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Title:

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Date:

2021-01-31

Citation:

Hewitt, B. & Walter, M. (2021). The consequences of household composition and household change for Indigenous health: evidence from eight waves of the Longitudinal Study of Indigenous Children (LSIC). *Health Sociology Review*, 31 (2), <https://doi.org/10.1080/14461242.2020.1865184>.

Persistent Link:

<https://hdl.handle.net/11343/261161>

# **The consequences of household composition and household change for Indigenous health: Evidence from 8 waves of the Longitudinal Study of Indigenous Children (LSIC)**

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Acknowledgements:

The authors would like to thank Anastasia Sartbayeva and Fiona Skelton for their advice and assistance with analysing the LSIC data. We also thank Laura Dunstan and Huw Peacock for their extremely helpful research assistance on the paper. The data used in this analysis come from *Footprints in Time*—the Longitudinal Study of Indigenous Children (LSIC) that was initiated and is funded by the Australian Government Department of Social Services (DSS). The research findings are the product of the researchers and the views expressed should not be attributed to DSS. The Study would never have been possible without the support and trust of the Aboriginal and Torres Strait Islander families who open their doors to the researchers and generously give their time to talk openly about their lives. Our gratitude goes to them, and to the leaders and Elders of their communities who are active guardians of their people's wellbeing. This research was supported by funding from the Australian Research Council Grants FT140100861 and LP160100111.

Weblink to LSIC study:

<https://www.dss.gov.au/about-the-department/publications-articles/research-publications/longitudinal-data-initiatives/footprints-in-time-the-longitudinal-study-of-indigenous-children-lsic>

## **Abstract**

Households are important health contexts, providing social, emotional, financial and material support, but little is known about the role of household composition in the social etiology of Indigenous health. Our research is framed by an Indigenous standpoint, using 8 waves of data from the Longitudinal Study of Indigenous Children. We investigated whether household composition and change in household composition were associated with the self-reported general health of Indigenous children and their mothers, adjusting for socioeconomic, household structure and social support factors. Our measure of household composition comprised 8 groups differentiating lone and couple parents, living with and without other children and adults. Study children in couple households with other children and adults were 16% less likely to have excellent health and mothers in these same households were 7% less likely to report excellent health than children and mothers in couple households. We find little evidence that mothers in lone parent households have poorer health than mothers in couple households, after adjustment for covariates. Change in household composition was positively associated with health for both children and mothers. The results caution against presuming a direct translatability of research findings from non-Indigenous to Indigenous Peoples.

Keywords: Indigenous Health, Household Composition, Mothers, Children, Longitudinal

## Introduction

Families and households are one of the most important social health contexts in which individuals are embedded (Fiese, Rhodes, & Bearsdale, 2013). This context has relevance to Aboriginal and Torres Islander<sup>1</sup> health but while family and community are extensively documented social determinants of Indigenous health (Butler et al., 2019), far less attention has been paid to the role of households. In this article we use 8 waves of data from the Longitudinal Study of Indigenous Children (LSIC) to explore the associations between household composition and mothers and children's self-reported general health.

The health and wellbeing of Indigenous people remains far below that of non-Indigenous Australians on every measured indicator and this gap exists despite Indigenous people's health being a high government priority (Australian Institute of Health and Welfare, 2015). Explanators for the failure of Indigenous health policy are multiple and complex (NACCHO, 2020). One growing argument relates to how data collected from Indigenous peoples are understood and deployed as an evidence base. Increasingly Indigenous researchers argue that data collected on Indigenous people should be reframed to reflect their values and priorities in what is measured and how it is analysed (Walter and Suina, 2019).

This claim is not to refute or reject non-Indigenous research. Much of the work on households, relationships and the value of social ties and the resources they bring retains validity. Rather, we argue that all research, is culturally and socially embedded. It is increasingly acknowledged that research findings from non-Indigenous populations are not directly applicable to Indigenous families and households (Porsanger, 2004). Applying such findings to Indigenous contexts can result in inaccurate assumptions and expectations (Walter

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<sup>1</sup> In this article the term 'Indigenous' is used to refer to Aboriginal and Torres Strait Islander families and populations unless otherwise indicated.

and Suina, 2019). Thus, more research framed from Indigenous perspectives and world views is needed.

This article attempts this substantive and methodological reorientation. Throughout the paper we highlight differences between Indigenous and non-Indigenous contexts. The authors are both quantitative researchers, one is non-Indigenous (Hewitt) and the other Indigenous (Walter). We use data from the Longitudinal Study of Indigenous Children (LSIC) to investigate the associations between household composition and health for Aboriginal and Torres Strait Islander families. The LSIC project is guided by an Indigenous standpoint. It is overseen by a majority Aboriginal and Torres Strait Islander Steering Committee, which is the decision-making body on the content of the study and guides the methodological approach. The Steering Committee is tasked with ensuring that the data collected reflects Indigenous values and perspectives and the issues that participant families and communities regard as important (Walter, Dodson, & Barnes, 2017). All interviews are undertaken by locally embedded Aboriginal and Torres Strait Islander interviewers (Walter, et al., 2017). In presenting our research and results we deliberately follow a standard quantitative format emphasising that an Indigenous methodological approach does not reduce research rigour.

