate in a manner which approximated sampling error. These results reinforce the finding that loss to follow-up generally occurs without affecting the estimates of association in a study. We are also able to report that we have repeated these analyses with numerous other variables with findings consistent with those we have reported above.

Research consistent with our findings comes from a number of studies (Gerrits, et al., 2001; Deeg, 2002; Kempen & Sonderen, 2002; Kristman, Manno & Cote, 2004). In particular, Kristman et al. (2002) modelled a number of types of bias, rates of LTFU and their effects on findings. Where data were missing not at random they found even modest levels of LTFU could provide biased estimates. We add to this finding the possibility that it is the extent to which a variable is missing not at random, as well as the relationship of this variable to the outcome, and the extent to which the outcome may be missing not at random that may lead to biased estimates. Our findings suggest that the combination of circumstances that contribute to a biased finding is relatively rare.

In response to concerns about incomplete data a substantial “missing data industry” has emerged, leading to the development of statistical procedures aimed at adjusting for loss of cases (Brick and Kalton, 1996, Eekhout et al., 2012). Methods such as multiple imputation and inverse probability weighting are advocated in order to provide valid estimates of the “true” findings (Enders, 2010). Some have pointed to a variety of forms of modelling with

the intent of producing more accurate estimates in studies where data sets are incomplete (Enders, 2010, Jelicic et al., 2010). It should be noted that these adjustments generally involve assumptions about patterns of missingness (missing at random) which are of doubtful validity.

The finding that measures of association remain unbiased even in the presence of attrition, except in a few exceptional cases, implies that elaborate methods of adjustment with problematic assumptions may be unnecessary. Further, the use of an arbitrary rate of sample attrition (eg. 20%) is not supported by our findings.

Limitations

Baseline information only is used to examine the associations in order to evaluate the effect of future loss to follow-up. This analysis is based upon the assumption that biased attrition will have some effect on associations observed at recruitment as they have on associations observed at each follow-up. The focus on stronger association in this study may not apply to situations where weak but significant effects are reported. Indeed in this study it was possible for an association to be statistically significant at baseline, no longer significant at a follow-up, despite the fact that a comparison of these two odds ratio might also be non-significant. The findings of this study suggest a need to identify a pattern of associations rather than rely on an individual finding.

Strength

This is a long term study over 27 years and 5 follow-up waves, with almost complete ascertainment for all women at baseline. We model the effects of loss to follow-up at 27 years and almost 50% of cases.

Conclusion

High rates of loss to follow-up raise concerns about biased findings. Many papers have documented the bias associated with loss to follow-up. We have tested the impact of this biased loss to follow-up using data from a long-running cohort study with different levels of

loss at each successive follow-up. We find that despite substantial bias in loss to follow-up, and high rates of loss to follow-up, estimates of association are rarely affected. Of 392 associations (196 for Group A, 196 for Group B) we tested, only a few were found to vary materially from those observed in the complete data set. Despite high levels of bias in attrition, and high levels of loss to follow-up estimates of association are rarely affected. Our findings suggest that the rate of loss to follow-up may be a less important source of bias than is the magnitude of association between predictors, outcomes and the magnitude of sample attrition. Biased findings appeared to be relatively rare, and limited to circumstances where there was a particular pattern of associations in the data. In any event, studies on the same topic undertaken at different time points, in different locations, using different measures may all be subject to bias. It is the aggregation of similar studies in the form of systematic reviews and/or meta-analyses that provides the most convincing evidence that a finding is robust and consistent.

Declarations

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Conflicts of Interest

None.

Availability of data and material

The data sets are held by the principal investigators. They are available on request, contact Professor Jake Najman in the first instance. MUSP welcomes interest in international collaborations. Contact details: j.najman@uq.edu.au

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Table 1: Comparing estimates of association between baseline predictors and Mental disorder (MDST): Odds ratio (95% CI) of comparison of Group A and Group B with baseline.

Lost to Follow-up / Retained	5-Year Follow up	14-Year Follow up	21-Year Follow-up	27-Year Follow-up
	Group A* (N=1910)	Group A* (N=2144)	Group A* (N=3038)	Group A* (N=3195)
	Group B* (N=4843)	Group B* (N=4609)	Group B* (N=3715)	Group B* (N=3558)
Receiving benefit (Yes)				
Baseline: 2.54 (2.21,2.93)				
A compared to Baseline	0.91 (0.7,1.19)	0.90 (0.70,1.16)	0.92 (0.73,1.17)	0.93 (0.74,1.17)
B compared to Baseline	0.97 (0.77,1.23)	0.99 (0.78,1.25)	0.99 (0.76,1.28)	0.96 (0.73,1.25)
Problem with law (Yes)				
Baseline: 2.84 (2.23,3.61)				
A compared to Baseline	0.99 (0.67,1.47)	0.96 (0.63,1.45)	0.96 (0.65,1.42)	1.04 (0.70,1.53)
B compared to Baseline	0.91 (0.58,1.41)	0.91 (0.59,1.38)	0.92 (0.58,1.45)	0.82 (0.51,1.31)
Marital status (No)				
Baseline: 2.41 (2.13,2.74)				
B compared to Baseline	1.02 (0.80,1.30)	0.97 (0.76,1.23)	0.93 (0.75,1.15)	0.94 (0.77,1.17)
Planned Pregnancy (No)				
Baseline: 2.31 (2.03,2.63)				
A compared to Baseline	0.93 (0.72,1.22)	0.96 (0.74,1.24)	0.90 (0.72,1.13)	0.86 (0.69,1.07)
B compared to Baseline	0.997 (0.81,1.22)	0.98 (0.80,1.21)	1.03 (0.83,1.29)	1.12 (0.89,1.41)
Drug use – last month (Yes)				
Baseline: 2.50 (2.01,3.12)				
A compared to Baseline	0.83 (0.55,1.25)	0.998 (0.68,1.47)	0.999 (0.69,1.44)	0.95 (0.66,1.36)
B compared to Baseline	1.06 (0.74,1.52)	0.89 (0.60,1.30)	0.93 (0.62,1.39)	0.97 (0.64,1.47)
Satisfaction with life (No)				
Baseline: 11.79 (9.32,14.92)				
A compared to Baseline	0.76 (0.48,1.19)	0.79 (0.51,1.23)	0.79 (0.53,1.18)	0.80 (0.54,1.18)
B compared to Baseline	1.13 (0.77,1.65)	1.12 (0.76,1.64)	1.24 (0.81,1.89)	1.26 (0.82,1.92)
Smoking before pregnancy (Yes)				

