The perceived influence of grandparents’ beliefs and attitudes on parents’ breastfeeding behaviour and paediatric vaccination decisions

Shantha Premila Karthigesu

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The Perceived Influence of Grandparents’ Beliefs and Attitudes on Parents’ Breastfeeding Behaviour and Paediatric Vaccination Decisions

This thesis is presented for the degree of

Doctor of Philosophy

Shantha Premila Karthigesu
B.Ed., M.Sc., B.Sc.

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School of Medical and Health Sciences
2019
Declaration

The work described in this thesis was undertaken in the School of Medical and Health Sciences, Edith Cowan University, Australia, under the supervision of Dr David A Coall and E/Professor James S Chisholm. Financial assistance was provided by Edith Cowan University Postgraduate Research Scholarship.

I certify that this thesis does not, to the best of my knowledge and belief:

i. incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;

ii. contain any material previously published or written by another person except where due reference is made in the text of this thesis; or

iii. contain any defamatory material.

Shantha Premila Karthigesu

31 August 2018
Abstract

Human infants are highly dependent on their parents for a prolonged period of time. The resources required to raise a child cannot be provided by biological parents alone and requires the assistance of others, usually relatives. Grandparents among them, have played the most significant role. With increased life expectancy in Western, educated, industrialised, rich and democratic (WEIRD) societies, grandparents have come to the forefront as informal childcare providers. Although the influence of a child’s social environment on health has been well-studied, the influence of grandparents, specifically in regard to breastfeeding remains inconclusive, while grandparental influence on paediatric vaccinations has not been investigated. Using an exploratory mixed-method research design this study investigated the perceived influence of grandparents on parents’ breastfeeding behaviour and paediatric vaccination uptake in Perth, Western Australia.

Focus group discussions were conducted to collect exploratory data on the beliefs, attitudes and perceived sources of influence on parents and grandparents towards breastfeeding and paediatric vaccines. Qualitative data was collected from Australian Aboriginal (N=15) and non-Aboriginal participants (N=73). Interpretative phenomenological data analysis revealed different themes for Aboriginal and non-Aboriginal participants. Although both groups reported positive beliefs and attitudes towards breastfeeding, Aboriginal grandmothers reported having a direct and positive influence on breastfeeding behaviour in young Aboriginal mothers. The influence of grandparents on non-Aboriginal parents’ breastfeeding behaviour was not always positive. The participants also shared positive beliefs and attitudes towards paediatric vaccines. Grandparents expressed full confidence in paediatric vaccines based on their memories of the diseases. Parents who had been vaccinated as children accepted immunisation as a normal part of child rearing. This data then informed the development of a questionnaire to quantitatively assess perceived grandparental influence.

Data from mothers, fathers, grandmothers and grandfathers (N=278) were analysed to test the effects of beliefs, attitudes and perceived sources of influence on breastfeeding behaviour and paediatric vaccine uptake. The study sample was typical of WEIRD
societies and reported high levels of educational qualifications and income. Positive attitude scores did not have a significant effect on breastfeeding behaviour in parents or grandparents. This suggested the influence of external factors such as physiological challenges to breastfeeding, physical ecology of the mother and the attitudes towards formula feeding. Maternal grandmothers did report offering the most advice regarding breastfeeding. However, the type of advice imparted and the effect of the advice on breastfeeding behaviour could not be discerned from this data.

This cohort reported good knowledge on the benefits of paediatric vaccines and positive group influences and had low scores on vaccine anxiety. This was reflected by high confidence levels on the information available to them and the protection conferred to their children by vaccines. Grandparents who had high scores on knowledge and positive group influence reported they would advise their children on vaccinations for grandchildren. Less than 2% of the study sample scored high on vaccine anxiety and reported vaccine refusal and lack of confidence, which limited the study of whether grandparents could positively influence vaccine hesitant parents.

The quantitative study sample is not representative of the average population which restricts generalisation of the findings. The precise nature of grandparents’ influence on parents’ infant feeding and paediatric vaccines need further exploration among the different cultural groups. Education, income levels and cultural and traditional child care practices are likely to have the most influence on the relationship between parents and grandparents, and consequently the extent to which grandparents’ opinions are valued and accepted in relation to breastfeeding and paediatric vaccinations decisions.
Acknowledgements

First and foremost, I would like to thank my supervisors, E/Professor James Chisholm and Dr David Coall, for their support and encouragement. Your mentorship and guidance through the years has helped me grow into the researcher I am today. I owe the passion I have developed for my discipline of study and research to both of you. Thank you.

Thank you to Edith Cowan University for the scholarship. Thank you to the faculty and staff at the School of Medical and Health Sciences. Special thanks to Ruben Phillips, Anna Callan, Leanne Downie and Kit Dufall. Your support and encouragement kept me going. Thank you, Mairi Buchanan, Daniela Mastrocola, Donna Gardner, Jenni Dunn, Sarah Wilson, Kaye Bell, Michelle McVicker, Tracey Dunbar and Lez Tait for your support. The administrative side of the project would not have got off ground without your support and guidance.

A very special thank you to ECU residence elders, Dr Noel Nannup and Oriel Green for their help in engaging the Aboriginal community. Thank you also to Dr Noel Nannup, Gail Barrow, Lera Bennell, Kerri Colegate and Jean Bolederas for being part of the advisory group on engaging the Aboriginal community. Your support and mentorship were essential to carrying out this study. Thank you, Dr Mick Adams for your faith in the project and many leads on connecting with the community. Thank you, Dr Francesca Robertson, for your help with the ethics application. Thank you, Prof. Ruth Marquis for your help with qualitative data analysis. Thank you, Liz Wenden, for your help with proof reading.

Thank you to all my participants for volunteering their valuable time. This thesis has been made possible only because of their generosity. Special thanks to Joondalup Libraries knitting groups, Wheelchairs for Kids, Duncraig Seniors Club and ECU’s Mature Age Students Network. Thank you Bianca and Andre deSouza for hosting the first focus groups in your home. You helped kick start data collection for me. Special thank you to Julie Sartori for accompanying me to unfamiliar areas in Perth for data collection and promoting my study far and wide, and most of all for the emotional support. I am very grateful.
Thank you to the staff of St John of God Hospitals in Midland and Subiaco for their help with recruitment. Special thanks to LJ Anderson for the first lead at Midland. Thank you, Kerri Colegate, Jodie Mackell and Christine Clinch, Christine Jones and Judith Foster for your help with recruitment through the hospital.

Thank you to my friends Brilliana von Katterfeld, Colin and Rhonda Katterfeld and James Ridgley. I will forever be indebted to you for helping me with my move to Perth, and your continued support and encouragement. Thank you, Sarah Anderson and Helen Howarth, for your gift of time and child care. Sarah, thank you for always saving the day! I could not have completed my writing without your help.

I am grateful for the support of my fellow postgraduate students. A very special thank you to Scott Culpin, Emily Brogan and Walter Yu for coming to my rescue with the formatting, the encouragement, all the free child care and hot chocolates. Thank you!

Thank you Aachi, my late grandmother. I embarked on this project knowing the value of intergenerational influence because I have heard your voice through Amma, and in my heart, always.

Thank you to my parents, Amma and Appa. I am where I am because of your love, encouragement and unwavering faith in me. To my brothers, Rathish and Sathish, I am grateful to you for keeping me grounded. Your love and support mean so much.

Thank you, Arra, for your support, encouragement and sacrificing valuable time with our only son. I would not have moved here without him, thank you for allowing that. Going forward I hope the two of you never have to live so far away from each other.

Finally, thank you, my darling son Arushan, my life! You made this journey a happy one, filled with laughter and fun adventures. I could not have completed my studies without your help and encouragement. I certainly could not have written the thesis without sacrificing many hours of family time, the biggest sacrifice of all. My work only makes sense because I am a mother, and I am that because of you. Thank you, my favourite super-hero of all time!
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PUBLICATIONS ARISING FROM THIS AND RELATED WORKS


ABSTRACTS:


To

Arushan
CHAPTER 1
HUMAN BEHAVIOURAL ECOLOGY AND GRANDPARENTAL INVESTMENT

“Grandchildren are only half as related to grandparents as children are to parents. Therefore, at the margin, the benefits to grandchild would have to go be twice as great as those to children to favour the same investment in continued life.”

(Kaplan, Lancaster, & Robson, 2003)

1.1 INTRODUCTION

Throughout human history, parents and infants have existed in an extended family and social network. This human trait has been attributed to the long menopausal life of women, signifying the importance of older women in enhancing the fertility of their daughters through food provisioning and child care (Hawkes, Connell, Blurton Jones, Alvarez, & Charnov, 1998). Older family members and grandparents, where available have played a critical role in general child well-being. However, as nuclear families have become commonplace in some societies, parents and infants increasingly live a relatively isolated life. Families maintain social connection with their extended families through the array of technology that is now available. While technology has served to connect individuals and families that are separated by distance, it has also opened up vast sources of information that are not always reliable. Consequently, first time parents and young families in general, who are faced with the competing tasks of raising children and working outside the home, are inundated with information on infant and child health. The information, which includes debates about breastfeeding and paediatric vaccinations, is not always consistent with messages from healthcare providers, causing needless anxiety for parents.
The shift to nuclear families is a consequence of the transition from hunter-gatherer to post-industrial societies. This transition from extended families to the relative isolation of nuclear families has brought about a change in the developmental niche of children (Harkness & Super, 1994), and the ways in which children interact with their wider social network. Unlike the hunter-gatherer and pastoralist societies, children today are seldom in the company of parents, grandparents and close kin at the same time. Furthermore, health beliefs and attitudes are not always agreed upon and opportunities to discuss issues around health beliefs among members of the extended families are limited. As a result, the influence of each family member who cares for the child may differentially impact health outcomes for that child. Based on these assumptions, this study explored the perceived influence of grandparents on parents’ breastfeeding behaviour and paediatric vaccination decisions.

The thesis is laid out in ten chapters. This introductory chapter outlines the theoretical framework that informs the research questions. Chapters 2 and 3 review the literature on grandparental influence on breastfeeding behaviour and paediatric vaccination decisions, respectively. Chapter 4 states and explains the hypotheses of the study, followed by the research design and methods in Chapter 5. The qualitative and quantitative results for the perceived influence of grandparents on breastfeeding behaviour are presented in Chapters 6 and 7 respectively. Qualitative and quantitative results for grandparental influence on paediatric vaccination decisions are presented in Chapters 8 and 9. The findings of the study are discussed in the concluding Chapter 10.

1.2 HUMAN LIFE HISTORY AND GRANDPARENTAL INVESTMENT

Human history is filled with examples of the many ways in which relatives and other members of society have helped raise children (Hrdy, 2009; Kramer, 2010; Meehan, 2005, 2008, 2009; Helfrecht & Meehan, 2015). As parents are increasingly
challenged by competing demands on their time and energy (Bianchi, 2011), their
dependence on the support provided by extended family and child care facilities also
increases. By necessity or design these different carers expose children to the beliefs,
attitudes and behaviour of those who care for them, which in turn may have
consequences for their long-term health outcomes. For example, parents’ attitude to
physical activity strongly correlates with their pre-school children’s activity levels
(Loprinzi & Trost, 2010). These intergenerational consequences for health are further
supported by a significant body of research that highlights the importance of healthy
behaviour modelling for a positive influence on child health outcomes (Addessi,
Galloway, Visalberghi, & Birch, 2005; Obregón, Pettinelli, & Santos, 2015; Tanofsky-
Kraff, Haynos, Kotler, Yanovski, & Yanovski, 2007).

In recent years, as formal childcare services have been cut back in many
countries, grandparents have come to the forefront as informal child care providers. This
is more so in Western, educated, industrialised, rich and democratic (WEIRD) societies
(Henrich, Heine, & Norenzayan, 2010). This change has largely resulted from the
availability of grandparents due to the increased life expectancy, a continued preference
for grandparental child care, and the high cost and limited availability of formal
childcare facilities. Even in countries where formal childcare is available, parents
continue to show a preference for informal grandparental childcare (Hank & Buber,
2009; Thomese & Liefbroer, 2013). Therefore, opportunity for grandparents’ beliefs
and attitudes to influence grandchild health, a relatively under-researched area, becomes
an important factor to be considered in public health promotion (Coall & Hertwig, 2010;
Sear & Coall, 2011; Perry, Daly, & Macfarlan, 2014).

In pre-demographic transition societies, characterised by high fertility, high
mortality and extended families living in close proximity, grandparents are well known
to influence child health and survival (Sear & Mace, 2008; Meehan, 2005; Meehan, Quinlan, & Malcolm, 2013). In post-demographic transition societies however, where fertility and mortality rates are relatively low, infant and child mortality are no longer significant public health concerns. Under these circumstances the involvement of family members is unlikely to have an effect on mortality. Instead, it is more likely grandparental influence will be seen on their grandchildren’s cognitive, emotional, and educational outcomes (Coall & Hertwig, 2010), which have consequences for individual survival and reproduction, and this may be considered grandparental investment.

Parental investment is defined as any investment by the parent that increases the offspring’s chance of survival (and the offspring’s reproductive potential) at the cost of the parent’s ability to invest in other offspring (Trivers, 1972). Breastfeeding and paediatric vaccinations are two components of parental investment that can affect child health in WEIRD societies and have the potential to be influenced by grandparents. This study aims to explore: a) whether beliefs and attitudes of grandparents regarding breastfeeding and paediatric vaccinations will translate into adherence to public health recommended rates; b) whether grandparents would be a positive source of influence on parents in challenging breastfeeding ecologies and vaccine anxious environments; and c) whether parents would show a bias for maternal over paternal grandparents as a source of influence in their infant feeding and vaccination decisions.

Breastfeeding confers substantial protection against infectious diseases during infancy and early childhood (Duijts, Ramadhani, & Moll, 2009), and reduces the risk of obesity, type-2 diabetes, hypertension and other adult onset diseases (Horta, Bahl, Martines, & Victora, 2010). Paediatric vaccinations, on the other hand, protect children from diseases that are still present in WEIRD societies and can have significant negative effects on growth, development and survival (UNICEF, 2015). Taking into account the
infant’s early environment, paediatric vaccines, coupled with breastfeeding, are likely to provide healthy term infants and young children protection against preventable infectious diseases and the optimal nutrition required for the best possible developmental opportunity.

In traditional societies, grandparents, especially grandmothers, tend to hold the knowledge and provide advice surrounding maternal and child health issues (USAID, 2011). The roles played by grandparents in post-demographic transition societies in relation to parental decision to breastfeed and the uptake of paediatric vaccinations is yet to be explored in detail. Given the universal nature of the intergenerational transfer of health beliefs and attitudes across human societies, understanding the influence of grandparents on breastfeeding and paediatric vaccination could be influential in planning appropriate public health targets and promotions in contemporary societies. Evolutionary public health, which applies the principles of evolutionary ecology, life history theory and parental investment theory to health (Stearns, 1992), provides this thesis with an appropriately broad framework to explore the impact of grandparental investment on breastfeeding and paediatric vaccination in WEIRD societies.