### **Theory and Background**

In mainstream, non-Indigenous research, different types of households (i.e. couple, lone parent and extended family households) and the people within them have been shown to provide different levels of emotional, social, economic and instrumental support that impact individual health and wellbeing (Hughes and Waite, 2002). However, Aboriginal and Torres Strait Islander households, while sharing similarities with non-Indigenous households in Australia, also differ in respects likely to be important for health and wellbeing. Indigenous households are larger in size, more likely to be lone parent households and frequently change

in composition due to high levels of mobility amongst the Indigenous population (Dockery, 2016; Habibis, 2013). These features of Indigenous households are underpinned by poverty and low socioeconomic status as well as sociocultural obligations to family, kin and community (Dockery, 2016; Walter and Saggars, 2007). As such, most research on Indigenous households has tended towards the negative, examining the health effects of overcrowding, tenure and poor housing quality (N. Biddle, 2011; Habibis, 2013; Memmott, Birdsall-Jones, & Greenop, 2012).

The positive health effects of household composition and the potential support and resources available is less examined. Hughes and Waite (2002), with reference to a mainstream US population, identify several mechanisms whereby household composition operates to influence health. These mechanisms have some salience to Indigenous households. The first mechanism is that household interactions and exchanges are shaped by a range of norms and expectations regarding general behaviour and relationships between household members, who are typically (although not always) family. These exchanges can have both positive (i.e. support and care) and negative (i.e. family arguments) aspects that are associated with health. Second, resources provided to individuals through households and their members are also material, underpinned by a household domestic economy that comprises market work, domestic production and consumption (Hughes and Waite, 2002). Additionally, within households, relationships have an element of reciprocity, both providing resources and making demands on individual family and household members. Intra-household roles and interactions are different from other social roles and role entitlements and responsibilities will vary according to who is in the household at any given point (Hughes and Waite, 2002). Therefore, if demands on an individual household member outweigh the resources available to them, this could result in role strain or overload and negatively impact their health (Waldron, Weiss, & Hughes, 1998). Demands and obligations

also vary depending on a family members role and location within the household (Hughes and Waite, 2002), and we expect general health to differ for mothers compared to children.

The norms, expectations and obligations identified by Hughes and Waite (2002) apply to Indigenous households, but also differ in practice. It therefore cannot be assumed that the associations between household composition and health will be the same for Indigenous peoples. Indigenous families and communities are distinguished by strong sociocultural obligations to provide social and material support, such as shared meals or a place to stay, for kin and extended family members (Walter, 2017). Thus, while the domestic economy of Aboriginal and Torres Strait Islander households is inclusive of all household members, it also encompasses extended family and kin outside the household (Daly, Henry, & Smith, 2002). Obligations towards extended family and kin may place additional demands on households and household members. Conversely, such obligations could also provide household members with additional resources, thereby diminishing the importance of the immediate household context for individual health.

### **Indigenous households and health**

Indigenous households are defined by the Australian Bureau of Statistics (ABS) as households in which at least one Aboriginal and Torres Strait Islander person, of any age, is a usual resident (ABS, 2010). Even framed around this very broad definition, the socio-demographic profile of Aboriginal and Torres Strait Islander households differs from that of non-Indigenous households in three ways, the average size of households, the proportion of lone parent households and the change and stability of households. In the following we discuss the possible implications of these differences for the health of household members.

#### ***Household Size and Health***

Indigenous people's households tend to be larger than non-Indigenous households; 2016 census data suggest an average household size of 3.2 persons in Indigenous compared to 2.6

for non-Indigenous households (ABS, 2017). Several aspects of Indigenous family life contribute to larger household size. First, Aboriginal and Torres Strait Islander people tend to start child bearing early, leading to higher overall fertility rates and larger size families than those of non-Indigenous Australians (N. Biddle and Johnstone, 2015). Second, Indigenous households are 2.8 times more likely than non-Indigenous households to be multiple family households (ABS, 2017). Such households are also more likely to be multigenerational and to include members of extended family and kinship networks (Walter, 2017).

The tendency to larger households could have either positive or negative implications for the health and wellbeing of Indigenous household members depending on the size and composition of the household. Overcrowding has been identified as a significant factor negatively impacting the wellbeing of Indigenous Australians, both adults and children (Butler, et al., 2019) and potentially increasing the risk of infectious disease (Ali, Foster, & Hall, 2018). In addition, research on Ghanaian households finds that children's health may be poorer in households with larger numbers of children, where there is greater competition for care and scarce resources amongst those children (Annim, Awusabo-Asare, & Amo-Adjei, 2015).