Baseline: 1.74 (1.55,1.97)				
A compared to Baseline	0.95 (0.74,1.22)	0.91 (0.71,1.15)	0.97 (0.79,1.20)	0.95 (0.77,1.17)
B compared to Baseline	0.98 (0.81,1.18)	0.999 (0.82,1.21)	0.96 (0.78,1.19)	0.97 (0.79,1.20)
Drinking before pregnancy (Yes)				
Baseline: 1.23 (1.06,1.42)				
A compared to Baseline	0.95 (0.72,1.26)	0.07 (0.82,1.41)	1.13 (0.88,1.43)	1.19 (0.94,1.51)
B compared to Baseline	1.03 (0.82,1.30)	0.99 (0.79,1.25)	0.94 (0.73,1.21)	0.88 (0.68,1.13)
Smoking during pregnancy (Yes)				
Baseline: 1.73 (1.53,1.95)				
A compared to Baseline	0.95 (0.75,1.21)	0.94 (0.74,1.18)	0.99 (0.80,1.21)	0.95 (0.77,1.16)
B compared to Baseline	0.97 (0.80,1.18)	0.98 (0.81,1.19)	0.94 (0.77,1.16)	0.97 (0.78,1.20)
Drinking during pregnancy (Yes)				
Baseline: 1.08 (0.96,1.22)				
A compared to Baseline	1.03 (0.81,1.30)	1.10 (0.88,1.39)	1.14 (0.93,1.40)	1.13 (0.92,1.38)
B compared to Baseline	0.99 (0.82,1.19)	0.96 (0.79,1.16)	0.91 (0.74,1.12)	0.91 (0.74,1.13)
Employment (No)				
Baseline: 1.48 (1.29,1.70)				
A compared to Baseline	1.03 (0.76,1.39)	0.98 (0.73,1.31)	1.09 (0.85,1.41)	0.91 (0.71,1.17)
B compared to Baseline	0.94 (0.76,1.17)	0.95 (0.76,1.18)	0.87 (0.69,1.09)	0.99 (0.78,1.25)
Accommodation (Rent)				
Baseline: 1.88 (1.64,2.15)				
A compared to Baseline	0.998 (0.74,1.35)	1.03 (0.77,1.37)	1.04 (0.82,1.34)	1.04 (0.82,1.33)
B compared to Baseline	0.93 (0.75,1.15)	0.90 (0.73,1.12)	1.11 (0.83,1.49)	0.84 (0.66,1.06)
Accommodation (Other)				
Baseline: 2.41 (2.03,2.85)				
A compared B	0.98 (0.67,1.43)	1.10 (0.76,1.59)	1.33 (0.94,1.87)	1.27 (0.90,1.78)
A compared to Baseline	0.97 (0.68,1.39)	0.90 (0.64,1.28)	0.84 (0.62,1.13)	0.86 (0.64,1.16)
B compared to Baseline	0.95 (0.73,1.24)	0.997 (0.76,1.31)	0.85 (0.67,1.07)	1.09 (0.81,1.46)
Ethnicity (Aboriginal/ Islander)				

Baseline: 2.19 (1.67,2.87)				
A compared to Baseline	0.92 (0.58,1.47)	1.11 (0.70,1.76)	1.06 (0.69,1.61)	0.93 (0.61,1.42)
B compared to Baseline	0.89 (0.55,1.45)	0.73 (0.44,1.21)	0.64 (0.35,1.17)	0.82 (0.45,1.50)
Ethnicity (Others)				
Baseline: 1.38 (1.03,1.86)				
A compared to Baseline	0.94 (0.54,1.65)	0.81 (0.47,1.38)	1.06 (0.66,1.72)	0.83 (0.51,1.33)
B compared to Baseline	0.98 (0.60,1.60)	1.10 (0.67,1.80)	0.78 (0.43,1.41)	1.17 (0.65,2.08)
Country of birth (English-speaking country)				
Baseline: 0.70 (0.58,0.83)				
A compared to Baseline	0.83 (0.59,1.18)	0.86 (0.62,1.20)	0.86 (0.63,1.17)	0.85 (0.63,1.15)
B compared to Baseline	1.05 (0.79,1.40)	1.04 (0.77,1.40)	1.12 (0.82,1.54)	1.13 (0.82,1.56)
Country of birth (Non- English-speaking country)				
Baseline: 1.02 (0.84,1.24)				
A compared to Baseline	0.82 (0.56,1.20)	0.95 (0.66,1.36)	0.92 (0.67,1.28)	0.84 (0.61,1.15)
B compared to Baseline	1.06 (0.78,1.46)	0.97 (0.70,1.34)	0.98 (0.68,1.42)	1.11 (0.77,1.61)

*Group A: if the LTFU status of an individual happened to be ***'lost'*** at the subsequent wave
*Group B: if the LTFU status of an individual happened to be ***'followed'*** at the subsequent wave

Table 2: Comparing estimates of association between baseline predictors and pregnancy planned/wanted: Odds ratio (95% CI) of comparison of Group A and Group B with baseline.

Lost to Follow-up Retained	5-Year Follow up	14-Year Follow up	21-Year Follow-up	27-Year Follow-up
	Group A* (N=1910) Group B* (N=4843)	Group A* (N=2144) Group B* (N=4609)	Group A* (N=3038) Group B* (N=3715)	Group A* (N=3195) Group B* (N=3558)
Receiving benefit (Yes)				
Baseline: 2.54 (2.21,2.93)				
A compared to Baseline	0.85 (0.65,1.12)	0.88 (0.68,1.15)	0.96 (0.76,1.23)	0.96 (0.76,1.22)
B compared to Baseline	1.02 (0.81,1.28)	0.99 (0.78,1.25)	0.93 (0.72,1.19)	0.95 (0.73,1.23)
Problem with law (Yes)				
Baseline: 2.39 (1.84,3.12)				
A compared to Baseline	1.05 (0.62,1.77)	1.04 (0.64,1.70)	1.07 (0.68,1.69)	1.04 (0.67,1.63)
B compared to Baseline	0.91 (0.60,1.39)	0.86 (0.56,1.34)	0.82 (0.51,1.31)	0.87 (0.54,1.40)
Marital status (No)				
Baseline: 4.36 (3.81,4.98)				
A compared to Baseline	1.13 (0.91,1.40)	1.07 (0.86,1.34)	1.05 (0.83,1.33)	1.18 (0.92,1.51)
B compared to Baseline	0.76 (0.59,0.98)	0.82 (0.64,1.05)	0.89 (0.71,1.11)	0.85 (0.68,1.05)
Drug use – last month (Yes)				
Baseline: 2.91 (2.26,3.75)				
A compared to Baseline	0.92 (0.56,1.51)	1.04 (0.63,1.61)	0.93 (0.60,1.45)	0.85 (0.56,1.30)
B compared to Baseline	0.99 (0.66,1.49)	0.91 (0.60,1.38)	1.00 (0.65,1.56)	1.14 (0.72,1.82)
Satisfaction with life (No)				
Baseline: 3.95 (3.02,5.17)				
A compared to Baseline	0.93 (0.54,1.61)	0.82 (0.50,1.37)	0.86 (0.55,1.36)	0.94 (0.59,1.48)
B compared to Baseline	1.00 (0.66,1.53)	1.07 (0.69,1.65)	1.09 (0.68,1.75)	1.03 (0.65,1.65)
Smoking before pregnancy (Yes)				
Baseline: 1.48 (1.34,1.63)				
A compared to Baseline	0.90 (0.73,1.12)	0.91 (0.74,1.12)	0.93 (0.78,1.12)	0.90 (0.75,1.07)
B compared to Baseline	1.00 (0.86,1.17)	0.995 (0.85,1.16)	1.00 (0.85,1.18)	1.04 (0.88,1.23)

Drinking before pregnancy (Yes)				
Baseline: 1.22 (1.09,1.37)				
A compared to Baseline	0.97 (0.76,1.24)	1.12 (0.89,1.41)	1.15 (0.94,1.41)	1.12 (0.92,1.36)
B compared to Baseline	1.02 (0.85,1.21)	0.98 (0.82,1.17)	0.94 (0.77,1.14)	0.94 (0.77,1.15)
Smoking during pregnancy (Yes)				
Baseline: 1.49 (1.34,1.65)				
A compared to Baseline	0.88 (0.71,1.09)	0.92 (0.74,1.13)	0.99 (0.82,1.19)	0.93 (0.78,1.12)
B compared to Baseline	1.01 (0.86,1.19)	0.99 (0.84,1.16)	0.95 (0.80,1.13)	1.01 (0.84,1.20)
Drinking during pregnancy (Yes)				
Baseline: 1.08 (0.97,1.19)				
A compared to Baseline	0.91 (0.73,1.13)	1.07 (0.87,1.32)	1.13 (0.95,1.36)	1.09 (0.91,1.30)
B compared to Baseline	1.04 (0.89,1.21)	0.98 (0.84,1.15)	0.94 (0.80,1.11)	0.96 (0.81,1.13)
Employment (No)				
Baseline: 1.10 (0.99,1.23)				
A compared to Baseline	1.03 (0.88,1.22)	1.08 (0.91,1.27)	1.08 (0.90,1.30)	1.03 (0.86,1.24)
B compared to Baseline	1.03 (0.79,1.33)	0.97 (0.75,1.24)	0.99 (0.80,1.22)	1.06 (0.86,1.30)
Accommodation (Rent)				
Baseline: 1.84 (1.65,2.05)				
A compared to Baseline	0.77 (0.60,0.98)	0.84 (0.67,1.06)	0.94 (0.77,1.15)	0.94 (0.78,1.15)
B compared to Baseline	1.04 (0.88,1.23)	1.00 (0.85,1.19)	0.96 (0.80,1.15)	1.00 (0.83,1.20)
Accommodation (Other)				
Baseline: 4.73 (4,50.610)				
A compared to Baseline	0.74 (0.52,1.06)	0.87 (0.61,1.23)	0.97 (0.72,1.32)	0.99 (0.74,1.34)
B compared to Baseline	1.06 (0.81,1.38)	0.99 (0.76,1.30)	0.94 (0.71,1.25)	0.94 (0.71,1.26)
Ethnicity (Aboriginal/ Islander)				
Baseline: 1.62 (1.23,2.14)				
A compared to Baseline	1.45 (0.86,2.44)	1.17 (0.70,1.94)	1.02 (0.65,1.59)	0.96 (0.62,1.48)
B compared to Baseline	0.63 (0.40,1.002)	0.75 (0.47,1.19)	0.72 (0.42,1.23)	0.83 (0.47,1.46)
Ethnicity (Others)				