1.3 ALTRICIAL INFANTS, ENERGY COSTS AND COOPERATIVE BREEDING

Life history theory is the evolutionary study of the life cycle and life history traits in an ecological context. Humans’ life history traits are distinct from other primates in that we have relatively large altricial infants, short interbirth intervals, a long period of development, later puberty and a long post-reproductive life (Hrdy, 2009; Kramer, 2010; Mace, 2000; Mace & Sear, 2005). These characteristics are typically associated with high levels of parental investment in each offspring, moreover research has shown that the energetic demands of altricial human infants are too high for a single parent to
meet (Kaplan, 1994; Sellen, 2009; Wall-Scheffler, Geiger, & Steudel-Numbers, 2007; Gurven & Kaplan, 2006).

According to calculations based on quantitative data for foraging societies it takes approximately 13 million calories to rear a human baby from birth to nutritional independence at around age 18 (Kaplan, 1994). The extensive energetic investment in a human offspring begins at conception with pregnancy requiring around 165 calories/day; this is surpassed by the energy requirements of lactation, which is around 550 calories/day (Sellen, 2006). In addition, according to some estimates, simply holding infants requires more energy than lactation itself (Wall-Scheffler et al., 2007). It is likely that because of these high energy demands that humans, unlike most primates, allow other members of their social group, usually relatives, to hold the baby, fostering a culture of shared child care (Hrdy, 2009).

Shared child care, or cooperative breeding, is an adaptive strategy that has enabled alloparents, non-parental group members who help care for infants, to supplement the investments of biological parents (Hrdy, 2009). It has been suggested that humans are able to maintain their unique life history traits due to the time and energy invested by extended family members on kin (Hrdy, 2009; Mace & Sear, 2005). Investments made, whether by biological parents or alloparents, always have opportunity costs and therefore must be balanced among the components of fitness according to the ecology. This will ensure the investment does not compromise one’s own survival and reproduction or the reproductive success of the lineage.

1.4 RESOURCE ALLOCATION AND FITNESS

Life history theory is based on the premise that over generations natural selection will tend to favour individuals who achieve an optimal allocation of limited resources among the various components of fitness (Stearns, 1992). Fitness is defined as
reproductive success, and in order to maximise fitness, resources must be appropriately allocated among its various components: survival, growth and development, and reproduction, which includes both the production and rearing of offspring. Genetic fitness can also be achieved indirectly via inclusive fitness, which is the genetic success that is derived from helping kin who share genes in common to survive and reproduce (Trivers, 1972; Foster, Wenseleers, & Ratnieks, 2006; Hamilton, 1964; Taylor, Wild, & Gardner, 2007). Therefore, alloparenting is a form of kin selection that benefits parents by substituting care/investment while ensuring the genetic success of the alloparents themselves. Nevertheless, optimal resource allocation by parents and alloparents will vary according to the environment, which will be key to ensuring reproductive or inclusive fitness.

A further principal of life history theory is that because resources are always finite, those used for one purpose cannot be used for another. Consequently, the allocation of resources between the components of fitness involves trade-offs. Although there are many trade-offs, the most significant ones are between somatic and reproductive effort, and quantity and quality of offspring. Somatic effort is investment in survival and preparation for reproduction, such as growth, development, and learning; reproductive effort is the production of offspring (quantity) and rearing of offspring (quality) (Chisholm, 1999; Stearns, 1989). According to Chisholm (1999) the trade-off between current and future reproduction may be intraindividual or intergenerational. In some instances current reproduction refers to reproductive opportunities in the immediate or near future, while future reproduction refers to reproductive opportunities that may arise during the remainder of the individual’s lifetime (Chisholm, 1999). These trade-offs and resource allocation strategies would be dependent upon the environment
or developmental ecology of individuals and the type and availability of resources to the parents.

1.5 DEVELOPMENTAL ECOLOGY, FAMILY TYPE AND PARENTAL INVESTMENT STRATEGIES

As stated at the outset, the central element of a child’s developmental ecology is the family. Super and Harkness (1994) provide a theoretical framework for exploring determinants of child health, that they refer to as the developmental niche. The framework provides a basis for organising information about the environment of the individual, including settings of daily life, customs of child care and the psychology of caretakers. The developmental niche is embedded in larger cultural and physical systems that influence the physical and social ecology of the caregiver. The overarching cultural practices within a society will, in turn, influence a caregiver’s ecology leading to the formation of varied family types, from traditional extended families with total interpersonal dependence through to independent nuclear families (Kagitcibasi, 2005). The influence of the various aspects of a caregiver or individual’s ecology is illustrated in Figure 1.1. According to this model, agency, which is defined as the capacity of an individual to act independently, is dependent on autonomy or heteronomy (Kagitcibasi, 2005). The principles of autonomy and heteronomy are based on Piaget’s (1948) principles of autonomous and heteronomous morality, which is following one’s own rules or being subject to another’s rules, respectively. The vertical lines in the model represent autonomy and heteronomy, while agency, which can be either autonomous or heteronomous, depends on the interpersonal relationship within families and is represented by the horizontal line (see Figure 1.1). Kagitcibasi (2005) argues that agency and interpersonal distance will contribute to the formation of three prototypical family interaction patterns based on the perceived levels of autonomy.
The individualistic family will be based on independence and separation between families (A); the more traditional family, will be characterised by interdependence between generations in both material and emotional realms (B); and a combination of the two would involve material independence but psychological dependence between generations (C). This framework could be extended to grandparental influence within families, which would be dependent on the relationship between family members. The typical family in WEIRD societies would fall into family types that are materially independent but psychologically dependent, type C. Therefore, the degree of parental and grandparental investment in their children and grandchildren will be dependent on the family type, the cultural norms and the relationship between parents and grandparents. This in turn, will have implications for the transfer of knowledge between generations and child health outcomes.
Figure 1.1  Ecocultural framework of families – situates family types in WEIRD societies based on the perception of individual agency and interpersonal distance (Adapted from Super & Harkness, 1994; Kagitcibasi, 2005). Family models A, B, C & D based on degree of interdependence and agency are depicted in the respective quadrants.

As many humans have transitioned from high fertility traditional societies to low fertility urban environments, parental investment strategies have evolved to mirror the physical and social ecology. Comparing parenting strategies of foragers, farmers and urban industrialists Hewlett, Lamb, Leyendeckr and Scholmerish (2000) found that foragers tended to invest more in mating effort (attracting, keeping and guarding spouses), while farmers invested more in parenting effort (rearing children). In the urban industrial environment of low infant mortality, parents were found to be more concerned with the acquisition of cognitive skills for their children (LeVine et al., 1994). The authors refer to this as the ‘pedagogical model’, which was perceived as essential for
the competitive labour market operating through an academically graded occupation hierarchy (Hewlett, Lamb, Leyendecker, & Schölmerich, 2000; LeVine et al., 1994).

The pedagogical model complements the embodied capital theory which integrates life history theory with the capital investment theory of economics (Kaplan, Lancaster, & Robson, 2003). Embodied capital theory is based on the principle of trade-offs between current and future reproduction and quantity and quality of offspring. Since investments in somatic effort or embodied capital such as growth and development depreciate in value over time, there must be a trade-off between the maintenance of embodied capital and reproduction, and the embodied capital of offspring and the number of offspring (Kaplan, Lancaster, & Robson, 2003). This perspective proposes that the brain is a form of embodied capital with special qualities such as the ability to transform present experience into future performances, largely facilitated by the increased investment in learning (Kaplan, Lancaster & Robson, 2003). Therefore, the acquisition of knowledge and functional abilities by infants and children is seen as the consequence of investment, which has implications for reducing and/or delaying mortality risks. The pedagogical model of parental investment (LeVine et al., 1994) is similar, in that parents in industrialised societies make heavier investments towards cognitive and emotional development, suggesting they choose to invest in the embodied capital of their offspring (quality) which creates a dilution effect as the number of offspring increases. Breastfeeding is recognised as a form of parental investment, consistent with Trivers’ definition and has been consistently linked to improved cognitive and emotional development of children (Bernard et al., 2013). This suggests breastfeeding behaviour may be influenced by intergenerational beliefs and attitudes as a form of parental and grandparental investment.
In addition, the assumption that parents in industrialised societies focus their investments on the cognitive development of their offspring aligns well with the parental resources (material, cognitive and interpersonal) listed by Hertwig, Davis, and Sulloway (2002) for a post demographic transition society (Figure 1.2). As individuals reach an age at which productivity decreases and their children are rearing highly dependent offspring they may consciously or unconsciously make a positive contribution to their inclusive fitness by investing in the future reproduction of their children in the form of grandparental childcare and intergenerational transfer of knowledge and skills (Kaplan, Lancaster, & Robson, 2003). Carey and Judge (2001) take this a step further and suggest that if intergenerational investments from older to younger individuals reduces mortality, then selection for longevity increases, which in turn increases the return on higher levels of prolonged periods of investment – a characteristic of highly social species such as humans. This could be the type of investment that we observe in the family model C characterised by material independence but high psychological interdependence between members of the extended family (Figure 1.1).

Grandparental investment in material, cognitive and socio-emotional resources may influence child rearing in relation to infant feeding practices, especially parents’ breastfeeding beliefs, attitudes and behaviour. A second area of focus in this thesis, where grandparental attitudes and beliefs may have an influence on grandchild health is adherence to childhood immunisation recommendation. Therefore, in families where grandparents provide regular child care, their beliefs and attitudes may influence parental behaviour and the grandchild’s experiences, and ultimately affect the way in which parents invest in their offspring.
GRANDMOTHERS VERSUS GRANDFATHERS AND NEED

The question of whether, and the extent to which grandparents influence individual fitness indicators in their grandchildren have begun to be investigated. The influence of grandmothers on child survival is more widely researched but findings to date are mixed, with some studies reporting beneficial effects (Scelza, 2009, 2011; Snopkowski & Sear, 2015; Meehan, Helfrecht, & Quinlan, 2014; Meehan, Quinlan, & Malcolm, 2013), while others have found grandmother presence has a detrimental effect on child health and survival (Voland & Beise, 2002; Pilkauskas, 2014; Sear, 2008). Although fathers and grandfathers appear to have a minimal to negative effect in pre-demographic transition societies (Meehan, Quinlan, & Malcolm, 2013), grandfather
influence in post-transition societies appear to have an equal or greater impact on grandchild development than grandmothers depending on the context (Coall, Hilbrand, Sear, & Hertwig, 2016; Sear & Coall, 2011).

In post-transition societies, where the influence of classic fitness indicators is more challenging to assess, grandfathers were found to have an almost equal impact on grandchild development than grandmothers (Sear & Coall, 2011). Maternal grandparents were found to have a more beneficial effect on child wellbeing than paternal grandparents (Sear & Coall, 2011; Perry, Daly, & Macfarlan, 2014). Sear and Coall’s (2011) review highlight a key limitation in the post-transition literature, which is the lack of distinction between grandparent type, a factor that seems to be influential in pre-transition societies. While social ecology and resource availability seems to determine how grandparents, whether maternal or paternal, influence child survival in pre-transition societies, grandparent type and their influence on child development in post-transition societies is less apparent and requires exploration. This is especially true for breastfeeding, an intimate investment promoted in public health as a practice that is currently thought to involve just the nuclear family, if not just the mother. It could also be argued that grandparent type and their relationship with the parents would influence parents’ use of paediatric vaccine uptake in the current vaccine anxious environment.

1.7 MATERNAL VERSUS PATERNAL GRANDMOTHERS

In a review of all published studies that have investigated the effects of father, maternal grandparents, paternal grandparents, and the child’s older siblings on child survival in pre-transition societies Sear and Coall (2011) found that maternal grandmothers are one of the most reliable helpers, with child survival being improved in at least two-thirds of cases. Paternal grandmothers were also associated with positive survival outcomes, although less consistently. Grandfathers made little difference to
child survival. Therefore, overall maternal grandmothers seem to come out on top as a preferred alloparents in pre-transition societies, with the exception of the matrilineal society in Malawi.

One of the crucial influences on the degree of kin support needed and provided is likely to be the amount and types of parental resources that are available in the developmental environment (Coall & Hertwig, 2010). Therefore, resource availability is likely to be associated with the extent of grandparental involvement in the lives of children and thereby their impact on child survival and development. This may be the case particularly in WEIRD societies, where older siblings tend to be close in age, and therefore unable to provide assistance, and other relatives such as aunts and uncles are occupied with the rearing of their own children separately in their respective nuclear families (Sear & Coall, 2011).

These findings suggest that the influence of kin on child development is dependent on multiple factors. Among them paternity certainty, or relational uncertainty, which is defined as the number of times cuckoldry may have severed the genetic relatedness between two individuals (Michalski & Shackelford, 2005) could have a strong influence on investments made by kin. Grandparents with higher levels of certainty of their biological relationship to their grandchildren are assumed to invest more (Coall, Hilbrand, Sear, & Hertwig, 2018). Based on this assumption maternal grandmothers would be expected to make the highest investment in grandchildren, followed in order by maternal grandfathers, paternal grandmother and paternal grandfather (Euler & Weitzel, 1996). Furthermore, the absence of these patterns of grandparental investment in rural (Kaptijn, Thomese, Liefbroer, & Silverstein, 2013; Pashos, 2000) and more traditional societies (Snopkowski & Sear, 2015) suggests an actual impact of paternity uncertainty alone (Perry & Daly, 2017).
In exploring the extent of grandparents’ investments and the influence this has on parental investment, it may be that grandparents who invest heavily are making allocations to future reproduction. This would be an unconscious choice, prompted by evolved behavioural predispositions. Such predispositions may be particularly pertinent to environments where mothers can only allocate limited time to childcare due to competing demands on her time (Bianchi, 2011). As a result, grandchildren should stand to benefit from large investments made by grandparents in resources that are applicable to a post-demographic transition society (Figure 1.2). This would be expected to maximise physical and psychological outcomes in grandchildren and ultimately reproductive success. However, whether it is the maternal (uterine) or paternal (agnatic) grandmother or grandfather who invests in their grandchildren may differentially impact the health outcomes. This difference has been documented in some pre-demographic transition societies.