On the other hand, if there are several adults in the household contributing resources and care work, a larger household size may be beneficial for the general health of members. Indigenous households are characterised by lower socioeconomic status and higher levels of poverty than non-Indigenous households (Walter and Saggars, 2007). Larger households, particularly those with additional adult kin members, have the capacity to provide more physical and emotional care and financial resources that may improve the health and wellbeing of children and their mothers. For example, research on Indigenous children and youth in Western Australia, found that those living in high occupancy households had better

social and emotional wellbeing than those in low occupancy households (Stephen R. Zubrick et al., 2005).

### ***Lone Parent Households and Health***

Another distinguishing characteristic of Aboriginal and Torres Strait Islander households is that they are 2.5 times more likely to be female-headed, lone parent households (ABS, 2012). Mainstream research from Europe and the US consistently finds that mothers in lone parent households are more likely to have poorer mental health and wellbeing than those in couple households (Avison and Davies, 2005; Witvliet, Arah, Stronks, & Kunst, 2014). The main explanations are the lack of social support and fewer financial resources available. Although, notably research on non-Indigenous Australians finds these factors do not fully explain the health differences between single and partnered mothers (Crosier, Butterworth, & Rodgers, 2007).

The negative health effects of growing up in lone parent households identified in mainstream US and European based research are also found for children. Children growing up in lone parent families experience higher rates of maltreatment (Hango and Houseknecht, 2005; Hunter and Price-Robertson, 2012) and more emotional or behavioural problems (Frisco, Muller, & Frank, 2007).

There is scant research on Indigenous children's and mothers' health in lone parent households. One exception is Biddle (2011) who using the 2008 National Aboriginal and Torres Strait Islander Health Survey found, in contrast to the mainstream research, that adults in single parent households had better self-reported health than adults living in couple households with no children. One explanation for this contrasting finding could be that 'lone parent' does not adequately capture the living arrangements or social and economic resources available to Indigenous mothers (Daly and Smith, 2005). As suggested earlier, Indigenous lone parents are likely to be living with extended family or kin (Walter, 2017).

### ***Change in Household Composition and Health***

Aboriginal and Torres Strait Islander populations also have high levels of geographic mobility and household membership and composition changes frequently (Memmott, et al., 2012). The 2011 Australian census suggests that Aboriginal and Torres Strait Islander people were less likely to be at their permanent residence than non-Indigenous people at the time of data collection (N Biddle and Markham, 2011). Previous analysis of the LSIC data, found that between wave 1 and 2 just over half of study children experienced a change in their households (Walter and Hewitt, 2010). These findings are consistent with a Western Australian study (Walker and Shepherd, 2008) that found Aboriginal children in their study had lived in an average of 3.2 homes by six years of age.

The mobility in the Australian Indigenous population and consequent change in household composition is underpinned by two mechanisms. The first relates to cultural factors, such as maintaining and strengthening relationships with extended family and kin (Dockery, 2016). However, household change and mobility is also associated with housing insecurity related to poverty and poor housing quality amongst the Indigenous population (Anderson, Williamson, Fernando, Eades, & Redman, 2018).

Our investigation builds on previous research in several ways. This is one of the first studies to investigate the associations between household composition and the general health of Indigenous children and their mothers (Butler, et al., 2019). Secondly, we examine change in children's and mothers' health when household composition changes. Third, we investigate the importance of socioeconomic, household environment and household relational resources in explaining the associations between household composition and change in household composition and general health.

### **Methods**

### ***Data and analytic sample***

The data came from 8 waves of the Longitudinal Study of Indigenous Children (LSIC). The study is funded and data collected under the management of the Australian Government Department of Social Services and are available to researchers upon application (see <https://dataverse.ada.edu.au/dataverse/lxic>). As described earlier, LSIC is guided by an Indigenous standpoint and is overseen by a majority Aboriginal and Torres Strait Islander Steering Committee, which frames the study design and content (Walter, et al., 2017).

Wave 1 (2008) comprised 1,687 children and 88 children were added in Wave 2 (2009) (Department of Social Services, 2017). The study comprises two cohorts: a Kindergarten cohort born between December 2003 and November 2004 ( $n = 727$ ); and a Baby cohort born between December 2006 and November 2007 ( $n = 960$ ). A non-representative purposive sampling design was used, recruiting Indigenous children from 11 sites. While not random, this sample was representative of the Aboriginal and Torres Strait Islander population across socioeconomic and community environment indicators. Waves 2 to 8 had wave-on-wave retention rates ranging from 82%-87.2% (Department of Social Services, 2017). At each wave the focal study child (SC) was interviewed and their primary parent or carer (P1) was also interviewed. On average over all waves, the P1 was the SC's biological mother in 90% of cases, in 2% the biological father was P1, and in about 8% of households the study child lived with a P1 who was a non-parent carer (grandparents, Aunties, Uncles, step and foster parents).