Baseline: 0.81 (0.62,1.04)				
A compared to Baseline	0.82 (0.50,1.35)	0.67 (0.42,1.07)	0.70 (0.46,1.06)	0.73 (0.48,1.09)
B compared to Baseline	1.06 (0.71,1.60)	1.22 (0.80,1.87)	1.41 (0.89,2.26)	1.49 (0.90,2.45)
Country of birth (English speaking country)				
Baseline: 0.88 (0.76,1.01)				
A compared to Baseline	1.00 (0.76,1.35)	0.88 (0.67,1.16)	0.94 (0.73,1.21)	0.98 (0.77,1.25)
B compared to Baseline	0.95 (0.77,1.19)	1.00 (0.80,1.25)	0.99 (0.78,1.25)	0.96 (0.76,1.23)
Country of birth (Non- English speaking country)				
Baseline: 0.76 (0.65,0.89)				
A compared to Baseline	0.92 (0.66,1.28)	0.72 (0.52,0.98)	0.67 (0.51,0.89)	0.78 (0.60,1.03)
B compared to Baseline	1.00 (0.77,1.29)	1.13 (0.87,1.47)	1.39 (1.04,1.85)	1.23 (0.92,1.66)

*Group A: if the FLU status of an individual happened to be ***'lost'*** at the subsequent wave

*Group B: if the FLU status of an individual happened to be ***'followed'*** at the subsequent wave

Table 3: Comparing estimates of association between baseline predictors and Smoking before pregnancy: Odds ratio (95% CI) of comparison of Group A and Group B with baseline.

Lost to Follow-up Retained	5-Year Follow up	14-Year Follow up	21-Year Follow-up	27-Year Follow-up
	Group A* (N=1910) Group B* (N=4843)	Group A* (N=2144) Group B* (N=4609)	Group A* (N=3038) Group B* (N=3715)	Group A* (N=3195) Group B* (N=3558)
Receiving benefit (Yes)				
Baseline: 2.62 (2.29,3.00)				
A compared to Baseline	0.70 (0.54,0.90)	0.72 (0.57,0.93)	0.84 (0.67,1.05)	0.81 (0.65,1.01)
B compared to Baseline	1.13 (0.91,1.41)	1.15 (0.92,1.44)	1.13 (0.88,1.44)	1.15 (0.89,1.47)
Problem with law (Yes)				
Baseline: 2.70 (2.09,3.48)				
A compared to Baseline	0.99 (0.60,1.62)	0.84 (0.54,1.32)	0.88 (0.58,1.34)	0.91 (0.60,1.39)
B compared to Baseline	0.93 (0.61,1.40)	1.01 (0.66,1.56)	1.05 (0.65,1.68)	0.99 (0.62,1.58)
Marital status (No)				
Baseline: 3.40 (3.02,3.83)				
A compared to Baseline	1.00 (0.83,1.21)	1.01 (0.83,1.23)	0.97 (0.79,1.20)	0.99 (0.80,1.23)
B compared to Baseline	0.88 (0.70,1.11)	0.88 (0.70,1.10)	0.96 (0.78,1.17)	0.92 (0.75,1.13)
Planned Pregnancy (No)				
Baseline: 1.48 (1.34,1.63)				
A compared to Baseline	0.90 (0.73,1.12)	0.91 (0.74,1.12)	0.93 (0.78,1.12)	0.90 (0.75,1.07)
B compared to Baseline	1.00 (0.86,1.17)	1.00 (0.85,1.16)	1.00 (0.85,1.18)	1.04 (0.88,1.23)
Drug use – last month (Yes)				
Baseline: 5.26 (3.99,6.92)				
A compared to Baseline	0.78 (0.46,1.32)	0.70 (0.44,1.14)	0.89 (0.56,1.42)	0.89 (0.56,1.41)
B compared to Baseline	1.08 (0.69,1.69)	1.21 (0.75,1.95)	1.07 (0.66,1.74)	1.06 (0.64,1.73)
Satisfaction with life (No)				
Baseline: 1.53 (1.24,1.88)				
A compared to Baseline	0.92 (0.61,1.38)	0.96 (0.65,1.42)	0.84 (0.59,1.19)	0.86 (0.60,1.21)

B compared to Baseline	0.99 (0.71,1.37)	0.95 (0.68,1.34)	1.13 (0.78,1.63)	1.11 (0.77,1.60)
Drinking before pregnancy (Yes)				
Baseline: 2.71 (2.41,3.05)				
A compared to Baseline	1.43 (1.12,1.83)	1.27 (1.01,1.60)	1.23 (1.01,1.51)	1.29 (1.06,1.58)
B compared to Baseline	0.88 (0.73,1.06)	0.93 (0.77,1.12)	0.89 (0.72,1.09)	0.86 (0.70,1.06)
Smoking during pregnancy (Yes)				
Baseline: 614 (383,982)				
A compared to Baseline	1.04 (0.38,2.86)	1.16 (0.42,3.18)	1.43 (0.56,3.65)	1.22 (0.50,2.96)
B compared to Baseline	0.96 (0.47,1.99)	0.92 (0.44,1.90)	0.77 (0.37,1.62)	0.83 (0.39,1.79)
Drinking during pregnancy (Yes)				
Baseline: 1.59 (1.44,1.75)				
A compared to Baseline	1.25 (1.02,1.55)	1.20 (0.98,1.47)	1.17 (0.98,1.39)	1.31 (1.10,1.56)
B compared to Baseline	0.93 (0.80,1.07)	0.94 (0.81,1.09)	0.92 (0.78,1.08)	0.83 (0.71,0.98)
Employment (No)				
Baseline: 0.86 (0.78,0.96)				
A compared to Baseline	1.11 (0.95,1.31)	1.11 (0.96,1.13)	0.80 (0.67,0.94)	1.14 (0.96,1.36)
B compared to Baseline	0.83 (0.65,1.06)	0.85 (0.67,1.08)	0.92 (0.75,1.13)	0.95 (0.78,1.16)
Accommodation (Rent)				
Baseline: 2.33 (2.09,2.59)				
A compared to Baseline	0.80 (0.63,1.01)	0.92 (0.73,1.16)	0.90 (0.74,1.09)	0.96 (0.79,1.16)
B compared to Baseline	1.01 (0.85,1.19)	0.96 (0.81,1.13)	1.02 (0.85,1.22)	0.93 (0.78,1.12)
Accommodation (Other)				
Baseline: 2.85 (2.46,3.31)				
A compared to Baseline	0.76 (0.56,1.04)	0.79 (0.59,1.07)	0.96 (0.74,1.25)	0.86 (0.66,1.11)
B compared to Baseline	1.04 (0.82,1.31)	1.05 (0.84,1.33)	0.95 (0.74,1.22)	1.06 (0.82,1.37)
Ethnicity (Aboriginal/ Islander)				
Baseline: 1.26 (0.98,1.63)				
A compared to Baseline	0.75 (0.48,1.17)	0.79 (0.51,1.23)	0.75 (0.50,1.12)	0.77 (0.52,1.14)
B compared to Baseline	1.02 (0.66,1.60)	1.01 (0.64,1.57)	1.29 (0.77,2.18)	1.16 (0.68,1.98)
Ethnicity (Others)				