For instance, Himba women of Namibia rely heavily on maternal kin, particularly on their mothers as their primary helper during birth and in the postnatal period (Scelza, 2011). Similarly, women in the Australian Western Desert seek out maternal kin for support during their reproductive years (Scelza & Bird, 2008). Among the Martu Aborigines in Australia, after mothers, maternal grandmothers provided the largest proportion of high-demand care for infants, and adjusted data showed that maternal grandmothers make a contribution per capita that is almost equal to that of mothers (Scelza, 2009). In a resource-scarce matrilineal community in Malawi however, grandmother presence was not always found to be protective against child mortality rates, especially for female children, since they placed a greater burden by increasing competition for resources (Sear, 2008). Among the Aka of the Central African Republic infants who resided in the same camp as their maternal grandmother received high
investment care such as holding, feeding, stimulating and playing with the infant (Meehan, 2005).

1.8 CONCLUSION

The intensive investment required by altricial infants has led to the evolution of cooperative breeding strategies in humans. Resource allocation towards each offspring has fitness costs to the parents. Therefore, other kin and non-kin, within the developmental ecology of an infant, are likely to be recruited to assist with child care. Grandparents being the most available, knowledgeable and closely related kin, will likely make the highest investment given the inclusive fitness benefits conferred to them in ensuring their grandchildren’s survival and reproduction. Thus, in WEIRD societies, as it has been throughout human history, it is likely grandparents’ maternal and child health knowledge will influence parental behaviours. However, the extent of grandparental investment will likely depend on resource availability, paternity certainty, the types of families and the degree of psychological and material interdependence among members of the family as outlined in the ecocultural framework of families (Figure 1.1).

The dominant aspect of a child’s developmental ecology in a WEIRD society is the family. Predominantly in this case, it is family type C, which is defined by material independence and psychological interdependence (Figure 1.1). Based on this perspective the assumptions that inform this thesis are, first, grandparents may influence parents’ breastfeeding decisions, because it is a practice that is heavily influenced by culture and family traditions. Second, because the current generation of grandparents were the first to have been fully vaccinated as children and are likely to have seen the consequences of not vaccinating, paediatric vaccination uptake may be positively influenced by grandparents through psychological interdependence among vaccine
anxious and hesitant parents. However, parent-grandparent relations are not without conflict. Therefore, whether grandparents will be perceived as being influential will depend on the relationship within families. In addition, grandparents’ beliefs, for a number of reasons, may not align with current best practices as laid out by public health organisations. Using the interdisciplinary theoretical framework, which is informed by evolutionary ecology, psychology and sociology for grandparental investment (Figures 1.1 & 1.2), this thesis will investigate the perceived influence of grandparents’ beliefs and attitudes on parents’ breastfeeding behaviour and paediatric vaccination decisions.
CHAPTER 2
PREDICTORS OF BREASTFEEDING BEHAVIOUR:
GRANDPARENTAL INFLUENCE

2.1 INTRODUCTION

Human milk has been hailed as the optimally adapted nutritional supply and probably the most specific personalised medicine an infant is likely to receive at a time when gene-expression is being fine-tuned for life (Victora et al., 2016). Breastfeeding is a costly biological investment, energetically more costly to the mother than pregnancy, with evidence for positive effects on the psychology, physiology, health and disease status of both mothers and infants (Sellen, 2006; Kramer, 2010). It has been argued, however, that lactation is a more infant-centred investment, where infants benefit unilaterally from a long duration of breastfeeding (Martin, 2018). At the same time, maternal reproductive strategies and interests that include investment in existing offspring, and are influenced by resource availability, also exert an influence on breastfeeding decisions (Martin, 2018). These intergenerational effects suggest breastfeeding could be examined from a parent-offspring conflict perspective (Trivers, 1974). What is clear, however, is that a myriad of factors influence breastfeeding decisions, which in turn may help explain the unpredictable nature of lactation throughout human history. This chapter will detail the benefits of breastfeeding and the predictors of breastfeeding decisions, with a focus on grandparents as a potential knowledge source and provider of resources.

Humans have a documented history of using infant feeding alternatives such as wet nursing (Hrdy, 1992), vessel feeding and feeding milk from other species that date back more than 4000 years (Stevens, Patrick, & Pickler, 2009). The 19th and 20th centuries saw rapid declines in breastfeeding, which has been attributed to the
sociocultural influences accompanying industrialisation (Tomori, Palmquist, & Quinn, 2018). Rates of breastfeeding have varied with changes in maternal employment (Hirschman & Butler, 1981), birthing practices (Pitcock & Clark, 1992), and increased knowledge of the benefits of breastfeeding by health professionals (Schanler, Schulman, & Lau, 1999). Furthermore, promoting infant sleeping away from the mother, even though co-sleeping and breast-sleeping are recognised as the evolutionary and cultural norms for humans, has further contributed to a decline in the rates of breastfeeding (Bartick, Tomori, & Ball, 2017).

In post-demographic transition societies, the rates of breastfeeding have fallen since the advent of alternatives such as infant formula. In the United States alone, breastfeeding initiation rates fell from 70% in 1911, to 22% by the early 1970s (Hirschman & Butler, 1981). By 2007, breastfeeding during the first month of an infant’s life had only risen to 24%, with less than 10% of infants being breastfed at six months of age (Karmaus, Soto-Ramirez, & Zhang, 2017). In Australia, while 96% of mothers initiate breastfeeding, only 15% of infants are exclusively breastfed at five months (ABA, 2015). Australian rates are below the global average of 39 percent of all infants breastfed according to WHO recommendations (UNICEF, 2014a). The Western Australian statistics are similar to the national rates (Powell, Joyce, & Radomiljac, 2017; Hauck et al., 2011).

2.2 BENEFITS OF BREASTFEEDING

In an effort to increase breastfeeding rates, in 1990 the WHO and UNICEF issued the Innocenti Declaration to protect, promote and support breastfeeding. It defined optimal infant feeding as exclusive breastfeeding from birth through 4-6 months, introduction of appropriate weaning foods at six months, and continued breastfeeding until the child turns two (Cadwell, 1999; WHO, 2011a, 2011b; UNICEF,
These recommendations are based on research which has linked breastfeeding with improved cognitive development among both term and preterm infants (Bernard et al., 2013; Quigley et al., 2012). There is also strong evidence for reduced risks of otitis media (ear infections) and upper and lower respiratory tract infections (Duijts et al., 2009). Breastfed infants are also more likely to co-sleep with mothers reducing the risk of Sudden Infant Death Syndrome (SIDS) (Bartrick, Tomori, & Ball, 2007; McKenna, Ball, & Gettler, 2007; Ip, Chung, & Raman, 2007). Based on a meta-analysis of seven cohort studies of healthy term infants in affluent regions, infants who were not breastfed were found to have a 3.6-fold increased risk for lower respiratory tract infection in the first year of life (Bachrach, Schwarz, & Bachrach, 2003). Furthermore, the early introduction of complementary foods was associated with an increased basal metabolic index (BMI) at age seven (Morgen et al., 2018), highlighting the risks of not exclusively breastfeeding for the recommended duration of six months.

While breastfeeding is associated with improved health, formula feeding, generally, is not. Formula feeding has also been associated with high rates of otitis media (Chung, Raman, Trikalinos, Lau, & Ip, 2008), increased risks of developing gastrointestinal infections (Chien & Howie, 2001), a higher risk of obesity, type-2 diabetes and cardiovascular disease (Harder, Bergmann, Kallischnigg, & Plagemann, 2005; Horta et al., 2010; Martin, Gunnell, & Smith, 2005; Owen, Martin, Whincup, Smith, & Cook, 2006). In the United States, formula feeding has been associated with a 1.3-fold higher risk of infant mortality compared with ever breastfeeding, even after adjusting for maternal age, education, smoking status, infant race, gender, birth weight, congenital malformations, birth order, plurality and nutrition status (Chen & Rogan, 2004).
The health benefits of breastfeeding also extend to the mother. Studies of maternal outcomes associated with breastfeeding show that women who have never breastfed face a 1.5-fold risk of ovarian cancer compared with women who breastfed for greater than 18 months (Danforth et al., 2007). Breastfeeding is also associated with more favourable glucose levels, improved lipid metabolism, and healthier blood pressure (Gunderson et al., 2011). These differences may persist after weaning and can thus have significant long-term health benefits for mothers (Gunderson et al., 2011; Schwarz et al., 2009; Stuebe & Rich-Edwards, 2009). In addition, meta-analyses have shown that increasing breastfeeding to recommended levels in low to middle income countries could prevent over 800,000 annual deaths in children under the age of five and nearly 20,000 annual deaths from breast cancer ( Victora et al., 2016). Despite the benefits associated with breastfeeding, current global rates remain below WHO recommendations. This may be best understood within the context of a WEIRD society where most Australian mothers are faced with the challenge of meeting the demands of raising a young family and returning to paid employment.

2.3 PREDICTORS OF BREASTFEEDING DECISIONS

As stated above, breastfeeding is an infant-centred investment which demands high energy and time allocation by the mother. Breastfeeding as a practice also requires women to negotiate and incorporate dominant ideologies and institutional and cultural norms into the realities of their daily lived experiences, personal circumstances and social support systems (Dykes, 2005; McDade & Worthman, 1998). Therefore, a number of predictors, such as understanding the value of breastfeeding, intent to breastfeed, paid employment, the medicalisation of birth, family structure and its influence, may impact maternal infant feeding decisions. Each of these factors are now briefly outlined below.
2.3.1 Understanding the value of breastfeeding and intent as predictors

Where there are safe and easy alternatives to breastfeeding, intent to breastfeed, as an indicator of the value of breastfeeding, is a strong predictor of the exclusivity and duration of breastfeeding (Lok, Bai, & Tarrant, 2017). Lok et al. (2017) found that attending antenatal classes, and the partner’s preference for breastfeeding, were also strongly linked to mothers’ intent to breastfeed and, ultimately, breastfeeding practice. This study did not find significant correlations between maternal and paternal grandmother preference for breastfeeding. More family members reporting a preference for breastfeeding, however, was associated with higher intent and consequently breastfeeding (Lok et al., 2017). In South Western Sydney, Australia, intent to breastfeed during pregnancy, having a partner with a preference for breastfeeding, only one child, a university degree, and being Australian born were found to be good predictors for initiating breastfeeding (Arora et al., 2017).

Using data from the longitudinal Infant Feeding Practices Study II, Nnebe-Ag mundu, Racine, Laditka, & Coffman (2016) found mothers’ valuing the benefits of exclusive breastfeeding was a strong independent predictor of breastfeeding exclusivity and duration in the United States. Conversely, negative breastfeeding experiences and early cessation with the first infant was a significant predictor of the early termination of breastfeeding with successive children (de Oliveira & Camelo, 2017). Therefore, a mother’s intent to breastfeed, experience with older children, beliefs and attitudes are all factors that are influenced by her social and physical ecology. The need to engage in paid employment is another considerable challenge to maintaining lactation (Bai, Fong, & Tarrant, 2015; Iellamo, Sobel, & Engelhardt, 2015).
2.3.2 Employment outside the home as a predictor

There are programs being implemented to help mothers who return to work shortly after the birth of their infants to continue breastfeeding (Athena Swan, 2016). However, the commitment required, and challenges presented by paid employment and breastfeeding are complex. Even in forager societies it has been shown that work activities are not always compatible with child care and often impact optimal breastfeeding (Meehan & Roulette, 2013; Meehan, 2009). Because most mothers stop breastfeeding within the first month of returning to work, efforts are underway to support breastfeeding with a call for using an employee wellness program to promote a culture of breastfeeding in the workplace (Magner & Phillipi, 2015).

A survey of women employed by WHO offices in the Western Pacific, who had delivered a baby between 2008 and 2013, found that 44% of mothers stopped breastfeeding in order to return to work, and over 50% of them reported using infant formula (Iellamo, Sobel, & Engelhardt, 2015). Following these findings, it was recommended that efforts to support breastfeeding be increased by celebrating World Breastfeeding Week and providing facilities in mothers’ places of employment to continue breastfeeding.

In addition to the value of breastfeeding and employment, the medicalisation of birth and the involvement of healthcare practitioners also influence maternal decisions to breastfeed according to WHO recommendation.

2.3.3 Medicalisation of pregnancy and hospital births as predictors

Given the medicalised nature of pregnancy, labour and delivery in post-demographic transition societies the WHO and the UNICEF jointly launched the Baby-Friendly Hospital Initiative (BFHI) in 1991 in a global effort to implement practices that promote, protect and support breastfeeding (WHO 2011a). The initiative is aimed at
changing the culture of infant feeding in hospitals. Since its launch, more than 152 countries have implemented the BFHI (WHO 2011a). The BFHI calls on hospitals to train its staff on the skills and knowledge necessary to support breastfeeding, inform mothers, initiate breastfeeding within the first hour of birth, show mothers how to breastfeed and maintain lactation, give newborn infants no food or drink other than breast milk (unless medically indicated), and allow mothers and infants to remain together 24 hours a day. It also encourages hospitals to foster the establishment of breastfeeding support groups and refer mothers to support groups on discharge from hospitals (WHO 2011a).

When the information mothers receive in a hospital contradicts traditional family practices, however, it could lead to challenges in negotiating the contradictions and maintaining breastfeeding. Nevertheless, the importance of infant feeding practices within a family is now being acknowledged as central with the formulation of an infant feeding genogram to help record the family history of breastfeeding (Darwent, McInnes, & Swanson, 2016). The genogram is designed to help with interventions as it records the history, attitudes and beliefs around infant feeding within the family, and highlights the importance of family even under the umbrella of a hospital and formalised maternal and infant health practices.

2.3.4 The family model as a predictor

Human cultural evolution and the simultaneous evolution of the various family models (Figure 1.1) has altered the support for mothers in the immediate post-partum period. Unlike in traditional hunter-gatherer societies, mothers do not generally have significant access to the support of other extended family members who could advice or assist with allomaternal breastfeeding (Shostak, 1981; Hrdy, 1992; Meehan, 2005). When situated within a mother’s social and physical ecologies and the family models,
whether it is the family model of psychological interdependence or independence (Figure 1.1), kin could influence a mother’s decision to breastfeed according to WHO recommendations. If a mother is able to exercise agency and use her pre-existing knowledge she is likely to make autonomous decisions. If the mother is psychologically dependent on the extended family, the decision to breastfeed, the duration and exclusivity can be influenced by kin, especially grandparents.

2.4 EXTENDED FAMILY AS THE STRONGER SOURCE OF INFLUENCE

Support in the homes will be dependent on the family model and the relationship with the extended family, which includes the other parent and grandparents of the grandchild. Breastfeeding, as a practice embedded in culture, traditional and family practices makes it a form of investment that is very likely to be influenced by grandparents. As outlined in the previous chapter, the depth and form of influence may vary depending on whether the grandparents are maternal or paternal grandmothers and grandfathers.