Preliminary analysis found the results were the same for the Kindergarten cohort compared to the Baby cohort, and they were combined for analysis. The initial sample included 1,759 children with 2,064 uniquely identified P1s over the 8 waves, but we impose several restrictions. Given our focus on P1 mothers and children we excluded observations where P1s were fathers, step-parents and non-parental carers ( $n=80$  children and  $n=385$  P1s).

We also excluded observations with missing values on the dependent variable and key independent variables (n=192 for SC and n=197 for P1). We use an unbalanced panel, where people who had missing data on one wave or multiple waves were still included in the analysis when they had data available. This enables us to use all available data and increases the statistical power of the models. The final analytic samples comprised 1,499 SC (8,825 observations) and 1,494 P1 Mothers (7,850 observations); 47.9% of the final sample responded to all 8 waves.

## ***Variables***

### *Dependent Variable*

Our dependent variable was a global general health measure based on a question asking whether overall health was: 1) Excellent, 2) Very Good, 3) Good, 4) Fair, and 5) Poor. This scale was reversed so that a higher score indicated excellent health, and due to the small percentage of P1s who reported that their own (2.1%) or the SC's (0.3%) health was poor, we combined the categories fair/poor health. Our final measure indicated: 1) Fair/Poor, 2) Good, 3) Very Good, 4) Excellent. In LSIC this general health measure for both the SC and P1 is based on reports from P1 mothers. The general health measure was not collected about P1s health in wave 8. The global general health measure has been found to be a valid measure for Aboriginal and Torres Strait Islander people whose main language is English (Sibthorpe, Anderson, & Cunningham, 2001). To account for this, we included a control in all our models indicating whether P1 (who answered the question) speaks English as their main language (1=yes, 0=no).

### *Key independent variable: household composition*

Various typologies have emerged over time and in different research settings to categorize household living arrangements (Hammel and Laslett, 1974; Oya, 2015). Our measure attempts to capture some of the diversity and complexity of Aboriginal and Torres Strait

Islander households, differentiating between couple and lone parent households with or without other children<16 and other adults. It comprised 8 categories, including: 1) “parent & partner, study child” (reference), 2) “parent & partner, study child, other adults”, 3) “parent & partner, study child, other children<16”, 4) “parent & partner, study child, children<16, other adults”, 5) “lone parent, study child”, 6) “lone parent, study child, other adults”, 7) “lone parent, study child, children<16”, and 8) “lone parent, study child, children <16, other adults”.

Table 1 here

### *Controls and Covariates*

We included a range of controls and covariates. The summary statistics for these measures and the dependent variable are presented in Table 2. We control for SC’s age in years in the models predicting children’s health and we control for P1 Mother’s age in years in the models predicting mother’s health. We also include a measure indicating whether the SC or P1 has been hurt or badly sick (1=yes) in the last 12 months.

We included a range of socioeconomic factors. We included a measure of whether wages, were the main source of household income (1=yes, 0=no). Housing tenure was measured as 1) renting privately (reference), 2) renting public housing, and 3) owner occupied. P1s education was measured as 1) post high-school qualification, with a referent of high school or less schooling (0). We also included a measure for the Level of Relative Isolation (LORI) of the area in which the study child’s household was located, which influences household access to economic resources and services (S.R. Zubrick et al., 2005), this was coded 1 = urban or regional area and 0 = moderately remote, remote or very remote area.

We also include measures for the household environment that might be important for health. The total number of people living in the household at the time of interview, was

included as a continuous count measure. And a measure for overcrowding (1=yes, 0=no), derived by dividing the total number of people in the household by the number of bedrooms.

We included measures capturing both stressful and supportive aspects of relationships in households, these variables have been used in previous research on Indigenous populations and were found to be important for child social and emotional wellbeing (Young, Craig, Clapham, Williams, & Williamson, 2018; S.R. Zubrick, et al., 2005). For stressors we used indicators of whether the SC or P1 has been involved in or upset by family arguments (1=yes, 0=no), whether any other household members had been involved in or upset by family arguments (1=yes, 0=no) and whether any other children in the household had been sick or hurt (1=yes, 0=no). To capture social support for P1 mothers, we include a measure indicating whether P1 mothers did not have another person to care for SC if needed (1=No, 0=Yes).

