

Mothers' and their Children's Health (MatCH): Case Study

MatCH is one of five cohort studies embedded in the *Australian Longitudinal Study on Women's Health* (ALSWH— also known as Women's Health Australia). MatCH is increasing our understanding of the intergenerational determinants of child health and development in Australia, and MatCH data are providing an unprecedented opportunity to investigate preconception and life course determinants of child health outcomes. ALSWH is a national research resource providing an evidence base to assist policy makers to develop and evaluate policy and practice in service delivery areas affecting women.



Origin

A healthy adulthood is critically determined by good health in childhood, and before that, by strong maternal health. Cohort studies can inform health policy by facilitating research about the evolution of health problems across the life course.

MatCH is investigating the extent to which the history of maternal health and wellbeing, along with characteristics of the family environment, leads to disparities in child health, development and health service use.

In 2012, a sample of mothers from ALSWH's 1973-78 cohort was surveyed for feedback on the proposed MatCH study. Respondents were strongly supportive. Following NHMRC funding in 2014, other mothers took part in focus groups and short telephone interviews. A pilot survey began in 2015.

In 2016, 8,819 women from the total ALSWH 1973-78 cohort of 14,247 were invited to take part in MatCH. The final study design focused on up to three birth children, aged under 13 years, per mother.

ALSWH is a longitudinal survey of over 57,000 women in three cohorts who were aged 18-23, 45-50 and 70-75 when surveys began in 1996. A fourth cohort, aged 18-23, was recruited in 2012-13. ALSWH assesses women's physical and mental health, as well as socio-demographic and lifestyle factors, and their use of health services. The Department of Health has funded ALSWH since 1996.

Grants and Investments

NHMRC
In addition to funding the MatCH study, NHMRC has supported a number of key MatCH researchers.

Professor Gita Mishra

- Project Grants: 2012, 2017
- MatCH Project Grant: 2014
- Principal Research Fellowship: 2017
- Centre of Research Excellence (CRE) on Women and Non-communicable Disease (CREWand): 2019

Professor Annette Dobson

- Project Grants: 1988, 1993, 2000, 2003
- Targeted Calls for Research (TCR): 2002, 2006
- CRE in Women's Health in the 21st Century (CREWH21): 2010

Associate Professor Kylie Hesketh

- Postgraduate Scholarship: 2001
- Early Career Fellowship: 2005
- Project Grants: 2011, 2019

Associate Professor Leigh Tooth

- Early Career Fellowship: 1999

Other grants

- 2013: Australian Research Council (ARC) Future Fellowship (Mishra)



Collaborations/Data linkage

The MatCH team includes researchers from five different national and international research institutions, and the disciplines of public health, child health, psychology, and generational health and ageing. Partners include The University of Queensland (UQ), The University of Newcastle (UoN), Deakin University, Telethon Kids Institute, and Stockholm University and Karolinska Institutet, Sweden.

Data linkage and data reuse are methodological strengths of the study. The data collected from MatCH are able to be linked with maternal data from women in ALSWH, representing over 20 years of data available on the participants.

MatCH relies on relationships with national, state and territory Data Linkage Units and education authorities, for access to maternal Medicare and perinatal data collections, as well as linked child records from the Australian Early Development Census (AEDC) and National Assessment Program – Literacy and Numeracy (NAPLAN).

Data on school readiness and early childhood as well as educational data are able to inform findings of the MatCH cohort. AEDC data were linked to the study data in 2017 and linkage to NAPLAN data was first undertaken in 2019.

As with other data collected by ALSWH, the data sets from the MatCH cohort will be made available, when appropriate, to other researchers.

Research and Translation

The baseline survey (2016-17) captured children's health conditions, symptoms of illness and other variables including diet, growth, physical activity, social and emotional development, health service use, plus household and environmental factors.

A total of 3,048 mothers responded to the survey and provided data about 5,799 children, 52% of whom were boys. The numbers by age group were:

- 328 (0-1 years)
- 1,055 (2-4 years)
- 4,416 (5-12 years)

Moderate to severe longstanding health conditions were reported for 4.6% of children. However, moderate to severe longstanding symptoms of illness were reported for 22% children. Overall, 17% had sleep problems and 16% were overweight or obese.

