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Article

Trajectories and predictors of alcohol consumption over 21 years of mothers' reproductive life course



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ABSTRACT

Introduction: Little is known about the patterns of women's alcohol consumption over their reproductive life course. This study identifies trajectories of alcohol consumption by mothers over 21 years of their reproductive life course and examines baseline predictors of these trajectories.

Methods: Data were obtained from a prospective cohort study of 3715 women in Brisbane, Queensland, Australia over 21 years of follow-up. Women's alcohol consumption was measured by frequency and quantity of use across the surveys. Potential predictors and confounding variables were assessed at baseline. Group based-trajectory modelling was used to identify typical drinking trajectories over the maternal reproductive life course. Multinomial logistic regression was employed to examine predictors associated with these trajectories.

Results: Four trajectories of alcohol consumption were identified for mothers over the 21-year period. These trajectories included abstainers (11.9%), low-stable drinkers (58.0%), moderate-escalating drinkers (25.3%), and heavy-escalating drinkers (4.8%). After adjustment for significant covariates, membership of the abstaining trajectory was predicted by lower family income, being married, and high frequency of church attendance while membership of the heavier-escalating trajectory was associated with women who were not currently married, never went church and had unhealthy lifestyle behaviours.

Conclusions: Patterns of women's alcohol consumption exhibit a high level of stability for abstainers and women who drink at low levels. After the birth of their child, there are some changes in alcohol consumption for the moderate and heavy-escalating alcohol consumption groups. Low risk patterns of consumption are associated with variables which generally reflected a low risk behaviour lifestyle. Intervention programmes should particularly target women engaging in the heavy-escalating alcohol consumption group as this group increase their consumption shortly after the birth of their child. There is a need to understand more about the social and health consequences to mothers and their children of being in the moderate and heavy-escalating drinking trajectory groups.

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1. Introduction

The pattern of maternal alcohol consumption over the reproductive life course is greatly understudied. Research involving women's use of alcohol has tended to focus on short periods of their lives, generally during pregnancy (Anderson et al., 2013; Maloney et al., 2011; Liu, Mumford & Petras, 2014) or old age (Brennan et al., 2011; Molander, Yonker & Krahn, 2010), with little interest in the maternal reproductive life course. The reproductive life course stage for women involves a period of relatively good

health but with numerous competing commitments. Childrearing may be the central activity during this period but the formation and maintenance of a dyadic partnership, the initiation and development of a career, the maintenance and enhancement of social networks, and major transitions involving the death of parents, marital breakdown, and the growing independence of children are all characteristic exposures during the reproductive life course (Mishra, Cooper & Kuh, 2010; Evans, 1985; Neve, Lemmens & Drop, 2000). There is a need to know more about how women transition through this life stage.

1.1. The changes of women's alcohol consumption

Much of what is known about alcohol consumption over a mothers' reproductive life is derived from cross-sectional studies

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involving comparisons of alcohol consumption by different age groups (Geels et al., 2013; Wilsnack, 2012). The evidence shows that high levels of drinking are common in younger women, and that alcohol consumption levels decline in middle and old age (Wilsnack, 2012; Roche & Deehan, 2002; Australian Institute of Health and Welfare, 2010). Some longitudinal studies examining alcohol consumption by women have identified multiple drinking trajectories, including patterns of stable consumption, increasing consumption, decreasing consumption, and a curvilinear pattern (Brennan et al., 2011; Platt, Sloan & Costanzo, 2010; Powers & Young, 2008; Gee et al., 2007; Cook et al., 2013). This line of studies has contributed important information about the multiple trajectories of alcohol consumption by women as they progress through their life stages. Longitudinal studies have focused on either middle-aged or older women (Brennan et al., 2011; Platt et al., 2010; Powers & Young, 2008) or non-population-based samples (Cook et al., 2013). Relatively few have examined the development trajectory of maternal alcohol consumption over women's reproductive life course.

1.2. Characteristics associated with the changes of women's alcohol consumption

Previous studies have suggested that changes in alcohol consumption by reproductive aged women are associated with family-related characteristics such as income, marital status, the number of children, religiosity, and childrearing/parenthood (Ahlström, Bloomfield & Knibbe, 2001; Kuntsche, Knibbe & Gmel, 2012; Paradis, 2011; Bachman et al., 2013). According to these studies, being married, having child/children, and taking parental responsibility limit the opportunities that women may have for recreational drinking or becoming heavy drinkers. However, there are some gaps in knowledge which this paper aims to address. For example, there is little explicit information about alcohol consumption over the whole period of childrearing. Much of the literature has focused on the foetal outcomes of alcohol consumption in pregnancy. Few if any look at the whole period the child is reared. Some studies suggest that women with fewer children are more likely to be abstainers (Neve et al., 1996; Hotham et al., 2008; Tamaki et al., 2008). There is also the suggestion that having and rearing more children may be stressful and lead to higher levels of what is sometimes described as self-medication with alcohol (Tran, Najman & Hayatbakhsh, 2014; Perkin et al., 1993; Alati et al., 2005).