Table 2 about here

#### *Analytic approach*

The dependent variable was a 4-point Likert scale, therefore our longitudinal analyses were conducted using ordered logit random effects models, applying a between-within (BW) approach, where a fixed effects estimator is embedded within a random effects (mixed) model (Allison, 2009). All analyses were conducted using *xtologit* in Stata 15.1. BW models, like their fixed-effect counterparts, control for unmeasured characteristics that do not vary over time, but allow the inclusion of time-invariant predictors. The within individual component of the model estimated the average ordered log odds of having poorer health for each respondent across the waves that they were in one type of household and then differenced the averages compared to when they were in another type of household. The differences, when averaged across all respondents in the dataset, provide an estimate of

change in household composition on health. All models were estimated using a robust standard error to adjust for clustering in the survey design (Hewitt, 2012).

We estimated 3 separate models for SC and P1 mothers. Model 1 (M1) was a baseline model of the associations between household composition and health, controlling for age, recent health events and whether P1 spoke English as their main language. Model 2 (M2) added the socioeconomic measures to M1, including wages, housing tenure, P1 education and LORI. Model 3 (M3) added the indicators for household environment and relationships, including overcrowding, total household size, whether P1 had someone to help care for the SC, involvement in family arguments or whether someone other than SC/P1 had been hurt or sick. The measures for SC were included in the model predicting children's health and the measure for P1 was included in the model for mother's health. In the tables we present the estimated coefficient, p-values and confidence intervals. For comparability across models we also present the averaged marginal probability of reporting excellent health for each separate model in Figures 1 to 4 (Norton and Dowd, 2018).

## **Results**

The results for children are presented in Table 3. The top half of the table presents the random effects results, examining differences between children living in different households. In Model 1 there was strong evidence that children in lone parent households had poorer health than children in couple households. The marginal probabilities (Figure 1) indicated that study children in lone parent households were 14-15% less likely to have excellent health. Results also indicated that children living in couple households with other children and adults were 24% less likely to have excellent health, compared to those living in couple households. After adjustment for socioeconomic (M2) and household environment and relationships factors (M3) the associations diminished, but the negative effects remained

for children in couple households with other children and adults, who were 16% less likely to have excellent health than those living in couple households. Weak evidence of a negative health effect also remained after adjustment for children in lone parent households with other children under 16 (and no other adults), who were 10% less likely to have excellent health.

In the lower half of Table 3 we present the fixed effects results, showing within person differences in children's health when their household composition changed. Overall, the results suggested that children had better health with a change in household composition, albeit most effects were small and not significant. In the minimally adjusted model, there was evidence of a positive health effect when children changed to a household with another child <16, they were 6% more likely to have excellent health. There was also a weaker effect observed for children in lone parent households with other children and adults, where they were 5% more likely to have excellent health. After adjustment for socioeconomic factors (M2) these associations remained relatively unchanged, but any associations disappeared after adjustment for household environment and relationship factors (M3).

Table 3 about here

We present the results for mothers in Table 4. The random effects results are in the top half of the table. Model 1 suggests mothers in lone parent households have poorer health, the marginal probabilities (Figure 2) indicated that lone mothers were 8-11% less likely to report excellent health than mothers living with a partner and the SC. The results also indicated that mothers in larger more complex households had poorer health, they were 9% more likely to report fair/poor health and 11% less likely to report excellent health. Adjustment for socioeconomic factors attenuated the associations, particularly for lone mothers, where they remained negative, but evidence of an effect diminished. The effect for mothers in larger couple households with other children and adults remained, where they had a 7% higher probability of reporting fair/poor health and an 8% lower probability of reporting excellent

health. Adjustment for household environment and relationship factors (M3) further attenuated the associations where no significant effects remained.

The fixed effects, within-person change, are presented in the lower half of Table 4. Overall, M1 results indicated that change in household composition was positively associated with health irrespective of household composition. Mothers in couple households who had additional children or in households with additional children and adults had a 4% lower probability of reporting fair/poor health and 3% increased probability of reporting excellent health than mothers in couple households with the study child only. These associations remained after adjustment for socioeconomic factors and were more attenuated with adjustment for household environment and relationship factors. Nevertheless, evidence of a positive health effect remained for partnered mothers who had additional children and also for lone mothers who were living with the study child and other children under 16.

Table 4 about here

## **Discussion and Conclusion**

This study examined whether household composition and change in household composition was associated with the general health of Indigenous children and their mothers. Our results suggest that living in households with parent & partner & children<16 & other adults was negatively associated with both mothers and children's health. Even after adjustment for a range of demographic, sociodemographic, household environment and relationship factors, children in these households had a 16% lower probability of having excellent health, and mothers had a 7% lower probability of reporting excellent health. These large complex households were also relatively common, by wave 8 around 20% of children in our study were living in such households (Table 1). Additional analysis (available on request) suggests that compared to other households, these households tended to be larger in

size, multigenerational and more complex in terms of the kin and extended family members in the household.