Baseline: 0.21 (0.15,0.29)				
A compared to Baseline	0.44 (0.22,0.89)	0.58 (0.32,1.07)	0.53 (0.30,0.95)	0.53 (0.31,0.93)
B compared to Baseline	1.41 (0.86,2.33)	1.33 (0.78,2.26)	1.85 (1.06,3.21)	2.07 (1.16,3.69)
Country of birth (English speaking country)				
Baseline: 1.01 (0.88,1.16)				
A compared to Baseline	1.03 (0.78,1.36)	1.04 (0.80,1.37)	0.99 (0.78,1.27)	0.95 (0.75,1.21)
B compared to Baseline	0.94 (0.76,1.16)	0.91 (0.73,1.13)	0.95 (0.76,1.20)	0.96 (0.76,1.22)
Country of birth (Non- English speaking country)				
Baseline: 0.41 (0.35,0.49)				
A compared to Baseline	0.80 (0.57,1.12)	0.65 (0.47,0.90)	0.71 (0.53,0.95)	0.67 (0.51,0.89)
B compared to Baseline	1.05 (0.81,1.38)	1.21 (0.92,1.59)	1.34 (0.99,1.80)	1.43 (1.05,1.95)

*Group A: if the FLU status of an individual happened to be ***'lost'*** at the subsequent wave
*Group B: if the FLU status of an individual happened to be ***'followed'*** at the subsequent wave

Table 4: Agreement/Disagreement on Findings – LTFU Associations and Baseline Estimates of Association

	% LTFU	A Compared to Baseline			
		MDST	Pregnancy Planned	Before Pregnancy Smoking	Total
Total Possible		68	64	64	196
Not sig. different		68	61	49	178
Diff. 5yrs f/u	(28.3%)	0	1	4	5
Diff. 14yrs f/u	(31.7%)	0	1	3	4
Diff. 21yrs f/u	(45.7%)	0	1	4	5
Diff. 27yrs f/u	(47.3%)	0	0	4	4

No significant difference between baseline and follow-up estimates of association for 90.8% of comparisons.

	% LTFU	B compared to Baseline			
		MDST	Pregnancy Planned	Before Pregnancy Smoking	Total
Total Possible		68	64	64	196
Not sig. different		68	62	60	190
Diff. 5yrs f/u	(28.3%)	0	1	0	1
Diff. 14yrs f/u	(31.7%)	0	0	0	0
Diff. 21yrs f/u	(45.7%)	0	1	1	2
Diff. 27yrs f/u	(47.3%)	0	0	3	3

No significant difference between baseline and follow-up estimates of association for 96.9% of comparisons.

Appendix A.

Table 1: Estimates of the association (odds ratio and 95% CI) between baseline predictors and mental disorder (MDST) for those retained in the study (Group A) and those lost to follow-up (Group B).

Predictors	Status	No	Effect	All 6753 women at baseline	6753 women at baseline partitioned based on LTFU status at 5-year		6753 women at baseline partitioned based on LTFU status at 14-year		6753 women at baseline partitioned based on LTFU status at 21-year		6753 women at baseline partitioned based on LTFU status at 27-year	
				(N=6753)	Group A* (N=1910)	Group B* (N=4843)	Group A* (N=2144)	Group B* (N=4609)	Group A* (N=3038)	Group B* (N=3715)	Group A* (N=3195)	Group B* (N=3558)
Receiving benefit	No	5109			LTFU	Retained	LTFU	Retained	LTFU	Retained	LTFU	Retained
	Yes	1136		2.54 (2.21,2.93)	2.32 (1.85,2.91)	2.48 (2.07,2.98)	2.29 (1.85,2.83)	2.51 (2.07,3.03)	2.35 (1.95,2.84)	2.51 (2.03,3.12)	2.37 (1.98,2.85)	2.44 (1.95,3.06)
			Compared to baseline – OR (95% CI)	-	0.91 (0.7,1.19)	0.97 (0.77,1.23)	0.90 (0.70,1.16)	0.99 (0.78,1.25)	0.92 (0.73,1.17)	0.99 (0.76,1.28)	0.93 (0.74,1.17)	0.96 (0.73,1.25)
Problem with law	No	6158										
	Yes	292		2.84 (2.23,3.61)	2.57 (1.77,3.73)	2.81 (2.05,3.85)	2.72 (1.94,3.82)	2.57 (1.82,3.64)	2.74 (2.01,3.72)	2.60 (1.76,3.84)	2.94 (2.16,3.99)	2.32 (1.56,3.47)
			Compared to baseline – OR (95% CI)	-	0.99 (0.67,1.47)	0.91 (0.58,1.41)	0.96 (0.63,1.45)	0.91 (0.59,1.38)	0.96 (0.65,1.42)	0.92 (0.58,1.45)	1.04 (0.70,1.53)	0.82 (0.51,1.31)
Marital status	Married	4971										
	Not married	1730		2.41 (2.13,2.74)	2.46 (1.99,3.04)	2.22 (1.89,2.60)	2.34 (1.91,2.86)	2.27 (1.92,2.68)	2.25 (1.89,2.67)	2.36 (1.95,2.85)	2.28 (1.93,2.70)	2.30 (1.89,2.80)
			Compared to baseline – OR (95% CI)	-	0.92 (0.75,1.13)	1.02 (0.80,1.30)	0.94 (0.76,1.16)	0.97 (0.76,1.23)	0.98 (0.78,1.23)	0.93 (0.75,1.15)	0.95 (0.76,1.20)	0.94 (0.77,1.17)
Planned Pregnancy	Yes	2737										
	No	3577		2.31 (2.03,2.63)	2.16 (1.71,2.72)	2.30 (1.97,2.69)	2.20 (1.76,2.75)	2.27 (1.93,2.66)	2.08 (1.73,2.51)	2.38 (1.99,2.86)	1.98 (1.65,2.37)	2.59 (2.14,3.12)
				-								
			Compared to baseline – OR (95% CI)	-	0.93 (0.72,1.22)	0.997 (0.81,1.22)	0.96 (0.74,1.24)	0.98 (0.80,1.21)	0.90 (0.72,1.13)	1.03 (0.83,1.29)	0.86 (0.69,1.07)	1.12 (0.89,1.41)
Drug use – last month	No	6326										
	Yes	374		2.50 (2.01,3.12)	2.07 (1.46,2.93)	2.65 (1.99,3.52)	2.50 (1.82,3.43)	2.22 (1.62,3.03)	2.50 (1.86,3.36)	2.32 (1.66,3.25)	2.37 (1.78,3.16)	2.43 (1.71,3.45)