Grandmothers, when available, are an inherent part of the mother’s breastfeeding ecology and their influence appears to be dependent upon culture, traditional infant feeding practices and the grandmothers’ (or other relatives) own infant feeding practices and preferences (Aubel, Touré, & Diagne, 2004; Bezner Kerr, Dakishoni, Shumba, Msachi, & Chirwa, 2008; Reid, Schmied, & Beale, 2010; Sharma & Kanani, 2006; Susin, Giugliani, & Kummer, 2005). However, there is a dearth of research exploring the ways in which grandparents influence breastfeeding rates in WEIRD nuclear families.

In societies where, extended families are the norm, a social hierarchy seems to exist where a matriarch provides advice on child care and infant feeding practices (USAID, 2011). Mothers tend to follow the advice of and rely on older women who are
perceived as being more experienced in raising children (Scelza, 2009; USAID, 2011). For instance, among foraging populations there is substantial evidence that children are being given food and even introduced to new foods by individuals other than their birth mothers (Hrdy, 2009; Scleza, 2009; Meehan & Roulette, 2013). This contrasts with WEIRD societies where mothers play a more dominant role in feeding the child, and if a social hierarchy similar to foraging or traditional societies does exist, it has not been studied.

Interventions aimed at increasing family support for breastfeeding have primarily targeted partners in hospitals and healthcare practitioners working with pregnant and new mothers. However, the influence of grandparents has not received its due attention. Recent research suggests that grandparents, especially grandmothers, may have a valuable role to play in interventions that raise breastfeeding rates to WHO’s recommendations. Similar to grandparental involvement in general, grandmothers, who have been the sole focus of research on grandparents’ influence on breastfeeding to date, do not always have a positive influence. Moreover, their influence varies significantly between pre- and post- demographic transition societies.

2.4.1 Grandparental influence in pre-demographic transition societies

An extensive review of the literature from 85 different cultural settings in 48 countries in Asia, Africa and Latin America reports that senior women were perceived to have greater knowledge and experience than younger women or men (of any age) in relation to pregnancy, childbirth and maternal and child nutrition (USAID, 2011). Grandmothers were found to play the primary role in advising women about breastfeeding and caring for infants and mothers (USAID, 2011). The review further highlights the existence of indigenous social support networks through which less experienced women receive ongoing advice and support from more experienced
women. This was apparent in both rural and urban settings, especially during pregnancy and childbirth and with newborn care and childhood illness (USAID, 2011). This advice and support, however, is not always consistent with the recommendations for exclusive breastfeeding.

Women in North Malawi believe breast milk is not adequate food for babies (Bezner Kerr et al., 2008). The power and influence that grandmothers hold within an extended family in these cultures has been linked to both negative and positive consequences including a lack of respect for the workloads of younger women and the early introduction of alternative food sources to infants (Bezner Kerr et al., 2008). Similarly, grandmothers in Senegal, while valuing breastfeeding, also believe that children cannot survive on breast milk alone and must be given water (Aubel et al., 2004). They also tended to delay breastfeeding initiation by at least three days claiming the babies’ mouth and throat needed time to open up (Aubel et al., 2004). A similar trend is evident in Brazil, where grandmother presence was strongly correlated with early cessation of breastfeeding (Susin, Giugliane, & Kummer, 2005).

In rural India, in addition to delaying initiation, practices such as giving prelacteals (solutions rich in carbohydrates; sugar solutions) and discarding colostrum have been observed (Sharma & Kanani, 2006). An assessment of belief practices of mothers and grandmothers regarding breastfeeding and complementary feeding found that deleterious practices were present in similar proportions in both grandmother present and absent groups (Sharma & Kanani, 2006). This raises the question of whether only grandmothers influence infant feeding decisions or if other women in the family or community also influence breastfeeding outcomes. Meehan (2005, 2008, 2009) who has conducted extensive studies around alloparental investment and child health among the Aka foragers and Ngandu farmers in the Central African Republic has found that
matrilateral investment and family members’ influence on infant feeding patterns is dependent upon the traditional practices and local ecologies. An investigation of early supplementation indicated that infant feeding decisions were made within a complex web of subsistence ecologies, labour patterns, cultural beliefs and social networks (Meehan & Roulette, 2013). The studies reviewed here suggest maternal and paternal grandmothers have a differential impact, however, there is no clear impact of the roles of fathers and grandfathers in infant feeding. The one established fact, however, is that older women seem to influence young mothers in their childcare approaches and infant feeding decisions.

2.4.2 Grandparental influence in post-demographic transition societies

Although recent years have seen more research focus on the influence grandparents have on breastfeeding rates in post-demographic transition societies, findings remain inconclusive (Grassley & Eschiti, 2008; Ingram, Johnson, & Hamid, 2003; Pilkauskas, 2014). In the most recent publication that explores grandmother contact and breastfeeding rates in the UK Millennium Birth Cohort, mothers with a higher frequency of contact with maternal and paternal grandmothers were found to have lower rates of breastfeeding (Emmott & Mace, 2015). Data revealed more practical support from grandmothers resulted in lower rates of breast feeding (Emmott & Mace, 2015). These findings reveal associations between grandmother presence and reduced breastfeeding duration, however, the causal pathways are yet to be examined and may be confounded by factors such as paid employment.

Similarly, in examining whether breastfeeding behaviour varied by grandparent co-residence in a North American population, Pilkauskas (2014) found that breastfeeding initiation rates were lower among mothers who lived in three generation households. Only 25% of mothers living in three generation households breastfed to six
months of age (Pilkauskas, 2014). This quantitative analysis (based on data from two longitudinal birth cohorts from 1998-2000) provided no data to explore additional factors that could be contributing to the low rates of breastfeeding.

A study from the United States found that grandmothers’ influences on breastfeeding rates was also dependent on their own infant feeding practices (Grassley & Eschiti, 2008; Grassley & Eschiti, 2007). The age of the grandmother, and the culture that influenced her infant feeding methods (e.g. the period in which infant formula was heavily promoted), was found to negatively affect breastfeeding (Grassley & Eschiti, 2008). An exploration of the grandparent role in breastfeeding in Sydney found that grandmothers were not clear on what was expected of them in terms of their role in supporting new families, especially around breastfeeding (Reid, Schmeid, & Beal, 2010). Like grandmothers in the United States these grandmothers also tended to give advice based on their own parenting experience rather than the current best practice for infant nutrition (Reid, Schmeid, & Beal, 2010).

In Sri Lanka, a country that boasts relatively high rates of early and exclusive breastfeeding, perceived milk inadequacy is cited as the main cause for early cessation of breastfeeding (Rodrigo R, Rodrigo A, Liyanage, & Hewavitharana, 2018). A cross-sectional survey of 249 mothers in the first postpartum week found 78% of the mothers perceived their milk supply to be adequate. Anxiety related to milk inadequacy was largely prompted by hospital staff or family members who made comments about inadequate supply of milk. Key among family members who promoted a perception of milk inadequacy, were grandmothers, leading researchers to suggest educating grandmothers and fathers to prevent early cessation of breastfeeding.

A pioneering study, with the objective of designing breastfeeding intervention programs for South Asian mothers and grandmothers, assessed grandmothers’ health
beliefs and cultural practices around baby feeding, knowledge of breastfeeding and their ability to support successful breastfeeding in Bristol, England (Ingram, Johnson, & Hamid, 2003). The Pakistani, Bangladeshi and Indian grandmothers interviewed were all in favor of breastfeeding, and each had cultural and religious reasons for promoting it. While discarding colostrum and giving water is common among these communities, the grandmothers were open to accepting hospital advice that stressed the importance of colostrum and refraining from giving water (Ingram, Johnson, & Hamid, 2003). To my knowledge, this is the only study to date that was designed solely to evaluate grandmother influence on breastfeeding and to plan an intervention to increase support to grandmothers that ultimately increases breastfeeding rates. Unfortunately, the potentially diverging roles of maternal and paternal grandparents were not assessed in this study.

Although not the main aim of this thesis, it is important to recognize that research into the knowledge of the partner and its impact on breastfeeding has also received attention. As discussed previously, a partner’s preference for breastfeeding influences initiation and exclusivity. However, there are barriers to partner involvement. In England, a focus group with six men, found that fathers perceive breastfeeding as normal behaviour if they had been exposed to breastfeeding during their childhood (Hounsome & Dowling, 2018). However, they were reluctant to be involved in their partner’s efforts to breastfeed because they consider breastfeeding to be women’s affairs. This is further evidence supporting the need to understand the perception of breastfeeding as the optimal infant feeding practice that has been historically shared among the family members who are closely situated in a mother’s social and physical ecology.
2.5 DISCUSSION

While research on factors influencing breastfeeding rates has focused heavily on hospital practices, health professionals’ attitudes, and mothers’ intentions and attitudes, there has been limited in-depth exploration on the effect of individuals who culturally and historically have been more likely to influence parenting behaviours – grandparents. The idea of an intergenerational transfer of parental investment in the form of knowledge, beliefs and attitudes towards breastfeeding, is at the crux of this research project. Breastfeeding is an intimate form of parental investment between mother and child, with clear benefits to both, that is susceptible to the influence of a mother’s physical, psychological and social ecology, and the influence of dominant infant feeding culture (Dykes, 2005; McDade & Worthman, 1998).

In Australia where, nuclear families are the norm and intergenerational relationships are governed by the structural constraints that have evolved with human culture, the nature of intergenerational influence becomes complex to assess. However, situating a breastfeeding mother and her partner within the family model of material independence and psychological interdependence (family type C, see Figure 1.1), helps explore whether grandparents are perceived as a source of positive or negative influence on parents’ breastfeeding behaviours. The relationship between grandparents and parents, and grandparents’ knowledge, will likely impact the extent to which the beliefs and attitude of grandparents towards breastfeeding influences parents’ decisions to follow WHO recommendations.
Chapter 3

PAEDIATRIC VACCINATION UPTAKE:
SYSTEMATIC REVIEW OF GRANDPARENTAL INFLUENCE

This chapter is not included in this version of the thesis,
at the author's request,
CHAPTER 4
EXPERIMENTAL OBJECTIVES

The general hypothesis of this thesis is that breastfeeding rates and paediatric vaccine uptake are subject to intergenerational influences. Evidence already shows breastfeeding rates and paediatric vaccine uptake are influenced by parents’ social and physical ecologies. The general assumption is that positive attitudes and beliefs around the parents will translate into parents following public health recommendations for breastfeeding and paediatric vaccinations. Although parents’ social networks could be a potential source of negative influence, I hypothesise that given the established health benefits of breastfeeding and paediatric vaccinations, close kin, especially grandparents, will be a source of positive influence. Based on parental investment theory, in view of the inclusive fitness benefits grandparents receive by supporting the wellbeing of their grandchildren, and their historical role in public health resources, they may support breastfeeding and share their memories of vaccine preventable infectious diseases to promote paediatric vaccine uptake for their grandchildren.

4.1 HYPOTHESIS 1: POSITIVE BELIEFS AND ATTITUDES OF PARENTS AND GRANDPARENTS REGARDING BREASTFEEDING WILL TRANSLATE INTO ADHERENCE TO PUBLIC HEALTH RECOMMENDED BREASTFEEDING PRACTICES IN PARENTS

The first objective of this study was to investigate whether positive beliefs and attitudes towards breastfeeding will translate into breastfeeding practices as recommended by the WHO. The current recommendation is, exclusive breastfeeding for six months and continue breastfeeding up to two years while providing nutritious complementary foods. Breastfeeding is a costly investment and is highly beneficial to the offspring’s long-term health outcomes, if no longer for survival, in WEIRD
societies. Therefore, I hypothesise that positive attitudes and beliefs among parents and grandparents would result in greater adherence to WHO recommendations, and grandparents with positive attitudes and beliefs towards breastfeeding will be more likely to have grandchildren who have been breastfed.

4.2 HYPOTHESIS 2: POSITIVE BELIEFS AND ATTITUDES OF PARENTS AND GRANDPARENTS REGARDING PAEDIATRIC VACCINATIONS WILL BE ASSOCIATED WITH FULL VACCINATIONS OF INFANTS AND CHILDREN

Vaccine preventable infectious diseases are almost non-existent in WEIRD societies. The absence of disease coupled with constant negative media publicity for adverse reactions to vaccines has resulted in increased vaccine anxiety and hesitancy. The current generation of grandparents belong to the first generation that received vaccines amidst widespread disease outbreaks. Therefore, grandparents are well positioned in the context of the family model of psychological interdependence (C) (Figure 1.1) to influence parents positively. Based on this assumption, I hypothesise that parents and grandparents who express positive attitudes towards paediatric vaccinations will report greater adherence to paediatric vaccination recommendations for their children and grandchildren, respectively.

4.3 HYPOTHESIS 3: IN ENVIRONMENTS OF HIGH VACCINE ANXIETY AND CHALLENGES TO BREASTFEEDING MAINTENANCE, GRANDPARENTS WILL BE PERCEIVED AS A SOURCE OF POSITIVE INFLUENCE BY PARENTS IN THEIR INFANT FEEDING AND PAEDIATRIC VACCINE DECISIONS

Before the advent of technology, which provides access to vast sources of information on child health, grandparents held the maternal and child health knowledge to assist parents with their decisions. In the current age of technological dominance and the resulting changing nature of the social ecology there are multiple sources of
influence on parents. However, the same technology allows parents to stay connected to the grandparents with ease, allowing frequent communication. Therefore, we may still see an effect of grandparents on parents’ decisions regarding infant feeding and paediatric vaccinations. Based on this assumption, I hypothesise grandparents will influence parents’ decisions to breastfeed and vaccinate their children, and this effect is likely to be stronger in parents who are going against recommendations. Breastfeeding, while being the best source of nutrition for all mammalian infants, remains the subject of debate and poses a myriad of challenges to mothers who struggle to initiate and successfully breastfeed while balancing work and family life. Paediatric vaccinations, on the other hand, have become a contentious topic with the relentless negative media attention. In these circumstances, grandparents’ experiences, beliefs and attitudes with infant feeding and paediatric vaccination could positively influence parental behaviour and help reach optimal breastfeeding rates and vaccination schedules.