This finding is consistent with US and European research on multigenerational migrant families, that finds mothers (Piontak, 2016) and children (Masfety et al., 2019) have poorer mental health outcomes than those not living in multigenerational arrangements. Even though our models account for the total number of people in the household and adjust for overcrowding, these findings suggest there may be other dimensions to these households that are important for health. Possibly, because they have more complex relationships to negotiate, such households place more demands on members and exacerbate issues such as poor housing quality, spread of infectious disease, lack of facilities, privacy and access to physical resources in ways that other household types do not (Ali, et al., 2018; Gove, Hughes, & Galle, 1979).

We find that overall, children in households with other dependent children have poorer general health compared to children living in a couple household with no other children. This general finding is consistent with international research that suggests children in households with other children tend to do less well, particularly if those households are poor, because of increased competition for limited resources (Annim, et al., 2015). One result, not consistent with this conclusion is that we find children in lone parent households with other children, but where there are other adults in the household, do not have poorer health than children living in couple households. This indicates that the high propensity of Indigenous lone parents to live with extended family and kin and the large care group of people available to Indigenous children (Daly and Smith, 2005; Walter, 2017) could be protective of Indigenous children's health, particularly when there are other dependent children in the household.

It is also noteworthy that, after adjustment for socioeconomic circumstances and household factors we find little or no evidence that mothers in lone parent households had

significantly poorer health than mothers in couple households. This contrasts with research on non-Indigenous populations that consistently finds lone mothers to have poorer mental and physical health than mothers in couple households, even after adjustment for demographic and socioeconomic factors (Crosier, et al., 2007; Witvliet, et al., 2014). While the current study was unable to test this fully, this result implies that involvement of extended kinship networks in daily life, both inside and outside the immediate household, and collective community approaches to childrearing are particular strengths of Indigenous culture which mitigate the negative health effects of being a lone parent (Lohoar, Butera, & Kennedy, 2014; Walter, 2017).

We extended previous research by examining the health effects of change in household composition, overall change was positively associated with Indigenous children and mother's health. For some household transitions there are positive events that have occurred, for instance change from a household with only the study child to a household with additional children is often because there has been a birth of another child (Walter and Hewitt, 2010), and this may explain improved health for those transitions. But some transitions imply that couple relationships have ended, such as the transition from a couple household into a lone parent household, and our results indicate transitions into lone parent households also had positive health effects. This is consistent with prior research that suggests relationship dissolution is not bad for health under all circumstances, particularly for women who are more likely to be the partner who ends the relationship (Hewitt and Turrell, 2011). These results require further investigation, but nevertheless suggest that household change is not necessarily bad for the health of Indigenous children and their mothers' at least in the short term.

#### *Study limitations*

The study had a number of notable limitations. First in relation to changes in household composition, it is possible that with only annual measurements of household composition that changes were missed (i.e. expansions and contractions of households around cultural events and ceremonies) therefore underestimating the health effects. It may be that the frequency or number of changes in household composition are more important for health, however, we were not able to investigate this issue. Second, we were not able to include study children who move into non-parental care during the panel as health differences may have been due to the fact that a different person was reporting on the SC's health. Third, we were limited in the measures we were able to include in our models. In particular, we would have liked to include measures capturing engagement with extended family, but few of these questions were asked consistently at every wave and therefore were not included in the current analysis. Fourth, some of our variables have relatively small numbers of households in them, particularly with changes in household composition over time. This reduces the statistical power of the models and increases the likelihood of making a type 2 error, where we accept the null hypotheses (i.e. no significant association) when it is not true. The implications of this for our results is that they are likely to be conservative and underestimate the associations, suggesting our findings are robust. Finally, our health measure was self-reported general health, and the results could differ for other health outcomes.

### ***Conclusion***

Our study suggests that household composition is important in the social etiology of health for Indigenous children and their mothers. Specifically, we found living in large complex households, not often captured in mainstream research, was negatively associated with Indigenous children's and their mothers' general health, indicating an opportunity for policy attention. In strong contrast to research on non-Indigenous populations we find that self-

reported general health of mothers in lone parent families and the general health of children in lone parent families with other children is no different than those in couple households, suggesting that sociocultural practices of childrearing and living arrangements that encompass extended kin are protective of health. The results caution against presuming a direct translatability of research findings on health and well-being from non-Indigenous to Indigenous Peoples.