			Compared to baseline – OR (95% CI)	-	0.83 (0.55,1.25)	1.06 (0.74,1.52)	0.998 (0.68,1.47)	0.89 (0.60,1.30)	0.999 (0.69,1.44)	0.93 (0.62,1.39)	0.95 (0.66,1.36)	0.97 (0.64,1.47)
Satisfaction with life	Yes	6081										
	No	382		11.79 (9.32,14.92)	8.91 (6.04,13.14)	13.31 (9.91,17.89)	9.37 (6.48,13.55)	13.16 (9.69,17.86)	9.35 (6.82,12.82)	14.62 (10.27,20.8)	9.38 (6.83,12.88)	14.81 (10.42,21.04)
			Compared to baseline – OR (95% CI)	-	0.76 (0.48,1.19)	1.13 (0.77,1.65)	0.79 (0.51,1.23)	1.12 (0.76,1.64)	0.79 (0.53,1.18)	1.24 (0.81,1.89)	0.80 (0.54,1.18)	1.26 (0.82,1.92)
Smoking before pregnancy	No	3195										
	Yes	3237		1.74 (1.55,1.97)	1.66 (1.34,2.06)	1.70 (1.47,1.97)	1.58 (1.29,1.94)	1.74 (1.50,2.03)	1.70 (1.43,2.02)	1.68 (1.42,1.99)	1.65 (1.39,1.96)	1.70 (1.43,2.02)
			Compared to baseline – OR (95% CI)	-	0.95 (0.74,1.22)	0.98 (0.81,1.18)	0.91 (0.71,1.15)	0.999 (0.82,1.21)	0.97 (0.79,1.2)	0.96 (0.78,1.19)	0.95 (0.77,1.17)	0.97 (0.79,1.2)
Drinking before pregnancy	No	1556										
	Yes	4882		1.23 (1.06,1.42)	1.17 (0.92,1.49)	1.27 (1.06,1.52)	1.32 (1.05,1.66)	1.22 (1.01,1.46)	1.38 (1.14,1.68)	1.15 (0.93,1.42)	1.46 (1.21,1.77)	1.08 (0.87,1.33)
			Compared to baseline – OR (95% CI)	-	0.95 (0.72,1.26)	1.03 (0.82,1.3)	0.07 (0.82,1.41)	0.99 (0.79,1.25)	1.13 (0.88,1.43)	0.94 (0.73,1.21)	1.19 (0.94,1.51)	0.88 (0.68,1.13)
Smoking during pregnancy	**No**	**3918**										
	Yes	2499		1.73 (1.53,1.95)	1.65 (1.34,2.03)	1.68 (1.45,1.95)	1.62 (1.33,1.97)	1.70 (1.46,1.97)	1.70 (1.44,2.02)	1.63 (1.37,1.94)	1.64 (1.39,1.94)	1.68 (1.41,2.00)
			Compared to baseline – OR (95% CI)	-	0.95 (0.75,1.21)	0.97 (0.80,1.18)	0.94 (0.74,1.18)	0.98 (0.81,1.19)	0.99 (0.80,1.21)	0.94 (0.77,1.16)	0.95 (0.77,1.16)	0.97 (0.78,1.2)
Drinking during pregnancy	No	3180										
	Yes	3256		1.08 (0.96,1.22)	1.11 (0.90,1.36)	1.07 (0.93,1.24)	1.20 (0.98,1.46)	1.03 (0.89,1.20)	1.23 (1.04,1.46)	0.99 (0.83,1.17)	1.22 (1.04,1.44)	0.99 (0.83,1.17)
			Compared to baseline – OR (95% CI)	-	1.03 (0.81,1.30)	0.99 (0.82,1.19)	1.10 (0.88,1.39)	0.96 (0.79,1.16)	1.14 (0.93,1.40)	0.91 (0.74,1.12)	1.13 (0.92,1.38)	0.91 (0.74,1.13)
Employment	Yes	1803										
	No	4629		1.48 (1.29,1.70)	1.52 (1.16,1.98)	1.40 (1.18,1.65)	1.44 (1.12,1.87)	1.40 (1.19,1.66)	1.62 (1.31,2.00)	1.28 (1.06,1.54)	1.35 (1.10,1.65)	1.46 (1.20,1.77)

			Compared to baseline – OR (95% CI)	-	1.03 (0.76,1.39)	0.94 (0.76,1.17)	0.98 (0.73,1.31)	0.95 (0.76,1.18)	1.09 (0.85,1.41)	0.87 (0.69,1.09)	0.91 (0.71,1.17)	0.99 (0.78,1.25)
Accommodation	Own	2727										
	Rent	2665		1.88 (1.64,2.15)	1.88 (1.43,2.45)	1.75 (1.48,2.05)	1.93 (1.50,2.49)	1.70 (1.44,2.01)	1.96 (1.6,2.41)	1.60 (1.32,1.93)	1.96 (1.61,2.39)	1.58 (1.30,1.92)
			Compared to baseline – OR (95% CI)	-	0.998 (0.74,1.35)	0.93 (0.75,1.15)	1.03 (0.77,1.37)	0.90 (0.73,1.12)	1.04 (0.82,1.34)	1.11 (0.83,1.49)	1.04 (0.82,1.33)	0.84 (0.66,1.06)
	other	1014		2.41 (2.03,2.85)	2.33 (1.70,3.21)	2.29 (1.86,2.81)	2.18 (1.61,2.94)	2.40 (1.95,2.96)	2.02 (1.57,2.59)	2.68 (2.11,3.39)	2.07 (1.62,2.64)	2.62 (2.05,3.34)
			Compared to baseline – OR (95% CI)	-	0.97 (0.68,1.39)	0.95 (0.73,1.24)	0.90 (0.64,1.28)	0.997 (0.76,1.31)	0.84 (0.62,1.13)	0.85 (0.67,1.07)	0.86 (0.64,1.16)	1.09 (0.81,1.46)
Ethnicity	Caucasian	5817										
	Aboriginal/ Islander	237		2.19 (1.67,2.87)	2.02 (1.39,2.94)	1.95 (1.31,2.92)	2.43 (1.67,3.51)	1.60 (1.05,2.43)	2.31 (1.67,3.19)	1.40 (0.82,2.39)	2.04 (1.48,2.81)	1.79 (1.05,3.06)
			Compared to baseline – OR (95% CI)	-	0.92 (0.58,1.47)	0.89 (0.55,1.45)	1.11 (0.70,1.76)	0.73 (0.44,1.21)	1.06 (0.69,1.61)	0.64 (0.35,1.17)	0.93 (0.61,1.42)	0.82 (0.45,1.50)
	Others	233		1.38 (1.03,1.86)	1.30 (0.81,2.10)	1.36 (0.93,1.99)	1.11 (0.71,1.74)	1.52 (1.02,2.26)	1.47 (1.01,2.14)	1.08 (0.65,1.79)	1.14 (0.79,1.66)	1.61 (0.98,2.64)
			Compared to baseline – OR (95% CI)	-	0.94 (0.54,1.65)	0.98 (0.60,1.60)	0.81 (0.47,1.38)	1.10 (0.67,1.80)	1.06 (0.66,1.72)	0.78 (0.43,1.41)	0.83 (0.51,1.33)	1.17 (0.65,2.08)
Country of birth	Australia	4784										
	English speaking country	981		0.70 (0.58,0.83)	0.58 (0.43,0.78)	0.73 (0.58,0.92)	0.60 (0.45,0.80)	0.72 (0.57,0.91)	0.60 (0.46,0.77)	0.78 (0.60,1.01)	0.59 (0.46,0.75)	0.79 (0.60,1.03)
			Compared to baseline – OR (95% CI)	-	0.83 (0.59,1.18)	1.05 (0.79,1.40)	0.86 (0.62,1.20)	1.04 (0.77,1.40)	0.86 (0.63,1.17)	1.12 (0.82,1.54)	0.85 (0.63,1.15)	1.13 (0.82,1.56)

Non-English speaking country	641		1.02 (0.84,1.24)	0.83 (0.60,1.16)	1.09 (0.85,1.39)	0.97 (0.71,1.31)	0.99 (0.76,1.28)	0.94 (0.73,1.22)	1.00 (0.74,1.36)	0.85 (0.66,1.10)	1.13 (0.83,1.55)
		Compared to baseline – OR (95% CI)	-	0.82 (0.56,1.20)	1.06 (0.78,1.46)	0.95 (0.66,1.36)	0.97 (0.70,1.34)	0.92 (0.67,1.28)	0.98 (0.68,1.42)	0.84 (0.61,1.15)	1.11 (0.77,1.61)

*Group A: if the LTFU status of an individual happened to be ***'lost'*** at the subsequent wave
*Group B: if the LTFU status of an individual happened to be ***'followed'*** at the subsequent wave

Table 2: Estimates of the association (odds ratio and 95% CI) between baseline predictors and whether the pregnancy was planned for those retained in the study (Group A) and those lost to follow-up (Group B).