4.4 HYPOTHESIS 4: MATERNAL GRANDMOTHERS WILL BE PERCEIVED AS HAVING A POSITIVE INFLUENCE ON BREASTFEEDING RATES AND PAEDIATRIC VACCINE UPTAKE COMPARED TO PATERNAL GRANDMOTHERS AND GRANDFATHERS

A consistent finding across disciplines, with few exceptions in patrilocal societies, is that maternal grandmothers invest the most in their grandchildren followed by maternal grandfather, paternal grandmother and paternal grandfather. This phenomenon has been linked to paternity or relational uncertainty. Grandparents with higher levels of biological relationship to their grandchildren are assumed to invest more. The pattern has been observed consistently in industrialised societies suggesting that there is an actual impact of paternity certainty alone. Based on this, I hypothesise that maternal grandparents will have a positive influence on parents breastfeeding rates
and paediatric vaccine uptake. Moreover, where mothers express an increased perception of maternal grandmother influence, there is likely to be greater adherence to breastfeeding recommendations. Therefore, consistent with previous research using a range of different measures, parents will report lower levels of perceived influence by paternal grandmothers, maternal grandfathers and paternal grandfathers.
5.1 RESEARCH DESIGN

This study was designed to explore whether grandparents were perceived as a source of influence in parents’ decision to follow WHO recommendations for infant feeding, and local government recommendations for paediatric vaccinations. Specifically, it was designed to test the following hypotheses:

1) Positive beliefs and attitudes of parents and grandparents regarding breastfeeding will translate into public health recommended breastfeeding practices in parents;

2) Positive beliefs and attitudes of parents and grandparents regarding paediatric vaccinations will be associated with full paediatric vaccination of infants and children;

3) In environments of high vaccine anxiety and challenges to breastfeeding maintenance grandparents will be perceived as a source of positive influence by parents in their infant feeding and paediatric vaccine decision-making strategies;

4) Maternal grandmothers will be perceived as having a positive influence on breastfeeding rates and paediatric vaccine uptake compared to paternal grandmothers and grandfathers.

Given the dearth of literature on the specific nature of grandparents’ influences on parental decision making, the exploratory sequential mixed methods design (Creswell, 2014) was used to generate preliminary qualitative data, which subsequently informed
the development of a questionnaire for quantitative data collection (Figure 5.1). The ecocultural framework of families in WEIRD societies (Figure 1.1.) and the parental resource investment structure (Figure 1.2) that informed the research questions allows the exploration of both ultimate and proximate mechanisms of grandparental influence. The exploratory sequential mixed method was considered a suitable design to assess the influence of grandparents in families given the limited research on grandparents’ knowledge, beliefs and attitudes related to infant feeding and paediatric vaccinations and their influence on parents’ behaviour.

**Figure 5.1 Exploratory sequential mixed methods design (adapted from Creswell, 2014)**

As detailed in Figure 5.1 this research project was carried out in three phases. Given the limited literature on grandparental influence on breastfeeding behaviour in WEIRD societies and paediatric vaccine uptake, the first phase involved the collection of exploratory qualitative data through seventeen focus groups. The data from the focus group discussions informed the second phase of research, which involved the development of the Perceived Grandparental Influence Questionnaire, henceforth referred to as the questionnaire. The questionnaire was designed to collect information
on parents’ and grandparents’ knowledge, beliefs and attitudes about breastfeeding and pediatric vaccinations and the perceived influence of grandparents on parents’ decision to breastfeed and vaccinate their children. The final phase of the study was quantitative data collection through the administration of the questionnaire.

5.2 RESEARCH ETHICAL APPROVAL

Ethical approval for this project was granted by Edith Cowan University (ECU 12738) Human Research Ethics committee (HREC), St John of God Hospitals (SJOGH 1147) Human Research Ethics Committee, and the Western Australian Aboriginal Health Ethics Committee (WAAHEC 753) (see Appendix P, Q, R, S for approval letters).

Given the interdisciplinary theoretical framework that informs the research aims of this study and the likely impact of different cultural perspectives on infant and child health, it was essential that the Aboriginal and Torres Strait Islander population be a significant part of this study. Recruitment of Aboriginal and Torres Strait Islander individuals for studies that explore health issues require additional ethical approval from the Western Australian Aboriginal Health Ethics Committee (WAAHEC). As part of this application a maternal and child health an advisory group was established to advise me on the project and to ensure that the research procedure and data analysis were conducted with cultural awareness and worked in the best interest of the local Aboriginal communities. Faculty at Edith Cowan University’s Kurongkurl Katitjin and resident elders assisted with contacting elders in the community. A minimum of five members were required. Kerri Colegate (Aboriginal Engagement and Cultural Advisor, SJOGH), Jean Boladeras (Community Elder, Kwinana), Lera Bennell (Elder-in-Residence, ECU, Bunbury), Gail Barrow (Cultural Awareness Officer, Kurongkurl Katitjin, ECU) and Noel Nannup (Elder-in-Residence, ECU, Joondalup) agreed to be on the committee.
This group was crucial in advising and guiding the research process and recruitment where possible.

5.3 PHASE 1 – QUALITATIVE DATA COLLECTION-FOCUS GROUPS

Exploratory qualitative data were collected to determine family members’ knowledge, attitudes and beliefs regarding breastfeeding and paediatric vaccinations, and the perceived influence of grandparents on parents’ decisions to breastfeed and vaccinate. To this end, focus group discussions were conducted separately whenever possible with mothers, fathers, grandmothers and grandfathers. In total, seventeen focus groups were conducted with 88 participants. Table 5.1 lists the family member type, number of participants per group, the ethnic composition of the group and the date on which the focus group was conducted.

5.3.1 Focus group participant recruitment

To recruit participants for focus groups, initial contact was made with local government organisations, charitable organisations and a few social groups that facilitate community activities: Joondalup Public Library, community knitting groups facilitated by the Joondalup local government, Wheelchairs for Kids, Duncraig Seniors Club and Edith Cowan University’s Mature Age Students Association. These organisations were instrumental in facilitating community recruitment. St John of God Hospitals in Subiaco and Midland assisted with the recruitment of mothers and grandmothers through their Open House Program and Moort Boodjari Mia respectively. Focus group numbers 2, 10 and 13 were recruited through my personal contacts who advertised the study within their communities (see Table 5.1). Following initial contact with these organisations, participants were subsequently recruited through snowball convenience sampling.
Table 5.1  Summary of focus groups: family member type, number of participants and ethnic group

<table>
<thead>
<tr>
<th>Focus group number</th>
<th>Family member type</th>
<th>Number of participants</th>
<th>Ethnic group</th>
<th>Date conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mothers (4) and grandmothers (6)</td>
<td>10</td>
<td>European, South African</td>
<td>April 23, 2016</td>
</tr>
<tr>
<td>2</td>
<td>Mothers (6)</td>
<td>6</td>
<td>North Indian</td>
<td>May 14, 2016</td>
</tr>
<tr>
<td>3</td>
<td>Grandfathers (5)</td>
<td>5</td>
<td>European</td>
<td>May 16, 2016</td>
</tr>
<tr>
<td>4</td>
<td>Grandfathers (5) and grandmother (1)</td>
<td>6</td>
<td>European</td>
<td>May 17, 2016</td>
</tr>
<tr>
<td>5</td>
<td>Grandmothers (6)</td>
<td>6</td>
<td>European</td>
<td>May 19, 2016</td>
</tr>
<tr>
<td>6</td>
<td>Grandfathers (6)</td>
<td>6</td>
<td>European</td>
<td>May 20, 2016</td>
</tr>
<tr>
<td>7</td>
<td>Grandmothers (5)</td>
<td>5</td>
<td>European</td>
<td>May 26, 2016</td>
</tr>
<tr>
<td>8</td>
<td>Fathers (5)</td>
<td>5</td>
<td>North Indian</td>
<td>July 3, 2016</td>
</tr>
<tr>
<td>9</td>
<td>Mothers (8)</td>
<td>8</td>
<td>European, South African, Philippine</td>
<td>Sept 20, 2016</td>
</tr>
<tr>
<td>10</td>
<td>Mothers (5)</td>
<td>5</td>
<td>European</td>
<td>Nov 6, 2016</td>
</tr>
<tr>
<td>11</td>
<td>Mothers (5)</td>
<td>5</td>
<td>European</td>
<td>Aug 3, 2017</td>
</tr>
<tr>
<td>12</td>
<td>Mothers (3)</td>
<td>3</td>
<td>European</td>
<td>Aug 16, 2017</td>
</tr>
<tr>
<td>13</td>
<td>Fathers (3)</td>
<td>3</td>
<td>European</td>
<td>Sept 9, 2017</td>
</tr>
<tr>
<td>14</td>
<td>Grandmothers (3) and mother (1)</td>
<td>4</td>
<td>Australian Aboriginal, Irish</td>
<td>Aug 24, 2017</td>
</tr>
<tr>
<td>15</td>
<td>Mothers (3) and grandmother (1)</td>
<td>4</td>
<td>Australian Aboriginal, European</td>
<td>Aug 24, 2017</td>
</tr>
<tr>
<td>16</td>
<td>Grandmothers (3) and mother (1)</td>
<td>4</td>
<td>Australian Aboriginal, Sri Lankan</td>
<td>Sep 15, 2017</td>
</tr>
<tr>
<td>17</td>
<td>Mothers (2) and grandmother (1)</td>
<td>3</td>
<td>Australian Aboriginal</td>
<td>Nov 27, 2017</td>
</tr>
</tbody>
</table>

5.3.2  Focus group structure

The focus group structure was variable. The group sizes ranged from three to ten participants. While the recommended range for optimal data collection through focus groups is six to ten (Johnson & Christensen, 2000; Morgan, 1997), the difficulty of arranging a time and place that was suitable for everyone meant some groups had to be small. The smallest groups consisted of fathers and Australian Aboriginal and Torres
Strait Islander participants. Generally, fathers were reluctant to participate, and the two focus groups of fathers were organised by their partners who had participated in the mothers’ focus groups. Regarding the Australian Aboriginal participants, the low numbers are a representation of the proportion of the Aboriginal population in the Perth Metropolitan area.

Most of the focus groups were conducted separately with one family member type in each to minimise the contamination of discussions. Due to convenience sampling, six of the seventeen groups were mixed: five groups were a mix of mothers and grandmothers (groups 1, 14, 15, 16, 17) and one grandfather group included a grandmother (group 4) who wished to participate (see Table 5.1). Given the multicultural nature of the communities in the metropolitan area and the heavy reliance on convenience sampling, it was not possible to ensure ethnic homogeneity in focus groups. The multicultural makeup and blend of family member type was considered during the facilitation of the focus group sessions and data analysis. The advantage of having blended focus groups was that it allowed exploration of some of the questions which brought up conflicting ideas between the family members. To this end, the blended groups illuminated some of the diverse perspectives of different family member types.

5.3.3 Focus group procedure

The focus group procedure was standardised across all focus groups. When participants had gathered, the format of the session and their rights as participants was read out to them (see Appendix D). Participants were informed that the discussion would be audio recorded and were given the information sheet (Appendix A) and the informed consent form (see Appendix B). Once the information was read and the consent form signed and returned, participants filled out a brief questionnaire on demographics (see
Appendix G, H). The parents’ questionnaire differed slightly from the grandparents’ version and had an additional section requiring information on grandparents’ country and state of residence. When the questionnaires had been completed, the format of the session and ground rules were explained. Participants were informed that they had the right to withdraw from participation should they wish to after the discussion had commenced. If they wished to leave, they were required to sign the withdrawal from participation sheet (Appendix C) and all data recorded to the point of withdrawal was included in the data analysis. They were reassured that their relationship with the researcher or the university will in no way be affected. Prior to commencing the discussion and the session being recorded, participants were asked if they had any questions. Every session commenced only after all the paper work had been completed, participants were seated and ready for the discussion to begin.

When everyone was ready, a digital voice recorder (Olympus model number WS-832) was turned on to record the session in mp3 format. I commenced each session formally by introducing myself and stated that I was a mother of a primary school age boy and went around the group with introductions. Participant introductions were carried out in every group regardless of whether they had stated how many children they had during the informal introductions when participants were arriving and settling in. Only first names were recorded on the questionnaires and voice recorder.

After the introductions were complete, I proceeded to go through a set of questions that were constructed from a careful review of the literature and in consultation with researchers in the field (Table 5.2). I recorded the location, date and time and the first names of the participants which facilitated the discussion and engagement of all participants (Appendix J).
Most discussions lasted approximately thirty minutes to an hour. In focus group numbers 1 and 16, both of which were comprised of mothers and grandmothers, discussions lasted nearly two hours. The length of the session for focus group 1 was due to the large number of participants, and a few of the participants providing detailed responses. Focus group 16, although smaller, had participants who reminisced a lot on their childhood and motherhood. I did not interrupt them as the dialogue between participants provided a rich data source in terms of responses regarding infant feeding experiences and paediatric vaccination use. One of the participants of group sixteen was a great-grandmother and she provided details on her observations on the change in infant feeding preferences over the generations within her family.

At the end of each session participants were given a list of contact numbers for publicly funded counselling services, in case the discussions have evoked any memories they wished to discuss (Appendix I).
<table>
<thead>
<tr>
<th>Question category</th>
<th>Questions for parents</th>
<th>Questions for grandparents</th>
</tr>
</thead>
</table>
| Opening question  | 1. What is your first name?  
2. How many children do you have? How many sons/daughters? | 1. What is your first name?  
2. How many children do you have? How many sons/daughters?  
3. How many grandchildren do you have? |
| Breastfeeding     | 3. How do you think people in Perth feel about breastfeeding?  
4. Do you think it is becoming more or less common? Why? | 4. When you first had your children, what was the general opinion about breastfeeding?  
5. How did people prefer to feed their babies at the time? (breastfeeding or formula feeding?) |
| Key Questions     | 6. What do you think about breastfeeding?  
7. What do you believe are the advantages and disadvantages of breastfeeding?  
8. Did your parents breastfeed you?  
9. Do you think your parents influence how you choose to feed your babies?  
10. What role (if any) do grandparents play in your children’s health?  
To use if participants are not forthcoming –  
10.2 Do they have anything to do with, or influence what your children eat and do? | 6. How did you feed your children when they were babies?  
7. How do you think opinions around breastfeeding have changed?  
8. Do you think your opinion on how children should be fed is considered by your children when it comes to how they decide to feed their babies?  
9. What do you think about how your grandchildren are being fed?  
10. Do you believe sons and daughters are different in terms of how much they need your help with grandchildren? |
| Vaccination       | 10. How do you think people in Perth feel about childhood vaccines? | 11. When you had your children what was the general feeling about vaccinations?  
12. How are childhood vaccinations different today from when your children were babies? |
| Key questions     | 11. What do you think about the current vaccination schedule for children?  
12. What do you believe are the advantages and disadvantages of vaccinating children?  
13. Did your parents get you vaccinated?  
14. Do your parents influence your decision in any way to vaccinate your children? | 13. What do you think are the advantages and disadvantages of vaccinating children?  
14. Do you discuss vaccinations for your grandchildren with their parents? |
| Concluding questions | 15. Have we missed anything?  
16. Is there anything else that you would like to say that we have not talked about today? | 15. Have we missed anything?  
16. Is there anything else that you would like to say that we have not talked about today? |
5.3.4 Focus group data organisation

There were two parts to the data organisation from focus groups. The demographic data collected from the questionnaire at the beginning of the focus group, and the qualitative data from the focus group discussions. The following section outlines how the data were organised.