## References

- ABS. (2010). *Population Characteristics, Aboriginal and Torres Strait Islander Australians* (Cat. No. 4713.0 2006). Canberra.
- ABS. (2012). *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, Catalogue Number 4714.0.55.0055*. Canberra.
- ABS. (2017). *Census of population and housing: Reflecting Australia - Stories from the census, 2016* (Cat. No. 2071.0). Canberra.
- Ali, S. H., Foster, T., & Hall, N. L. (2018). The relationship between Infectious Diseases and Housing Maintenance in Indigenous Australian Households. *Environmental Research and Public Health*, 15(12), pp. 2827-2838.
- Allison, P. (2009). *Fixed Effects Regression Models* California, USA: Sage.
- Anderson, M. J., Williamson, A. B., Fernando, P., Eades, S., & Redman, S. (2018). They took the land, now we're fighting for a house: Aboriginal perspectives about urban housing disadvantage. *Housing Studies*, 33, pp. 635-660.
- Annim, S. K., Awusabo-Asare, K., & Amo-Adjei, J. (2015). Household Nucleation, Dependency and Child Health in Ghana. *Journal of Biosocial Science*, 47(5), pp. 565-592.
- Australian Institute of Health and Welfare. (2015). *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2015*. Cat. no. IHW 147. Canberr
- Avison, W. R., & Davies, L. (2005). Family Structure, Gender, and Health in the Context of the Life Course. *The Journals of Gerontology Series B Psychological Sciences and Social Sciences*, 60B(Special Issue II), pp. 113-116.
- Biddle, N. (2011). Measures of Indigenous wellbeing and their determinants across the lifecourse: Housing and Households 2011 CAEPR Lecture Series. Canberra: Centre for Aboriginal Economic Policy Research.

- Biddle, N., & Johnstone, K. (2015). Chapter 10: Indigenous Family Formation. In D. A. e. G. Heard (Ed.), *Family Formation in 21st Century Australia*, . Dordrecht, The Netherlands: Springer.
- Biddle, N., & Markham, F. (2011). *CAEPR Indigenous Population Project 2011 Census Papers: Paper 9*. Canberra
- Butler, T. L., Anderson, K., Garvey, G., Cunningham, J., Ratcliffe, J., Tong, A., . . . Howard, K. (2019). Aboriginal and Torres Strait Islander people's domains of wellbeing: A comprehensive literature review. *Social Science and Medicine*, 233, pp. 138-157.
- Crosier, T., Butterworth, P., & Rodgers, B. (2007). Mental health problems among single and partnered mothers: the role of financial hardship and social support. *Social psychiatry and psychiatric epidemiology*, 42, pp. 6 - 13. doi:10.1007/s00127-006-0125-4
- Daly, A., Henry, R., & Smith, D. E. (2002). *Welfare and the domestic economy of Indigenous families: Policy implications from a longitudinal survey 239/2002*. Canberra
- Daly, A., & Smith, D. E. (2005). Indicators of risk to the wellbeing of Australian Indigenous children. *Australian Review of Public Affairs*, 6(1), pp. 39-57.
- Department of Social Services. (2017). *Footprints in Time: The Longitudinal Study of Indigenous Children - Data User Guide, Release 8.0*. Canberra
- Dockery, A. M. (2016). A Wellbeing Approach to Mobility and its Application to Aboriginal and Torres Strait Islander Australians. *Social Indicators Research*, 125, pp. 243-255. doi:10.1007/s11205-014-0839-8
- Fiese, B. H., Rhodes, H. G., & Bearsdale, W. R. (2013). Rapid Changes in American Family Life: Consequences for Child Health and Paediatric Practice. *Pediatrics*, 132, pp. 552-559.

- Frisco, M. L., Muller, C., & Frank, K. (2007). Parents' union dissolution and adolescents' school performance: Comparing methodological approaches. *Journal of Marriage and Family*, 69, pp. 721-741.
- Gove, W. R., Hughes, M., & Galle, O. R. (1979). Overcrowding in the Home: An Empirical Investigation of Its Possible Pathological Consequences. *American Sociological Review*, 44(1), pp. 59-80.
- Habibis, D. (2013). Australian housing policy, misrecognition and Indigenous population mobility. *Housing Studies*, 28, pp. 764-781.
- Hammel, E. E., & Laslett, P. (1974). Comparing Household Structure Over Time and Between Cultures. *Comparative studies in Society and History*, 16(1), pp. 73-109.
- Hango, D. W., & Houseknecht, S. K. (2005). Marital disruption and accidents/injuries among children. *Journal of Family Issues*, 26, pp. 3-31.
- Hewitt, B. (2012). *The Longitudinal Study of Indigenous Children: Implications of the study design for analysis and results*. . Brisbane, Australia
- Hewitt, B., & Turrell, G. (2011). Short-term Functional Health and Well-Being After Marital Separation: Does Initiator Status Make a Difference? *American Journal of Epidemiology*, 173(11), pp. 1308-1318.
- Hughes, M., & Waite, L. J. (2002). Health in Household Context: Living Arrangements and Health in Late Middle Age. *Journl of Health and Social Bheaviour*, 43(1), pp. 1-21.
- Hunter, C., & Price-Robertson, R. (2012). *Family structure and child maltreatment: Do some family types place children at greater risk?* CFCA Paper Number 10). Melbourne
- Lohoar, S., Butera, N., & Kennedy, E. (2014). *Strengths of Australian Aboriginal cultural practices in family life and child rearing*, *Child Family Community Australia Paper No. 25*. <https://aifs.gov.au/cfca/publications/strengths-australian-aboriginal-cultural-practices-family-life-and-child-r>