Predictors	Status	Effect	All 6753 women at baseline	6753 women at baseline partitioned based on FLU status at 5-year		6753 women at baseline partitioned based on FLU status at 14-year		6753 women at baseline partitioned based on FLU status at 21-year		6753 women at baseline partitioned based on FLU status at 27-year	
			(N=6753)	Group A* (N=1910)	Group B* (N=4843)	Group A* (N=2144)	Group B* (N=4609)	Group A* (N=3038)	Group B* (N=3715)	Group A* (N=3195)	Group B* (N=3558)
Receiving benefit	No			LTFU	Retained	LTFU	Retained	LTFU	Retained	LTFU	Retained
	Yes		2.54 (2.21,2.93)	2.17 (1.72,2.75)	2.59 (2.16,3.10)	2.24 (1.79,2.81)	2.51 (2.08,3.03)	2.45 (2.01,2.99)	2.36 (1.92,2.90)	2.45 (2.03,2.96)	2.41 (1.94,3.00)
		Compared to baseline – OR (95% CI)	-	0.85 (0.65,1.12)	1.02 (0.81,1.28)	0.88 (0.68,1.15)	0.99 (0.78,1.25)	0.96 (0.76,1.23)	0.93 (0.72,1.19)	0.96 (0.76,1.22)	0.95 (0.73,1.23)
Problem with law	No										
	Yes		2.39 (1.84,3.12)	2.52 (1.61,3.95)	2.18 (1.57,3.03)	2.50 (1.66,30.77)	2.07 (1.46,2.94)	2.56 (1.77,3.70)	1.96 (1.33,2.89)	2.49 (1.74,3.56)	2.08 (1.4,3.1)
		Compared to baseline – OR (95% CI)	-	1.05 (0.62,1.77)	0.91 (0.6,1.39)	1.04 (0.64,1.70)	0.86 (0.56,1.34)	1.07 (0.68,1.69)	0.82 (0.51,1.31)	1.04 (0.67,1.63)	0.87 (0.54,1.40)
Marital status	Married										
	Not married		4.36 (3.81,4.98)	3.31 (2.67,4.12)	4.91 (4.13,5.84)	3.56 (2.88,4.40)	4.68 (3.93,5.57)	3.86 (3.21,4.64)	4.58 (3.77,5.56)	3.68 (3.09,4.39)	5.13 (4.17,6.31)
		Compared to baseline – OR (95% CI)	-	1.13 (0.91,1.40)	0.76 (0.59,0.98)	1.07 (0.86,1.34)	0.82 (0.64,1.05)	1.05 (0.83,1.33)	0.89 (0.71,1.11)	1.18 (0.92,1.51)	0.85 (0.68,1.05)
Drug use – last month	No										
	Yes		2.91 (2.26,3.75)	2.67 (1.75,4.09)	2.89 (2.10,3.96)	2.92 (1.96,4.35)	2.65 (1.9,3.69)	2.71 (1.9,3.88)	2.92 (2.04,4.18)	2.49 (1.78,3.47)	3.32 (2.25,4.92)
		Compared to baseline – OR (95% CI)	-	0.92 (0.56,1.51)	0.99 (0.66,1.49)	1.04 (0.63,1.61)	0.91 (0.60,1.38)	0.93 (0.60,1.45)	1.004 (0.65,1.56)	0.85 (0.56,1.30)	1.14 (0.72,1.82)
Satisfaction with life	Yes										
	No		3.95 (3.02,5.17)	3.69 (2.30,5.93)	3.96 (2.85,5.48)	3.26 (2.12,5.01)	4.23 (3.00,5.96)	3.41 (2.35,4.94)	4.31 (2.92,6.37)	3.70 (2.54,5.38)	4.09 (2.78,6.01)

		Compared to baseline – OR (95% CI)	-	0.93 (0.54,1.61)	1.00 (0.66,1.53)	0.82 (0.50,1.37)	1.07 (0.69,1.65)	0.86 (0.55,1.36)	1.09 (0.68,1.75)	0.94 (0.59,1.48)	1.03 (0.65,1.65)
Smoking before pregnancy	No										
	Yes		1.48 (1.34,1.63)	1.34 (1.10,1.62)	1.48 (1.32,1.66)	1.34 (1.12,1.61)	1.47 (1.31,1.66)	1.38 (1.18,1.6)	1.48 (1.29,1.69)	1.33 (1.14,1.54)	1.54 (1.34,1.76)
		Compared to baseline – OR (95% CI)	-	0.90 (0.73,1.12)	1.00 (0.86,1.17)	0.91 (0.74,1.12)	0.995 (0.85,1.16)	0.93 (0.78,1.12)	1.00 (0.85,1.18)	0.90 (0.75,1.07)	1.04 (0.88,1.23)
Drinking before pregnancy	No										
	Yes		1.22 (1.09,1.37)	1.19 (0.96,1.48)	1.25 (1.09,1.43)	1.37 (1.12,1.67)	1.20 (1.04,1.38)	1.41 (1.20,1.67)	1.15 (0.98,1.34)	1.37 (1.17,1.61)	1.16 (0.98,1.36)
		Compared to baseline – OR (95% CI)	-	0.97 (0.76,1.24)	1.02 (0.85,1.21)	1.12 (0.89,1.41)	0.98 (0.82,1.17)	1.15 (0.94,1.41)	0.94 (0.77,1.14)	1.12 (0.92,1.36)	0.94 (0.77,1.15)
Smoking during pregnancy	No										
	Yes		1.49 (1.34,1.65)	1.31 (1.08,1.59)	1.50 (1.33,1.70)	1.36 (1.14,1.64)	1.47 (1.30,1.67)	1.47 (1.26,1.71)	1.41 (1.23,1.62)	1.39 (1.20,1.61)	1.50 (1.30,1.73)
		Compared to baseline – OR (95% CI)	-	0.88 (0.71,1.09)	1.01 (0.86,1.19)	0.92 (0.74,1.13)	0.99 (0.84,1.16)	0.99 (0.82,1.19)	0.95 (0.8,1.13)	0.93 (0.78,1.12)	1.01 (0.84,1.20)
Drinking during pregnancy	No										
	Yes		1.08 (0.97,1.19)	0.98 (0.81,1.18)	1.11 (0.99,1.25)	1.15 (0.96,1.38)	1.06 (0.94,1.19)	1.22 (1.05,1.42)	1.01 (0.89,1.15)	1.17 (1.01,1.35)	1.03 (0.9,1.18)
		Compared to baseline – OR (95% CI)	-	0.91 (0.73,1.13)	1.04 (0.89,1.21)	1.07 (0.87,1.32)	0.98 (0.84,1.15)	1.13 (0.95,1.36)	0.94 (0.80,1.11)	1.09 (0.91,1.3)	0.96 (0.81,1.13)
Employment	Yes										
	No		1.10 (0.99,1.23)	1.13 (0.90,1.43)	1.14 (1.01,1.3)	1.07 (0.85,1.33)	1.19 (1.04,1.35)	1.09 (0.91,1.3)	1.20 (1.04,1.38)	1.16 (0.98,1.39)	1.14 (0.99,1.32)
		Compared to baseline – OR (95% CI)	-	1.03 (0.88,1.22)	1.03 (0.79,1.33)	1.08 (0.91,1.27)	0.97 (0.75,1.24)	1.08 (0.90,1.30)	0.99 (0.80,1.22)	1.03 (0.86,1.24)	1.06 (0.86,1.30)
Accommodation	Own										
	Rent		1.84 (1.65,2.05)	1.41 (1.13,1.75)	1.91 (1.68,2.17)	1.54 (1.26,1.90)	1.84 (1.62,2.10)	1.73 (1.46,2.05)	1.77 (1.53,2.04)	1.73 (1.47,2.04)	1.83 (1.58,2.13)