5.3.4.1 Demographic questionnaire data

Questionnaires completed by participants at the beginning of the focus groups collected information on participants’ dates and place of birth, employment status, and number of children. Parents provided additional information on the place of usual residence of grandparents if applicable (Appendix G). Grandparents were asked for information on the number of grandchildren and whether they were their daughters’ or sons’ grandchildren (Appendix H). The questionnaires were de-identified by assigning a code and entered into Microsoft Xcel spreadsheets for synthesis and analysis as part of the group.

Data for each of the focus groups was initially entered separately. Spreadsheets for mothers, fathers, grandmothers and grandfathers were later merged and demographic data and family size and structure was established.

5.3.4.2 Focus group qualitative data processing

All focus groups recordings were transferred onto my personal external hard drive (1TB WD My Passport), which was password protected and accessed only by me. Files were re-played, transcribed and analysed on my personal Dell Laptop (Dell Intel Core i7 7th Gen. XPS PC Laptop). Following each focus group, I made notes of my thoughts on the discussion to be self-aware of my subjectivities and minimise their impact on data analysis. This was done on the day the focus groups were conducted.
The data processing followed three distinct phases. First, I listened to the entire recording of each focus group and made additional notes on the printed copy of the note-taking summary used during the focus group session. I also made notes about the atmosphere of each focus group, tensions that arose between participants and my interpretation of responses. Second, I typed up the notes to the corresponding note-taking summary for the focus group and used it as a template to transcribe the recording verbatim. The recordings were slowed to half the speed to facilitate faster transcription. Third, after the audio recording was transcribed in full, I listened to the recording a third time and followed along with the transcription, and my notes that were taken during the focus group session and the first time I listened to the recording. Listening with the transcribed notes allowed me to edit errors made during transcription and typing. At this time, the first names of participants were replaced with the survey code and the data were de-identified.

5.4 QUALITATIVE DATA ANALYSIS

The transcripts from each focus group were used as the data and analysed using the interpretative phenomenological analysis (IPA) (Smith & Osborn, 2014). This enabled the exploration of individual perceptions of their personal experiences regarding infant feeding and paediatric vaccine use for their children and grandchildren.

IPA is an experiential qualitative approach to research, which explores the lived experience of participants and how they make sense of it (Joseph, 2014). It explores the individual’s perception and takes into account the subjectivities of the researcher through a process of interpretation when analysing the phenomena under study. It is a form of qualitative data analysis that is primarily used in psychology and health studies. It also allows the researcher to go beyond the text and interpret the experience of participants to make it more meaningful (Harper, 2011). Joseph (2014) states that IPA
gives the researcher scope to interpret the participant’s lived experiences that encompasses the cultural, social and theoretical perspectives.

5.4.1 Qualitative data coding and constructing themes

To begin, the focus group questions and the aims of the study were tabulated and colour coded. Each aim and the corresponding questions were assigned a different colour. Questions and aims relating to breastfeeding and paediatric vaccinations were listed separately for the parent and grandparent questions. In keeping with the principle of phenomenology, the in vivo coding method was used (Saldana, 2016). Coding is the process of organising the material into chunks or segments of text and assigning a word or phrase to the segment in order to develop a general sense of the data (Creswell, 2014). In vivo coding uses words or short phrases from the participants’ own language in the data record as codes (Saldana, 2016).

Transcribed notes were printed out and read for responses specific to the focus group questions as they related to the aims of the study. The responses were highlighted using assigned colours and typed up under each aim of the study. The typed document was formatted to allow a large margin on the left and right and printed for reading and manual coding. I then proceeded to code the data by highlighting and writing the codes on the left-hand margin. Quotes relating to the codes were underlined and marked on the right-hand column. The second cycle of coding involved rearrangement of the codes into categories under short phrases from participant quotes. The codes derived from the data for questions relating to breastfeeding and paediatric vaccinations were listed in separate tables for non-Aboriginal Australians and Aboriginal and Torres Strait Islander Australians. The transcripts were read once again, and all irrelevant cluster of themes were discarded, before extrapolating the distinct themes of lived experience.
5.4.2 Evaluating the trustworthiness of qualitative data analysis

The themes generated from the qualitative data analysis were evaluated for trustworthiness using Guba’s (1981) model, which is based on the identification of four aspects of trustworthiness: (a) truth value, (b) applicability, (c) consistency, and (d) neutrality. Truth value is usually obtained from the discovery of human experiences as they are lived and perceived by informants and not defined a priori (Krefting, 1990). Applicability is the degree to which the findings can be applied to other contexts and settings or with other groups, in other words, generalisability (Sandelowski, 1986). Consistency is whether the findings could be replicated with the same participants or in a similar context. Finally, neutrality is freedom from bias in the research procedures and results (Sandelowski, 1986).

Repeated focus groups were conducted with each family member type, except fathers, until data saturation was reached to ensure applicability and consistency. Truth value and neutrality were assessed by contacting participants from groups 1, 2, 9, 12, 14, 16 and 17 for triangulation of data. One member from each of the groups was contacted and the interpretation was shared with them. All participants who read the interpretation were in agreement and raised no issue with the analysis of the data. In addition, throughout the data transcription and analysis phase I discussed the codes and emerging themes with my supervisors. The final themes that were elicited from the focus group discussions were used to inform the quantitative method. Specifically, findings from the qualitative phase of the study were used for the development of the Perceived Grandparental Influence Questionnaire.
5.5 PHASE 2 – PERCEIVED GRANDPARENTAL INFLUENCE
QUESTIONNAIRE DEVELOPMENT

5.5.1 Questionnaire structure

The Perceived Grandparental Influence Questionnaire (PGIQ) was designed to assess whether parents perceived grandparents as a source of influence in their decisions to breastfeed and vaccinate their infants and children. It also assessed whether grandparents perceived themselves to be a source of influence on their children’s decisions to breastfeed and vaccinate their grandchildren. In addition, the knowledge, beliefs and attitudes of parents and grandparents towards breastfeeding and paediatric vaccinations were also assessed.

The broad content of the questionnaire was based on the current literature and was further informed by the findings from the qualitative data analyses. The questionnaire contained four main sections: 1) demographic information; 2) family relationships and grandparental investment (such as time spent with grandchildren and help provided to parents with household chores and childcare); 3) knowledge, attitudes, beliefs and practice of breastfeeding and sources of perceived influence; and 4) knowledge, attitudes, beliefs and uptake of paediatric vaccinations and sources of perceived influence.

Questions exploring the knowledge, attitudes and beliefs and sources of influence on breastfeeding and vaccinations were drawn from previously validated questionnaires (see Appendix M). Separate questionnaires were drafted for mothers, fathers, grandmothers and grandfathers. Questionnaires were also developed to follow pregnant mothers longitudinally for a year, which included four questionnaires: the first one completed in the prenatal period; and follow up with questionnaires at two months,
six months, and twelve months postpartum. The data from pregnant mothers is still being collected and was not analysed in this thesis.

The key difference between the parent and grandparent versions was in the grandparental investment section. Parents were asked about help received, and grandparents were asked about help offered. Questions also probed the levels of satisfaction of grandparents in their role within the family. These questions and corresponding variables are summarised in Appendix M. At the beginning of each questionnaire, parents were asked for the contact details of their partner, parents, and parents-in-law, if applicable. Similarly, grandparents were asked for details of their partner, daughter, and daughter-in-law, if applicable. This information was requested in an effort to collect data from complete families.

After the questions were finalised, the questionnaire was designed using Qualtrics, a web-based software program (Qualtrics, Provo, UT). The questionnaire was made available in printed and electronic versions. Paper copies were formatted in Microsoft word and converted to PDF files for distribution to participants who preferred paper copies. Unique Universal Resource Locators (URL) were generated for the questionnaires for mothers, fathers, grandmothers, grandfathers and pregnant mothers on Qualtrics for electronic distribution.

The final drafts of the questionnaires, along with amended participant information sheet that explained the procedures of questionnaire completion and confidentiality were submitted to the ECU Human Research Ethics Committee for approval before piloting.

5.5.2 Questionnaire piloting

Following human ethics approval, the questionnaires were piloted through my personal contacts and snowball sampling. The questionnaires were piloted by 32
individuals: fourteen mothers, eight fathers, seven grandmothers and three grandfathers. The pilot data was not included in the final data analyses.

Based on participant feedback “Date of death” for children as a variable in the family structure question was removed. Other changes (e.g. skipping questions where appropriate on the online version) were made to improve the flow of the final questionnaire. Instructions on questions where participants were required to rank their source of influence were explained in detail on the electronic versions.

After the edits were made to the questionnaires, they were resubmitted for approval to ECU HREC. Final approval was granted on June 6, 2017 by ECU HREC. The questionnaires were also submitted to SJOGH Human Research Ethics Committee and approval was granted on June 14, 2017 for data collection.

5.6 PHASE 3 – QUANTITATIVE DATA COLLECTION–QUESTIONNAIRE

5.6.1 Sample size calculation

A list of predictor and criterion variables were used in the power calculation. Predictor or independent variables are constant, and criterion outcome variables are those being explored. A priori sample size calculations using multiple regression (omnibus R²) with six predictor variables for a moderate size effect (that is a difference of 0.13 between predictors for knowledge, beliefs and attitude towards breastfeeding and paediatric vaccinations, relationships and perceived influences) was estimated at 163 (see Table 5.3). This sample size is expected to have a power of 95% to yield statistically significant results. Allowing for a 20% attrition rate, the final required sample size is estimated to be 200 for each family member type (mother, father, grandmother, grandfather) for a total of 800 participants (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, & Buchner, 2007).
Table 5.3  Predictor and criterion variables used in sample size calculation

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Criterion variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Knowledge, belief and attitude towards breastfeeding</td>
</tr>
<tr>
<td>Lineage (biological relatedness)</td>
<td>Knowledge, belief and attitude towards paediatric vaccination</td>
</tr>
<tr>
<td>Cultural background</td>
<td>Relationship with grandparents</td>
</tr>
<tr>
<td>Education</td>
<td>Perceived grandparental influence</td>
</tr>
<tr>
<td>Employment status</td>
<td>Other sources of influence</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td></td>
</tr>
</tbody>
</table>

5.6.2 Recruitment for quantitative data collection

Similar to recruitment for focus groups, local governments were contacted across Perth. City Councils and shires in the South West and Northern regions of Western Australia were emailed a copy of the recruitment poster (Appendix O) and ethical approval requesting permission to advertise the study through them. Some of the local governments responded by advertising the study on their Facebook pages while others put up posters at their local community centres. Playgroups WA, SJOGH maternity staff at Subiaco and Midland, the ECU Mature Age Student Network, ECU Sports Centre and Wheelchairs for Kids also advertised the study. Social media such as Facebook, LinkedIn and Twitter were also used for recruitment. The recruitment poster was put up on community notice boards and local doctor’s offices who provided permission to advertise. In addition, SJOGH postnatal groups were visited fortnightly to introduce the study to mothers attending the sessions with young babies and recruit participants. Monthly antenatal sessions run for expectant parents by SJOGH in Subiaco was also used to recruit pregnant women. Parent-child sessions run by local governments were visited once a week in Perth’s north metropolitan area to introduce the study and distribute flyers.
Questionnaires were sent out only when requested by interested participants. The assumption was that response rates would be higher among participants who volunteered their time, therefore questionnaires were not sent out unsolicited. Participants either picked up questionnaires at hospitals and postnatal sessions when recruitment was conducted in-person, telephoned or emailed expressing an interest in participation. Because women tend to be more receptive to participation in research, the primary contact was intended to be either a mother or grandmother. Where grandfathers and fathers were primary contacts, however, some of them did provide contact details for spouses and parents. Questionnaires were sent unsolicited only in instances where family members provided contact details such as an email address (completed online), or postal address (paper copies). It was assumed that the contact details were being provided after participants had obtained the permission of their family members. Recruitment largely followed the pattern represented in Figure 5.2.

Once questionnaires were emailed or mailed out, a reminder was sent two weeks after the first contact. If participants did not respond after a month of the reminder, they were marked as non-responders on a spreadsheet tracking questionnaire dissemination. Participants were only sent one reminder following initial contact. Typically, participants who did not respond immediately after the first reminder, did not complete the questionnaire. Family members who were sent questionnaires based on primary participant provided contact details frequently responded to the reminders declining participation.
Figure 5.2 Questionnaire dissemination pattern. Mothers and grandmothers were the first point of contact. They provided the contact details for fathers and grandfathers to have questionnaires sent out.

5.6.3 Participants

Individuals with children who were living in Western Australia, regardless of whether they had grandparents alive or living in the country, were recruited. During recruitment it was explicitly stated that we were seeking both families that had grandparents and those families that did not. The only exclusion criterion was that participants should be capable of filling out the questionnaire in English. Translating questionnaires in multiple languages was beyond the scope of the project.

A total of 584 questionnaires were sent out. Table 5.4 lists the number of electronic questionnaires and paper copies sent out by the family member type. The number of responses are also included in the table. The attrition rate was 55%, with a total of 285 responses being included in the final data set, prior to data cleaning. Electronic questionnaires had a higher response rate than paper copies.
Table 5.4  Number of surveys placed by family member type and numbers (% of responses received)

<table>
<thead>
<tr>
<th>Surveys placed</th>
<th>Mother</th>
<th>Father</th>
<th>Grandmother</th>
<th>Grandfather</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total placed</td>
<td>246</td>
<td>106</td>
<td>148</td>
<td>84</td>
</tr>
<tr>
<td>Printed surveys</td>
<td>86 (35%)</td>
<td>32 (30%)</td>
<td>53 (36%)</td>
<td>47 (55%)</td>
</tr>
<tr>
<td>Electronic surveys</td>
<td>160 (65%)</td>
<td>74 (70%)</td>
<td>95 (64%)</td>
<td>37 (44%)</td>
</tr>
<tr>
<td>Responses received</td>
<td>137 (55%)</td>
<td>32 (30%)</td>
<td>83 (56%)</td>
<td>33 (39%)</td>
</tr>
</tbody>
</table>

5.7  DATA STORAGE

As previously mentioned, the questionnaire structure varied significantly for the different members of the family. The variations were with questions about the help received by parents and given by grandparents, and the grandparents’ perceived level of satisfaction in their roles. The questions relating to breastfeeding decisions and experiences were different for mothers and grandmothers compared to fathers and grandfathers. For this reason, when paper copies of the questionnaires were returned, the responses were entered into Qualtrics to ensure they were all saved in the same format. The completed paper copies of the questionnaires and the signed informed consent forms were stored in a locked cabinet in an access restricted facility at the Joondalup Campus of Edith Cowan University.