We use prospectively collected data involving a sample of reproductive aged-women in Brisbane, Queensland, Australia with 21 years of follow-up to (i) identify typical trajectories of alcohol consumption exhibited by mothers over their reproductive life course; and (ii) document the predictors of these trajectories.

2. Materials and methods

2.1. Data source

Data were taken from the Mater-University of Queensland Study of Pregnancy (MUSP), a prospective pre-birth cohort study of 6753 women who gave birth to a live singleton baby at one of the two major public obstetric hospitals in Brisbane between 1981 and 1984. Details of the study have been described elsewhere (Najman et al., 2014). Women, who participated in the study at their first prenatal visit (Time 1), approximately 18 weeks' gestation with standard deviation (*S.D.*)=5.83, were asked about their alcohol consumption, social demographic characteristics, life style behaviours, and other health related information. These mothers were followed-up at 6 months (Time 2), and then at 5 (Time 3), 14 (Time 4), and 21 years (Time 5) after the birth of their baby. Ethics committees from the

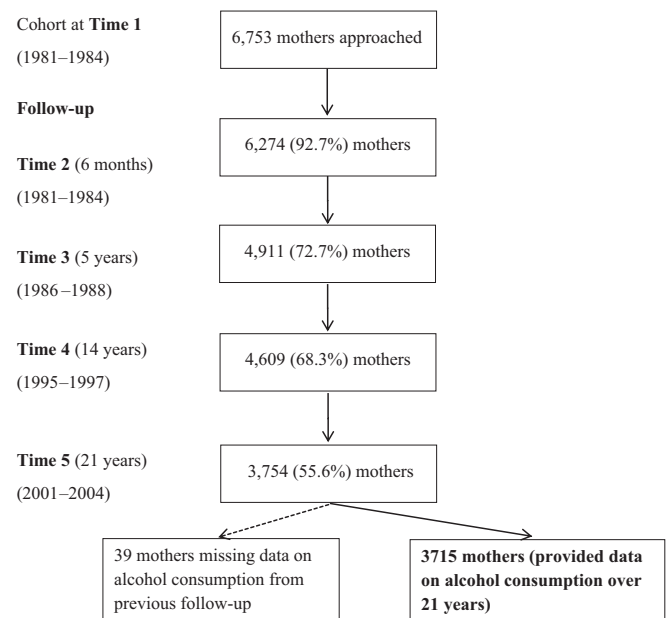


Fig. 1. Flow chart – sampling frame and retention rate.

Mater Hospital and The University of Queensland approved each phase of the study.

Of the 3754 mothers at Time 5 (21 years), 2976 had provided complete alcohol consumption data over five time points; and 739 had provided alcohol consumption data for four of the five time points. We conducted a series of sensitivity analyses which compared the results from the sample of 2976 mothers with the results from the sample of 3715 mothers. The analyses produced similar results for the two samples suggesting there was no difference between them. This study is based on the sample of 3715 women from all consecutive women giving birth in a public hospital over a three-year period (between 1981 and 1984) who were followed up over 21 years. Fig. 1 provides details and a flow-chart of the retention rate of the sample. Mean age of mothers at recruitment time was 25.5 (*S.D.*=5.03). Of the women in this sample, about 64.0% had completed high school while 20.0% were in tertiary education, and 16% had not finished high school. Some 80.0% of women were married and about 30.0% of women were living in a family at or below poverty (\$10,399 or less per year at the time of recruitment). At baseline, about 4.7% of women met the criteria for depression and 11.0% of women were found to meet the criteria for anxiety. About 88.0% of mothers had healthy lifestyle behaviours; 2.0% of women met the criteria for a high level of adversity at their first clinic visit.

2.2. Measures

2.2.1. Alcohol consumption

In this study, a frequency and quantity question to measure the mothers' alcohol consumption was repeated across five time points. Alcohol consumption at Time 1 (pre-pregnancy) was retrospectively assessed at the first prenatal visit; while post-birth, consumption at Time 2 (6 months), Time 3 (5 years), Time 4 (14 years), and Time 5 (21 years) was assessed from the mother's self-report. At each survey, the women were asked how often they drank alcohol¹ and how much alcohol they consumed on each

¹ Alcohol questions all asked about current usual consumption with the exception of the baseline questionnaire which asked about usual consumption prior to pregnancy.

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