	other	Compared to baseline – OR (95% CI)	-	0.77 (0.60,0.98)	1.04 (0.88,1.23)	0.84 (0.67,1.06)	1.00 (0.85,1.19)	0.94 (0.77,1.15)	0.96 (0.8,1.15)	0.94 (0.78,1.15)	1.00 (0.83,1.20)
			4.73 (4,5.61)	3.52 (2.57,4.82)	5.00 (4.07,6.13)	4.12 (3.03,5.59)	4.70 (3.83,5.77)	4.59 (3.56,5.92)	4.46 (3.54,5.61)	4.71 (3.68,6.02)	4.47 (3.52,5.66)
		Compared to baseline – OR (95% CI)	-	0.74 (0.52,1.06)	1.06 (0.81,1.38)	0.87 (0.61,1.23)	0.99 (0.76,1.30)	0.97 (0.72,1.32)	0.94 (0.71,1.25)	0.99 (0.74,1.34)	0.94 (0.71,1.26)
Ethnicity	Caucasian Aboriginal/ Islander		1.62 (1.23,2.14)	2.35 (1.51,3.66)	1.02 (0.70,1.48)	1.89 (1.23,2.90)	1.22 (0.84,1.77)	1.65 (1.16,2.34)	1.17 (0.73,1.85)	1.55 (1.11,2.17)	1.35 (0.82,2.21)
	Others	Compared to baseline – OR (95% CI)	-	1.45 (0.86,2.44)	0.63 (0.40,1.00)	1.17 (0.70,1.94)	0.75 (0.47,1.19)	1.02 (0.65,1.59)	0.72 (0.42,1.23)	0.96 (0.62,1.48)	0.83 (0.47,1.46)
			0.81 (0.62,1.04)	0.66 (0.43,1.01)	0.86 (0.62,1.18)	0.54 (0.37,0.80)	0.99 (0.70,1.39)	0.56 (0.40,0.79)	1.14 (0.77,1.68)	0.58 (0.42,0.81)	1.20 (0.78,1.84)
		Compared to baseline – OR (95% CI)	-	0.82 (0.50,1.35)	1.06 (0.71,1.60)	0.67 (0.42,1.07)	1.22 (0.80,1.87)	0.70 (0.46,1.06)	1.41 (0.89,2.26)	0.73 (0.48,1.09)	1.49 (0.90,2.45)
Country of birth	Australia English speaking country		0.88 (0.76,1.01)	0.89 (0.69,1.14)	0.84 (0.71,0.99)	0.77 (0.61,0.98)	0.88 (0.74,1.05)	0.82 (0.67,1.01)	0.87 (0.72,1.05)	0.86 (0.70,1.04)	0.85 (0.7,1.03)
	Non-English speaking country	Compared to baseline – OR (95% CI)	-	1.01 (0.76,1.35)	0.95 (0.77,1.19)	0.88 (0.67,1.16)	1.00 (0.80,1.25)	0.94 (0.73,1.21)	0.99 (0.78,1.25)	0.98 (0.77,1.25)	0.96 (0.76,1.23)
			0.76 (0.65,0.89)	0.70 (0.52,0.93)	0.76 (0.62,0.92)	0.55 (0.42,0.71)	0.86 (0.70,1.06)	0.51 (0.41,0.64)	1.05 (0.83,1.34)	0.60 (0.48,0.74)	0.94 (0.73,1.20)
		Compared to baseline – OR (95% CI)	-	0.92 (0.66,1.28)	1.00 (0.77,1.29)	0.72 (0.52,0.98)	1.13 (0.87,1.47)	0.67 (0.51,0.89)	1.39 (1.04,1.85)	0.78 (0.60,1.03)	1.23 (0.92,1.66)

*Group A: if the FLU status of an individual happened to be ***'lost'*** at the subsequent wave

*Group B: if the FLU status of an individual happened to be ***'followed'*** at the subsequent wave

Table 3: Estimates of the association (odds ratio and 95% CI) between baseline predictors and early pregnancy smoking for those retained in the study (Group A) and those lost to follow-up (Group B).

Predictors	Status	No	Effect	All 6753 women at baseline	6753 women at baseline partitioned based on FLU status at 5-year		6753 women at baseline partitioned based on FLU status at 14-year		6753 women at baseline partitioned based on FLU status at 21-year		6753 women at baseline partitioned based on FLU status at 27-year	
				(N=6753)	Group A* (N=1910)	Group B* (N=4843)	Group A* (N=2144)	Group B* (N=4609)	Group A* (N=3038)	Group B* (N=3715)	Group A* (N=3195)	Group B* (N=3558)
Receiving benefit	No				LTFU	Retained	LTFU	Retained	LTFU	Retained	LTFU	Retained
	Yes			2.62 (2.29,3.00)	1.84 (1.48,2.28)	2.97 (2.5,3.54)	1.90 (1.55,2.33)	3.02 (2.52,3.62)	2.19 (1.83,2.63)	2.96 (2.42,3.63)	2.12 (1.78,2.53)	3.01 (2.43,3.72)
			Compared to baseline – OR (95% CI)	-	0.70 (0.54,0.90)	1.13 (0.91,1.41)	0.72 (0.57,0.93)	1.15 (0.92,1.44)	0.84 (0.67,1.05)	1.13 (0.88,1.44)	0.81 (0.65,1.01)	1.15 (0.89,1.47)
Problem with law	No											
	Yes			2.70 (2.09,3.48)	2.67 (1.75,4.07)	2.50 (1.81,3.45)	2.27 (1.56,3.30)	2.73 (1.93,3.88)	2.38 (1.7,3.32)	2.82 (1.9,4.2)	2.46 (1.75,3.44)	2.67 (1.81,3.96)
			Compared to baseline – OR (95% CI)	-	0.99 (0.6,1.62)	0.93 (0.61,1.40)	0.84 (0.54,1.32)	1.01 (0.66,1.56)	0.88 (0.58,1.34)	1.05 (0.65,1.68)	0.91 (0.6,1.39)	0.99 (0.62,1.58)
Marital status	Married											
	Not married			3.40 (3.02,3.83)	2.99 (2.44,3.66)	3.40 (2.93,3.96)	2.99 (2.46,3.62)	3.43 (2.94,4.00)	3.25 (2.75,3.84)	3.31 (2.79,3.94)	3.12 (2.65,3.68)	3.37 (2.83,4.03)
			Compared to baseline – OR (95% CI)	-	1.00 (0.83,1.21)	0.88 (0.70,1.11)	1.01 (0.83,1.23)	0.88 (0.70,1.10)	0.97 (0.79,1.20)	0.96 (0.78,1.17)	0.99 (0.80,1.23)	0.92 (0.75,1.13)
Planned Pregnancy	Yes											
	No			1.48 (1.34,1.63)	1.34 (1.10,1.62)	1.48 (1.32,1.66)	1.34 (1.12,1.61)	1.47 (1.31,1.66)	1.38 (1.18,1.6)	1.48 (1.29,1.69)	1.33 (1.14,1.54)	1.54 (1.34,1.76)
			Compared to baseline – OR (95% CI)	-	0.90 (0.73,1.12)	1.00 (0.86,1.17)	0.91 (0.74,1.12)	1.00 (0.85,1.16)	0.93 (0.78,1.12)	1.00 (0.85,1.18)	0.90 (0.75,1.07)	1.04 (0.88,1.23)
Drug use – last month	No											
	Yes			5.26 (3.99,6.92)	4.11 (2.63,6.43)	5.68 (4.00,8.06)	3.70 (2.50,5.48)	6.38 (4.33,9.41)	4.68 (3.20,6.83)	5.61 (3.76,8.38)	4.66 (3.21,6.77)	5.55 (3.68,8.37)