- Masfety, V. K., Aarnink, C., Otten, R., Bitfol, A., Mihova, Z., Lesinkiene, S., . . . Husky, M. (2019). Three-generation households and child mental health in European countries. *Social psychiatry and psychiatric epidemiology*, 54(4), pp. 427-436.
- Memmott, P., Birdsall-Jones, C., & Greenop, K. (2012). *Australian Indigenous house crowding, AHURI Final Report No. 194*. Melbourne:  
<http://www.ahuri.edu.au/research/final-reports/194>
- NACCHO. (2020). *New National Agreement on Closing the Gap marks historic shift to improve Aboriginal and Torres Strait Islander peoples' life outcomes*. Canberra, Australia
- Norton, E. C., & Dowd, B. E. (2018). Log Odds and the Interpretation of Logit Models. *Health Services Research*, 53(2), pp. 859-878. doi:10.1111/1475-6773.12712
- Oya, C. (2015). Who Counts? challenges and biases in defining 'households' in research on poverty. *Journal of Development Effectiveness*, 7(3), pp. 336-345.
- Piontak, J. R. (2016). Household Composition and Maternal Depression: Examining the Role of Multigenerational Households. *Journal of Family Issues*, 37(7), pp. 947-969.
- Porsanger, J. (2004). An Essay about Indigenous Methodology. *Nordlit*, 8(1), pp. 105-120.  
doi:<https://doi.org/10.7557/13.1910>
- Sibthorpe, B., Anderson, I., & Cunningham, J. (2001). Self-assessed health among Indigenous Australians: How valid is a global question? *American Journal of Public Health* 91(10), pp. 1660-1663.
- Waldron, I., Weiss, C. C., & Hughes, M. E. (1998). Interacting effects of multiple roles on women's health. *Journal of health and social behavior*, 39, pp. 216-236.
- Walker, R., & Shepherd, C. (2008). *Strengthening Aboriginal family functioning: What works and why? AFRC Briefing Number 7*. Melbourne

- Walter, M. (2017). Chapter 6: Doing Indigenous Family. In M. Walter, K. Martin & G. Bodkin-Andrews (Eds.), *Indigenous Children Growing Up Strong: A Longitudinal Study of Aboriginal and Torres Strait Islander Families*. London: Palgrave Macmillan.
- Walter, M., Dodson, M., & Barnes, S. (2017). Introducing the Longitudinal Study of Indigenous Children. In Walter M., Martin K. & B.-A. G. (Eds.), *Indigenous Children Growing Up Strong*. London: Palgrave Macmillan.
- Walter, M., & Hewitt, B. (2010). *Doing Family Apart: Exploring Indigenous Family Relationships Post-Parental Separation Using the Longitudinal Study of Indigenous Children (LSIC): Final Report*. . Canberra
- Walter, M., & Siggers, S. (2007). Poverty and social class. In B. Carson, T. Dunbar, R. Chenhall & R. Bailie (Eds.), *Social determinants of Indigenous health* (pp. 87-104). Crows Nest, NSW: Allen and Unwin.
- Walter, M., & Suina, M. (2019). Indigenous data, indigenous methodologies and indigenous data sovereignty. *International Journal of Social Research Methodology*, 22(3), pp. 233-243.
- Witvliet, M. I., Arah, O. A., Stronks, K., & Kunst, A. E. (2014). A Global Study on Lone Mothers: Exploring the Associations of Self-Assessed General Health with Motherhood Types and Gender Inequality in 32 Countries. *Women's Health Issues*, 24(2), pp. e177-e185.
- Young, C., Craig, J. C., Clapham, K., Williams, S., & Williamson, A. (2018). Stressful life events and resilience among carers of Aboriginal children in urban New South Wales: cross-sectional findings from the Study of Environment on Aboriginal Resilience and Child Health (SEARCH). *BMJ Open*, 8(e021687)doi:10.1136/bmjopen-2018-021687

Zubrick, S. R., Lawrence, D. M., Silburn, S. R., Blair, E. M., H., M., Wilkes, T., . . . Doyle, S. (2005). *The Western Australian Aboriginal Child Health Survey: The Health of Aboriginal Children and Young People*. Perth

Zubrick, S. R., Silburn, S. R., Lawrence, D., Mitrou, F., Dalby, R., Blair, E., . . . Li, J. (2005). *The Western Australian Aboriginal Child Health Survey: The Social and Emotional Wellbeing of Aboriginal Children and Young People*. Perth.