The MatCH team is currently examining a range of issues including: the determinants of asthma; obesity-related behaviour; predictors of healthy eating; allergy and fast food consumption; child outcomes among women who have experienced violence; and exposure to green space, air and noise pollution.

Percentage of MatCH children exceeding screen time Guideline

Age	National Guideline	Percentage exceeding Guideline	
		Weekdays	Weekends
< 1 year	Nil exposure	66%	65%
< 2 years	Nil exposure	46%	78%
< 3 years	Max 1 hour per day	53%	72%
< 4 years	Max 1 hour per day	50%	72%

Outcomes and Impact

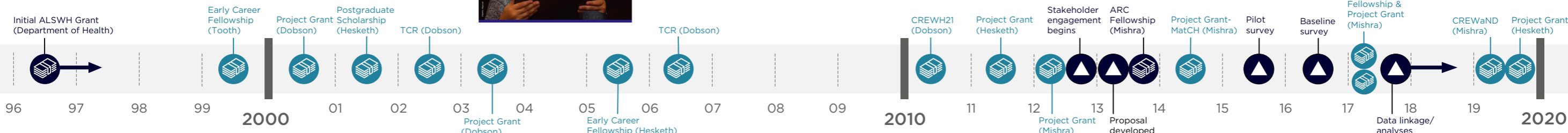
MatCH has delivered key advice for health professionals about pre-pregnancy health screening for women of child-bearing age.

Published findings from MatCH include:

- Maternal weight trajectories affect child growth and development. Maintaining a healthy pre-conception body weight not only reduces the risk of obesity for the child, it is also important for child physical and cognitive development. (These findings contributed to a submission to the Select Committee on the obesity epidemic in Australia, Department of the Senate, in July 2018.)
- Pre-conception depression affects post-birth mental health and parenting. Maternal depression should be addressed pre-conception for optimal child psycho-social development.

MatCH has also delivered important messages for the community on children's screen time and physical activity:

- Media coverage after publication of findings showing excessive screen time among young children helped inform parents about current national screen time guidelines and the importance of play and movement for development.
- Children (5-12 years) who have access to fixed play equipment like swings and slides and fewer electronic devices were more likely to meet national physical activity guidelines.



Professor Gita Mishra

Professor Gita Mishra is an NHMRC Principal Research Fellow, Professor of Life Course Epidemiology and the Director of ALSWH at the School of Public Health, UQ. She has held positions as Senior Research Scientist and as Program Leader at Medical Research Council units at Cambridge University and University College London. She is internationally recognised for her contribution to research on life course epidemiology and women's health.

Professor Annette Dobson

Professor Annette Dobson is Professor of Biostatistics and Director of the Centre for Longitudinal and Life Course Research at the School of Public Health, UQ. She was the founding Director of ALSWH and led the NHMRC funded CRE in Women's Health in the 21st Century. She has also led large scale, long term epidemiological studies and is internationally recognised for her expertise in statistical modelling.

A/Professor Leigh Tooth

Associate Professor Leigh Tooth is a Principal Research Fellow at the School of Public Health, UQ, and Deputy Director of ALSWH. She chairs the ALSWH Data Access Committee and leads a program of research into women carers. Her other research interests are health inequalities and the socio-economic determinants of health, quality of life and comorbidity, and more recently, maternal and child outcomes.

Professor Deborah Loxton

Professor Deborah Loxton is Professor of Public Health and Deputy Director of ALSWH at the UoN, where she is also Co-Director of the Research Centre for Generational Health and Ageing. As leader of the Worldwide Wellness of Mothers and Babies program, Loxton leads a team of research fellows and PhD students. Her primary research interests are maternal health and the health impact of adversity and violence on women's health over the life course.

A/Professor Kylie Hesketh

Associate Professor Kylie Hesketh is an Australian Research Council Future Fellow at the Institute for Physical Activity and Nutrition, Deakin University. She leads a program of research on physical activity, sedentary behaviour and obesity prevention in children. Her research focuses on the determinants and outcomes of these health behaviours, and developing family-based interventions to promote physical activity from early life.

Dr Katrina Moss

Dr Katrina Moss is a Postdoctoral Research Fellow on the MatCH study at the School of Public Health, UQ. She has a research background in the psychological sequelae of traumatic exposures, including in military families, hospitalised children, and during pregnancy. Her research aims to improve children's developmental trajectories by better understanding the links between maternal and child health and wellbeing at key points of the life course.