		Compared to baseline – OR (95% CI)	-	0.78 (0.46,1.32)	1.08 (0.69,1.69)	0.70 (0.44,1.14)	1.21 (0.75,1.95)	0.89 (0.56,1.42)	1.07 (0.66,1.74)	0.89 (0.56,1.41)	1.06 (0.64,1.73)
Satisfaction with life	Yes										
	No		1.53 (1.24,1.88)	1.41 (0.99,2.00)	1.51 (1.17,1.95)	1.47 (1.05,2.04)	1.46 (1.12,1.91)	1.28 (0.97,1.70)	1.73 (1.27,2.34)	1.31 (0.99,1.74)	1.70 (1.25,2.30)
		Compared to baseline – OR (95% CI)	-	0.92 (0.61,1.38)	0.99 (0.71,1.37)	0.96 (0.65,1.42)	0.95 (0.68,1.34)	0.84 (0.59,1.19)	1.13 (0.78,1.63)	0.86 (0.60,1.21)	1.11 (0.77,1.60)
Drinking before pregnancy	Yes										
	Yes		2.71 (2.41,3.05)	3.87 (3.11,4.82)	2.38 (2.07,2.74)	3.45 (2.83,4.21)	2.52 (2.18,2.92)	3.35 (2.83,3.95)	2.41 (2.04,2.84)	3.49 (2.97,4.11)	2.33 (1.96,2.77)
		Compared to baseline – OR (95% CI)	-	1.43 (1.12,1.83)	0.88 (0.73,1.06)	1.27 (1.01,1.60)	0.93 (0.77,1.12)	1.23 (1.01,1.51)	0.89 (0.72,1.09)	1.29 (1.06,1.58)	0.86 (0.70,1.06)
Smoking during pregnancy	No										
	Yes		614 (383,982)	641 (263,1565)	592 (340,1030)	713 (292,1737)	564 (324,982)	878 (390,1976)	472 (265,842)	749 (353,1588)	511 (279,935)
		Compared to baseline – OR (95% CI)	-	1.04 (0.38,2.86)	0.96 (0.47,1.99)	1.16 (0.42,3.18)	0.92 (0.44,1.90)	1.43 (0.56,3.65)	0.77 (0.37,1.62)	1.22 (0.50,2.96)	0.83 (0.39,1.79)
Drinking during pregnancy	No										
	Yes		1.59 (1.44,1.75)	1.99 (1.66,2.40)	1.47 (1.31,1.65)	1.91 (1.60,2.27)	1.49 (1.33,1.68)	1.86 (1.61,2.15)	1.46 (1.28,1.67)	2.08 (1.80,2.41)	1.33 (1.16,1.51)
		Compared to baseline – OR (95% CI)	-	1.25 (1.02,1.55)	0.93 (0.80,1.07)	1.20 (0.98,1.47)	0.94 (0.81,1.09)	1.17 (0.98,1.39)	0.92 (0.78,1.08)	1.31 (1.10,1.56)	0.83 (0.71,0.98)
Employment	Yes										
	No		0.86 (0.78,0.96)	0.72 (0.57,0.90)	0.96 (0.85,1.09)	0.73 (0.59,0.91)	0.98 (0.86,1.11)	0.80 (0.67,0.94)	0.97 (0.84,1.12)	0.82 (0.69,0.97)	0.99 (0.86,1.14)
		Compared to baseline – OR (95% CI)	-	1.11 (0.95,1.31)	0.83 (0.65,1.06)	1.11 (0.96,1.13)	0.85 (0.67,1.08)	0.80 (0.67,0.94)	0.92 (0.75,1.13)	1.14 (0.96,1.36)	0.95 (0.78,1.16)
Accommodation	Own										
	Rent		2.33 (2.09,2.59)	1.86 (1.5,2.31)	2.35 (2.07,2.67)	2.15 (1.75,2.63)	2.23 (1.96,2.54)	2.09 (1.77,2.47)	2.38 (2.06,2.75)	2.23 (1.90,2.62)	2.18 (1.88,2.52)

		Compared to baseline – OR (95% CI)	-	0.80 (0.63,1.01)	1.01 (0.85,1.19)	0.92 (0.73,1.16)	0.96 (0.81,1.13)	0.90 (0.74,1.09)	1.02 (0.85,1.22)	0.96 (0.79,1.16)	0.93 (0.78,1.12)
	other		2.85 (2.46,3.31)	2.17 (1.64,2.86)	2.96 (2.48,3.54)	2.26 (1.74,2.94)	3.01 (2.51,3.61)	2.75 (2.21,3.42)	2.70 (2.21,3.31)	2.45 (1.98,3.02)	3.03 (2.46,3.73)
		Compared to baseline – OR (95% CI)	-	0.76 (0.56,1.04)	1.04 (0.82,1.31)	0.79 (0.59,1.07)	1.05 (0.84,1.33)	0.96 (0.74,1.25)	0.95 (0.74,1.22)	0.86 (0.66,1.11)	1.06 (0.82,1.37)
	Caucasian Aboriginal/ Islander		1.26 (0.98,1.63)	0.95 (0.66,1.36)	1.29 (0.89,1.86)	1.00 (0.70,1.44)	1.27 (0.88,1.83)	0.95 (0.69,1.29)	1.63 (1.04,2.57)	0.97 (0.71,1.31)	1.46 (0.92,2.34)
		Compared to baseline – OR (95% CI)	-	0.75 (0.48,1.17)	1.02 (0.66,1.60)	0.79 (0.51,1.23)	1.01 (0.64,1.57)	0.75 (0.50,1.12)	1.29 (0.77,2.18)	0.77 (0.52,1.14)	1.16 (0.68,1.98)
Ethnicity	Others		0.21 (0.15,0.29)	0.09 (0.05,0.17)	0.30 (0.20,0.44)	0.12 (0.07,0.21)	0.28 (0.19,0.43)	0.11 (0.07,0.18)	0.39 (0.25,0.61)	0.11 (0.07,0.18)	0.44 (0.27,0.71)
		Compared to baseline – OR (95% CI)	-	0.44 (0.22,0.89)	1.41 (0.86,2.33)	0.58 (0.32,1.07)	1.33 (0.78,2.26)	0.53 (0.30,0.95)	1.85 (1.06,3.21)	0.53 (0.31,0.93)	2.07 (1.16,3.69)
	Australia English speaking country		1.01 (0.88,1.16)	1.04 (0.81,1.33)	0.95 (0.80,1.12)	1.06 (0.84,1.33)	0.92 (0.78,1.09)	1.01 (0.82,1.23)	0.96 (0.80,1.16)	0.96 (0.79,1.17)	0.97 (0.80,1.18)
		Compared to baseline – OR (95% CI)	-	1.03 (0.78,1.36)	0.94 (0.76,1.16)	1.04 (0.80,1.37)	0.91 (0.73,1.13)	0.99 (0.78,1.27)	0.95 (0.76,1.20)	0.95 (0.75,1.21)	0.96 (0.76,1.22)
Country of birth	Non-English speaking country		0.41 (0.35,0.49)	0.33 (0.25,0.44)	0.44 (0.35,0.54)	0.27 (0.20,0.36)	0.50 (0.40,0.62)	0.29 (0.23,0.37)	0.55 (0.43,0.71)	0.28 (0.22,0.35)	0.59 (0.46,0.77)
		Compared to baseline – OR (95% CI)	-	0.80 (0.57,1.12)	1.05 (0.81,1.38)	0.65 (0.47,0.90)	1.21 (0.92,1.59)	0.71 (0.53,0.95)	1.34 (0.99,1.80)	0.67 (0.51,0.89)	1.43 (1.05,1.95)

*Group A: if the FLU status of an individual happened to be ***'lost'*** at the subsequent wave

*Group B: if the FLU status of an individual happened to be ***'followed'*** at the subsequent wave

Declarations

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Conflicts of Interest

None.

Availability of data and material

The data sets are held by the principal investigators. They are available on request, contact Professor Jake Najman in the first instance. MUSP welcomes interest in international collaborations. Contact details: j.najman@uq.edu.au