Prior to data analysis, the data was exported separately for mothers, fathers, grandmothers and grandfathers from Qualtrics to IBM SPSS version 25 on my personal computer and saved in password protected files. To ensure there were no influences from the questionnaire responses back into the qualitative analysis, the quantitative data was exported for analysis after qualitative data analysis was deemed complete. Quantitative data was not checked prior to qualitative data analysis completion to prevent bias, especially given the subjective nature of the qualitative data analysis.
5.8 DATA CLEANING

Outliers can have a large impact on the results of data analysis and can affect the reliability and validity of the data when conducting multivariate statistics. Therefore, care was taken to examine the data in detail before the main analysis was conducted (Tabachnick & Fidell, 2007). Continuous variables were examined for outliers and plausibility of means, and categorical data was checked for out-of-range values.

There were separate data files for mothers, fathers, grandmothers and grandfathers and each of the files were examined separately. Among the mothers, the year of birth was entered incorrectly as 2017 by one respondent. Since this participant had completed the whole questionnaire, the average age for mothers on the data set was used to impute the missing age.

Among grandmothers, two participants failed to provide their dates of birth and one had entered the year of survey completion, 2017, as the year of birth. Based on the assumption that maternal grandmothers would be the youngest and paternal grandfathers would be the oldest, the average was calculated for each grandparent type and the missing ages imputed to complete the data set for analysis. While checking the responses from grandfathers, one respondent, a female was found to be grandmother. The respondent being a grandmother was confirmed by tracing the questionnaire ID emailed to participants and cross checking with the Excel spreadsheet that was maintained to track questionnaire distribution and responses. The data was then transferred into the grandmother data set for analysis.

The percentage of each questionnaire completed was checked to determine the inclusion of cases for data analysis. When less than 20% of the questionnaire was completed, the cases were removed from the final analysis since the questions covered in the first part of the questionnaire are on the basic demographic information, which on
its own cannot help with the hypothesis testing. Two cases from the fathers’ data file, and three cases from the mothers’ data files were removed.

5.9 RELIABILITY STATISTICS

The coefficient alpha (Cronbach, 1951) is a measure of the internal consistency of a scale and can be used where each item in the scale is dichotomous or continuous (Kaplan & Saccuzo, 1993). For the internal consistency of a scale to be measured the scale must be measuring the same thing and therefore, the items on the scale should be inter-correlated (Bland & Altman, 1997). Cronbach’s alpha calculated for the six-item breastfeeding and paediatric vaccination knowledge, attitudes and beliefs with 259 cases are listed in Tables 5.5 and 5.6. The reliability tests were carried out separately for breastfeeding (Table 5.5) and paediatric vaccination (Table 5.6) among the different family member types.

With scales containing fewer than ten items it is suggested that Cronbach alpha value less than 0.5 would be acceptable (Pallant, 2013). Since the scale for knowledge, beliefs and attitude questions contained six items, a Cronbach alpha value of 0.5 was accepted as indicating sufficient internal consistency for data analysis. Variables that were likely to change between responses were not analysed for internal consistency (e.g. marital status, family income, employment status, educational qualifications).
Table 5.5  Cronbach’s alpha for the infant feeding knowledge, attitudes, beliefs, and perceived sources of support and influence

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mothers (n=130)</th>
<th>Fathers (n=29)</th>
<th>Grandmothers (n=72)</th>
<th>Grandfathers (n=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breastfeeding - knowledge, beliefs and attitudes (5 items)</td>
<td>0.86</td>
<td>0.87</td>
<td>0.83</td>
<td>0.81</td>
</tr>
<tr>
<td>Formula feeding - knowledge, beliefs and attitudes (5 items)</td>
<td>0.61</td>
<td>0.56</td>
<td>0.62</td>
<td>0.61</td>
</tr>
<tr>
<td>Breastfeeding support (2 items)</td>
<td>0.71</td>
<td>0.75</td>
<td>0.83</td>
<td>0.27</td>
</tr>
<tr>
<td>Sources of influence for breastfeeding (5 items)</td>
<td>0.79</td>
<td>0.81</td>
<td>0.76</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Table 5.6  Cronbach’s alpha for paediatric vaccine knowledge, attitudes and beliefs, and perceived sources of influences and vaccine anxiety

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mothers (n=130)</th>
<th>Fathers (n=29)</th>
<th>Grandmothers (n=72)</th>
<th>Grandfathers (n=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paediatric vaccine – family, social influence (4 items for parents; 3 items for grandparents)</td>
<td>0.76</td>
<td>0.75</td>
<td>0.83</td>
<td>0.72</td>
</tr>
<tr>
<td>Paediatric vaccine – knowledge, beliefs and attitudes (8 items)</td>
<td>0.9</td>
<td>0.85</td>
<td>0.95</td>
<td>0.73</td>
</tr>
<tr>
<td>Vaccine anxiety (4 items)</td>
<td>0.66</td>
<td>0.73</td>
<td>0.63</td>
<td>0.72</td>
</tr>
</tbody>
</table>

All items ranked above 0.5, except grandfathers’ responses to questions related to support for breastfeeding mothers, have poor inter-item correlation. Further reliability analysis showed the scales to be unidimensional and therefore they were included in the final analyses.
5.10 QUANTITATIVE DATA ANALYSIS

Once exported from Qualtrics the data were analysed using SPSS Statistics for Windows version 25.0 (IBM Corp., 2017). All data analysis was conducted on my personal Dell Laptop (Dell Intel Core i7 7th Gen. XPS PC Laptop) running Windows 10.

5.11 STATISTICAL PROCEDURES

This section details the general statistical methods I followed; any variation from these methods is detailed where they were used. Once the data were cleaned, I examined the descriptive statistics to gain an understanding of each variable. Descriptive statistics were conducted to determine socio-demographic information and gain an understanding of the population characteristics. The next step involved exploring the bivariate associations between variables. Bivariate and partial correlations were used to examine associations between continuous variables. Chi-squared tests were used to examine categorical variables by comparing the proportions of participants in the various groups. The relationship between categorical and continuous variables was examined using t-tests and ANOVAs. All hypothesis tests were two-tailed with a significance level of 5% unless specified otherwise.

The theoretical framework presented in this study explores the influence grandparents have on parents’ decisions to breastfeeding and vaccinate as a form of intergenerational investment. Therefore, scales were created using previously validated questions (McIntyre, Hiller, & Turnbull, 2001; Newby et al., 2014) to examine knowledge, beliefs and attitudes. Questions that were positively worded for breastfeeding and paediatric vaccinations on a Likert scale were reverse coded to have the means representing agreement with statements and a higher score on each scale. The questions in each construct were summed to create a scale. ANOVAs were then
conducted to explore the beliefs, attitudes and perceived sources of grandparental influence.
CHAPTER 6
PERCEIVED INFLUENCE OF GRANDPARENTS ON BREASTFEEDING BEHAVIOUR: QUALITATIVE RESULTS

6.1 INTRODUCTION

Despite the established benefits associated with breastfeeding, current global rates remain below recommendations. The WHO recommends exclusive breastfeeding, defined as the practice of only giving an infant breast milk (no other food or water), for the first six months of life and continued breastfeeding for up to two years of age or beyond (WHO & UNICEF, 2014). In Australia, 90% of mothers initiate breastfeeding but only 15% of infants are exclusively breastfed at five months (ABA, 2015). In Western Australia only 13% of infants are exclusively breastfed at six months (Powell, Joyce, & Radomiljac, 2017). Moreover, Australian breastfeeding rates are below the global average of 39% of all infants breastfed according to WHO recommendations (UNICEF, 2014a).

It has been consistently shown that women reporting higher levels of education and income breastfeed for longer, and until the 1960s women with lower education also reported breastfeeding longer (Victora et al., 2016). These statistics could be considered a reflection of the ways in which, as Dykes (2005) argues, breastfeeding women negotiate and incorporate dominant ideologies and institutional and cultural norms with the realities of their lived experiences, personal circumstances and social support systems. Breastfeeding as a practice is embedded in culture, tradition and family practices, which makes it a form of parental investment that is likely to be influenced by many factors including grandparents.

This chapter lays out the findings from the exploratory qualitative phase of this study, assessing the knowledge, beliefs and attitudes of parents and grandparents
towards breastfeeding and the perceived sources of influence on infant feeding
decisions. Data from focus group discussions conducted with mothers, fathers,
grandmothers and grandfathers are presented as it relates to the research hypotheses.
Following a brief description of the qualitative method used, the results are presented
separately for non-Aboriginal Australian focus groups, and Aboriginal and Torres Strait
Islander Australians. The chapter concludes with a discussion of the experiences of
breastfeeding within the two sub-cultures in Perth as it relates to the hypotheses:

1) Positive beliefs and attitudes of parents and grandparents regarding
   breastfeeding will translate into adherence to public health recommended
   breastfeeding practices;

2) In environments where there are challenges to breastfeeding grandparents
   will be perceived as a source of positive influence by parents in their infant
   feeding decisions; and

3) Maternal grandmothers will be perceived as having the most positive
   influence on breastfeeding rates compared to paternal grandmothers and
   grandfathers.

6.2 METHOD

A total of 17 focus groups were conducted (Table 5.1) with different family
member types. Most of the focus groups were conducted separately with one family
member type to minimise the contamination of discussions. Due to convenience
sampling, six of the seventeen groups were mixed: five groups were a mix of mothers
and grandmothers (groups 1, 14, 15, 16, 17) and one grandfather group included a
grandmother (group 4). Mixed groups, while containing different family member types,
were not related to each other. In instances where related family members participated
in different groups (all but one father was married to the mothers who participated in
two separate focus groups), during data analysis, for the purpose of answering the research question, were treated as unrelated. Given the multicultural nature of the communities in the metropolitan area and the heavy reliance on convenience sampling, it was not possible to ensure ethnic homogeneity in focus groups.

To examine the hypotheses transcribed data from the focus groups were coded in vivo and analysed using an interpretative phenomenological framework (Joseph, 2014). The second cycle of coding involved rearrangement of the codes into categories under short phrases from participant quotes. The short phrases/codes from the second cycle of coding and the themes are illustrated in table 6.4 and table 6.5 for non-Aboriginal and Aboriginal participants, respectively. Interpretation of the data as it related to the hypotheses following two cycles of coding, and discussions with supervisors revealed four major themes each for non-Aboriginal and Aboriginal and Torres Strait Islander participants. The findings were shared with participants to gain confirmation that the themes were an accurate interpretation of their beliefs and experiences.

With three of the four Aboriginal and Torres Strait Islander focus groups (group 14, 15, 16 and 17), members of other ethnic groups joined the discussions. After careful reading of the data and reflection on the Aboriginal and Torres Strait Islander only focus groups, it was determined that participation of individuals of other ethnic groups did not hinder Aboriginal and Torres Strait Islander participants from expressing their opinions about their perceptions around grandparental influence on breastfeeding. Data from non-Aboriginal participants was not included in the analysis given the diverse cultural perspectives. Aboriginal participants’ data were analysed and are presented separately primarily due to the cultural differences in the perception of breastfeeding that exists in
the literature and the differences in themes that arose from the analysis. There were no Aboriginal and Torres Strait Islander father and grandfather focus groups.

### 6.3 RESULTS

Findings from the qualitative data analysis are presented separately for non-Aboriginal Australians and Aboriginal and Torres Strait Islander participants. Demographic data is presented first, followed by a general introduction to the qualitative findings for each group and the tables with the codes and themes. Finally, the themes are discussed with key quotes to illustrate each theme.

#### 6.3.1 Participant characteristics

Non-Aboriginal Australian mothers’ and fathers’ characteristics are detailed in Table 6.1. Mothers in this cohort ranged from first time mothers with infants as young as a few months old to those with adult children. The groups were ethnically diverse with mothers from India, England, Singapore, the Philippines, Indonesia, Thailand, Ireland, Wales, Botswana and Germany in addition to Australian born mothers of European descent. Fathers’ were also an ethnically diverse group with only one Australian born father of European heritage, the rest of the participants were immigrants from India, Belgium and Iran. All but one of the fathers was married to mothers who had also participated in focus groups.

<table>
<thead>
<tr>
<th>Table 6.1 Characteristics of non-Aboriginal Australian parents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age range</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td><strong>Mother (n=31)</strong></td>
</tr>
<tr>
<td><strong>Father (n=8)</strong></td>
</tr>
</tbody>
</table>
The grandmothers’ and grandfathers’ characteristics are detailed in table 6.2. The grandmothers who participated in the qualitative phase of this study were predominantly of European descent. Some had migrated recently from the United Kingdom, South Africa and Zimbabwe. The grandmothers’ age at first birth is on average six years younger than the mothers who participated in the focus groups. Grandfathers were nine years younger than the fathers when they had their first child. Grandfathers were similar to grandmothers in their ethnic make-up and were of European descent with some having migrated from the United Kingdom, South Africa and Kenya. None of the grandfathers were related to the grandmothers who participated in the focus groups.

Table 6.2  Characteristics of non-Aboriginal Australian grandparents

<table>
<thead>
<tr>
<th></th>
<th>Age range</th>
<th>Born outside Australia</th>
<th>Average age at first birth</th>
<th>Age range of children</th>
<th>Children in Perth</th>
<th>Ever breastfed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand-mother (n=18)</td>
<td>56 – 89</td>
<td>9(50%)</td>
<td>24</td>
<td>26 – 68 years</td>
<td>100%</td>
<td>10(55%)</td>
</tr>
<tr>
<td>Grand-father (n=16)</td>
<td>65 – 88</td>
<td>6(38%)</td>
<td>29</td>
<td>34 – 56 years</td>
<td>100%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

The characteristics of Aboriginal and Torres Strait Islander mothers and grandmothers who participated in the focus groups are detailed in table 6.3. Multiple factors pose challenges to recruiting Aboriginal participants, which resulted in fewer participants. Two of the four focus groups conducted with Aboriginal participants were in a hospital where non-Aboriginal grandmothers and mothers wanted to be to part of the discussion. Given that I was highly dependent on the hospital staff for recruitment, I was unable to refuse their participation. Other focus groups were conducted at a community centre in a northern suburb of the Perth metropolitan area, where one of the groups had a mother of Sri Lankan heritage join the discussion. The fourth focus group only contained Aboriginal and Torres Strait Islander participants.
The average age at first birth was similar between grandmothers and mothers in the Aboriginal and Torres Strait Islander participants. All of the parents and children lived in Perth and all mothers had breastfed their children.

### Table 6.3  Characteristics of Aboriginal Australian participants

<table>
<thead>
<tr>
<th></th>
<th>Age range</th>
<th>Born outside Australia</th>
<th>Age at first birth</th>
<th>Age range of children</th>
<th>Grandparents/Children in Perth</th>
<th>Ever breastfed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother (n=5)</strong></td>
<td>29 – 45*</td>
<td>0%</td>
<td>23</td>
<td>3 – 28 years</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Grandmother (n=7)</strong></td>
<td>51 – 82**</td>
<td>0%</td>
<td>20</td>
<td>25 – 57 years</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Data not available for one mother  
** Data not available for one grandmother

### 6.3.2 General overview of the knowledge, beliefs and attitudes towards breastfeeding of Non-Aboriginal participants

“That’s really interesting, because it’s such a change, because when I had my eldest he’s 50 this year, so he was born in 1966, and I can remember then that they decided that, the powers that be, that the new formulas were so much better for children, and they completely discouraged breastfeeding, and then I had a serious illness and there’s a ten, eleven years gap between my son and my daughter. So, when my daughter was born it was completely different. And then it was, it was really strong towards breastfeeding so, I always thought that was very strange in a matter of ten years the attitudes of the medical profession and I was young when I had my first one and just did whatever I was told, I know believe that or not.” (65-year-old grandmother)

This quote aptly represents the agreement among grandmothers on breastfeeding. It also illustrates the effect of culture change on attitudes towards breastfeeding. As societies transitioned from hunting and gathering to subsistence farming and thereafter to the industrial, and the current post-industrial era, breastfeeding has become more of a culturally specific, rather than a species-wide trait. The influence
of culture on breastfeeding is so significant that the lack of safe substitutes for breast milk was attributed to the high rates of infant mortality during the industrial revolution as women became wage earners (Huck 1994, 1995).

Mothers who participated in the focus groups expressed adequate knowledge about the benefits of breastfeeding. They agreed that in instances where they chose to feed their infants with breastmilk substitutes it was after much deliberation, or because they were unable to breastfeed. None of the participants mentioned any knowledge of the detrimental effects of infant formula use. The diversity in age and culture of mothers meant that their knowledge, beliefs and attitudes were informed by the popular infant feeding culture in which they were raised as children, and at the time of the birth of their own children.

Among fathers, breastfeeding was accepted as the normal feeding situation. Not having witnessed infants being formula fed, fathers associate formula feeding more with toddlers than infants. They were aware of the health benefits of breastfeeding but accepted that there were instances where breastfeeding was not possible and mothers ought to be supported when using infant formula.

Grandmothers in this cohort represent a generation of women who were increasingly employed outside the home in addition to their roles within families and caring for young children. Having given birth and raised children in the mid to late 20th century, when technological advancement and new medical information was constantly emerging, grandmothers did not have very clear ideas on best practice around infant feeding or the benefits of breastfeeding. All grandmothers stated that they relied heavily on health care professionals for expert advice. Grandmothers debated the duration of exclusive feeding and disapproved of feeding beyond the first year of the child’s life. While grandmothers agreed that breastfeeding was the most natural, convenient and
cost-effective means of feeding an infant, they continued to report practices that fell short of WHO recommendations. However, recommendations for these grandmothers when they were raising their children ranged from explicit advice not to breastfeed through to exclusive breastfeeding. This contradictory advice would have made it challenging to discern what the best infant practice would be.

Unlike grandmothers, grandfathers expressed a positive view of breastfeeding. A few of the participants were retired farmers and held favourable views of breastfeeding. They were all aware of whether their children were breastfed. A number of them were married to nurses and spoke highly about their wives’ knowledge and capabilities with regard to infant feeding and child nutrition. They felt the grandmothers had an influence on infant feeding practices and that children, especially daughters, sought out their mothers (grandmothers) frequently for advice and help. Grandfathers did not believe they personally had any influence on the infant feeding decisions parents made for their grandchildren. Despite their belief, many grandfathers were indirectly involved, and most wanted their opinions to be heard.

Despite the diverse perspectives of the different family member types, common themes were evident. Given the subjective nature of qualitative data analysis, in order to explore individuals’ perceptions objectively, data was analysed using the IPA framework. The framework allowed me to objectively interpret participants’ lived experience in light of the history of breastfeeding and study objectives.

Four major themes emerged for non-Aboriginal Australian participants. First, parents and grandparents agree that breastfeeding is best for infants and feel that the current climate is very supportive of breastfeeding in general. Grandparents feel that breastfeeding is more accepted as “normal” now. Second, both mothers and grandmothers felt pressured to breastfeed. Although grandmothers were pressured more
by a lack of affordable alternatives, mothers felt pressured by current knowledge on the infant health benefits to breastfeeding. The availability of safe alternatives creates a discord as a mother struggles to establish breastfeeding while knowing the alternative would be less stressful, albeit not optimal. Third, maternal grandmothers feeding experiences and attitudes did influence a mother’s attitudes and confidence in breastfeeding. Paternal grandmothers, however, play a negligible role in parents’ infant feeding decisions. Finally, while parents and grandparents have ample access to information, there is limited knowledge of the WHO recommendations around infant feeding, especially beyond the infants’ first year. Table 6.4 provides the codes and themes, which are discussed below in more detail with key quotes from the focus groups.
Table 6.4  Codes and themes for non-Aboriginal parents and grandparents as it relates to breastfeeding

<table>
<thead>
<tr>
<th>Family member</th>
<th>In vivo codes (examples)</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>You can breastfeed wherever</td>
<td>Parents and grandparents agree breastfeeding is best for infants and feel that the current climate is very supportive of breastfeeding.</td>
</tr>
<tr>
<td></td>
<td>You don’t feel out of place breastfeeding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It’s the natural way to feed them</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>My children, my grandchildren, they are all very for breastfeeding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>…very good, they are giving a lot of support to the young mums</td>
<td></td>
</tr>
<tr>
<td></td>
<td>They don’t have to shut themselves in a room</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>It’s not as much of a taboo as it was</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health benefits are humongous</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I think people are supportive of breastfeeding</td>
<td></td>
</tr>
<tr>
<td>Grandfather</td>
<td>It’s [breastfeeding in public] a bit more common these days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Breastfeeding is the proper formula</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To not breastfeed was second best</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>It can be a bit too much of a push to breastfeed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sometimes impacts on a mother’s mental health</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I do know it’s best but it’s not working</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>You were expected to do it</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There wasn’t such arrange of baby food to be got</td>
<td></td>
</tr>
<tr>
<td></td>
<td>…a think that breastmilk was pure</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>I never thought a mother could just stop</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I didn’t know you had the option [of not breastfeeding]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I think it was a necessity</td>
<td></td>
</tr>
<tr>
<td>Grandfather</td>
<td>I don’t think there was much debate about it</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In our era for the mothers it was the natural thing to do</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It’s vitally important they get six months of it [breast milk]</td>
<td></td>
</tr>
<tr>
<td>Family member</td>
<td>In vivo codes (examples)</td>
<td>Themes</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Mother        | I was breastfed, mum was quite supportive of it  
My mum definitely influenced me  
My mum actually said to me don’t focus too much on breastfeeding                                                                                                                                                                                                                       | Maternal grandmothers have a greater influence than paternal grandmothers and grandmothers’ infant feeding experiences and attitude influence a mother’s attitude and confidence in breastfeeding.  
**Themes**                                                                                                                                                                                                                     |
| Grandmother   | I think you’re always closer to your daughter  
Daughter-in-law is more in touch with her mum  
I think my mother just sort of expected me to do it [breastfeed]                                                                                                                                                                                                                       |                                                                                                                                                                                                                           |
| Father        | She [wife] talks to her mother quite often  
Lots of advice from them [in-laws]  
I hear them speaking, my mother-in-law stays with me                                                                                                                                                                                                                                    |                                                                                                                                                                                                                           |
| Grandfather   | I think ladies would talk to their mothers  
His [son] wife would talk to her mum  
In my house the daughters ring two or three times a day                                                                                                                                                                                                                               |                                                                                                                                                                                                                           |
| Mother        | Child health recommends you do it for a few months  
I think for zero to six months it is encouraged  
I was breastfeeding at twelve months, they’re [child health nurses] like why are you still doing it?                                                                                                                                                                                  |                                                                                                                                                                                                                           |
| Grandmother   | Did it for the first six weeks type and moved to a bottle  
That’s [breastfeeding toddlers] horrible, that’s just unnatural  
My children are breastfeeding their children for longer than what I did                                                                                                                                                                                                                     | Despite easy access to information there is limited knowledge of the WHO recommendations around infant feeding.                                                                                                           |
| Father        | The perception is that if you’re breastfed your immune system is stronger  
Formula is as good as breastfeeding  
There are kids who have never been breastfed … grow up to be normal human beings                                                                                                                                                                                                     |                                                                                                                                                                                                                           |
| Grandfather   | Our three children…I don’t think they did it for as long  
Less importance attached to breastfeed with grandchildren  
…the formula, it is more convenient for them                                                                                                                                                                                                                                           |                                                                                                                                                                                                                           |
6.3.2.1 Theme 1 – Parents and grandparents agree breastfeeding is best for infants and feel that the current climate is very supportive of breastfeeding

Participants’ perceptions of how people in Perth feel about breastfeeding produced an overwhelmingly positive response albeit in relation to breastfeeding in public. Grandparents viewed mothers being able to breastfeed in public as a form of “progress”. Grandmothers in particular said they breastfed in private and viewed the acceptance of breastfeeding in public as a way of “normalising” breastfeeding.

Mothers said they felt supported and encouraged to feed in public. Participants spoke about breastfeeding being natural and stated that they knew that it was best. Mothers hastened to add, however, that the general attitude towards breastfeeding was divided. According to them, not all mothers wanted to breastfeed, with some young mothers in their social networks preferring to feed their newborns infant formula. Overall, mothers who chose to breastfeed felt supported by the wider community:

“Well, I found it to be um the same, I was, I really struggled to breastfeed [baby] in the beginning and I was quite like shy about it in public. But I did find when I was breastfeeding in public, and I actually had people come up to me and say things like oh that’s great that you are doing this in public, and I had two people actually come up to me and approach me on separate occasions about it, but it is interesting that I feel quite shy about it um whereas I know some women are very happy and confident and fine with it, but I think people generally perceive it as being normal.” (29-year-old mother)

Fathers and grandparents agreed that people in Perth have a positive outlook on breastfeeding in public. For grandparents, this was in stark contrast to when they had their children. Grandparents had fewer alternatives to breast milk and therefore they had to breastfeed their infants and lacked the freedom to breastfeed in public. Grandfathers mentioned their partners having to feed in private and said it was more acceptable now
to feed in public. However, they hastened to add that it was good that mothers were modest while breastfeeding in public, a sentiment that was shared by fathers. According to the participants generally, while breastfeeding in public is acceptable, it still requires a mother to be modest.

Grandmothers were also of the opinion that breastfeeding only needed to be done up to six or seven months of the infant’s life. They were in agreement that more and more of the younger women were breastfeeding and feeding for longer than they probably did when their children were younger. This sentiment, however, cannot be interpreted as an entirely positive one because grandmothers did not believe infants needed to be breastfed beyond six months as recommended by the WHO.

“My grandchildren, granddaughters all feed their children normally, you know breastfed without even thinking about it, it’s just normal.” (71-year-old great-grandmother)

When speaking of family relationships and grandparental influence, grandparents feel the main challenge mothers face these days is having to balance work outside the home while raising a family. Grandparents acknowledge that mothers now are more educated and informed of best practice than they were, and attributed mothers’ knowledge to their perseverance with breastfeeding.

“…but my children, they are having their children, my grandchildren, they are all very for breastfeeding, they are even, my daughter had trouble with blocked nipples and things and she persevered through all of that. She was quite determined to breastfeed, I think this day and age they are educated and they want to do the right thing, um and they also do a lot of expressing of milk and bottle feeding the expressed milk which we didn’t do.” (74-year-old grandmother)
Contrary to grandmothers, who focussed on personal experience, grandfathers spoke at length about the benefits of breastfeeding. A couple of the grandfathers who joined the discussions were retired cattle farmers and they related mothers’ breastfeeding to calves needing to feed from their mothers for at least six months to ensure optimal health. They also spoke about the discomforts faced by breastfeeding mothers, however they felt that it had to be done for the benefit of the infant. Grandfathers’ attitudes seem to be informed solely by the benefits of breastfeeding for infants, not mothers, which could prove contentious. In summary, parents and grandparents agreed that breastfeeding was best for infants and that it was well supported by the general community.

6.3.2.2 Theme 2 – Grandmothers felt pressured to breastfeed and mothers echo similar sentiments

Some of the grandmothers who had either chosen not to breastfeed or could not breastfeed for either medical or social reasons, did express guilt about not having breastfed.

“You see unfortunately I couldn’t. I didn’t have enough milk for them, I tried for about ten days with the eldest one. They just gave me tablets which they did in those days and with the second one we lived out in the country away from anywhere, you know, no backup from relatives or anything I said to the doctor, I’d lost a baby between, and I said I am afraid of breastfeeding in case something goes wrong, he said no worries, they put me on tablets right away, but I think the general opinion was that you should [breastfeed].” (71-year-old grandmother)

The majority of grandmothers echoed this sentiment that there was pressure to breastfeed. On the other hand, any indication of difficulties with breastfeeding had
resulted in rapid medical intervention. Grandmothers who had alternatives and had experienced health issues or challenges with breastfeeding had been prescribed medication to stop lactation. With the exception of two grandmothers who had successfully breastfed their second child after being unable to feed their first, the experience of challenges with the first child negatively influenced efforts the second time around. As young mothers they had opted to take the medication to stop lactating after their negative experience with the first child. Their responses gave no indication to suggest that they had been educated on the benefits of breastfeeding. However, a few of the grandmothers did mention being pressured to breastfeed by clinic sisters and stated they found it to be stressful especially when they were convinced, that they could not.

“There seemed to be a thing that breastmilk was pure that your baby had a better chance at not getting infections, that seemed to be the…I can’t remember, but there was not such a range of baby food to be got.” (76-year-old grandmother)

Unlike grandmothers who had limited alternatives, there are many infant formulas available to mothers now if they are unable to breastfeed or choose not to. Grandmothers were of the opinion that infant formula was not harmful, stating that formula fed grandchildren are “big and healthy.” Consistent with grandmothers’ experiences, mothers who were not able to breastfeed were also distressed about it, and their difficulties were compounded further by an overwhelming pressure to breastfeed from healthcare practitioners. Mothers expressed more guilt at not being able to breastfeed because they were better informed about the benefits of breastfeeding for infants. Mothers appear to be caught in a struggle between knowing what is right and good for their infant and being able to follow through on WHO recommendations, as this mother summarises in the quote below:
“Yeah in terms of a private hospital environment, not that I name where, yeah but that [pressure to breastfeed] sometimes impacts on the mother’s mental health and the baby’s ability to thrive. So, in case of me with my first child and there’s two ladies here for example, feel like there’s possibly too much pressure to breastfeed whereas we all know it’s the best thing but it’s not always easy, but it’s not always the best thing in this particular instance, if it’s not working it’s not working I think there needs to be support for women who do either.” (39-year-old mother)

Initiating and maintaining breastfeeding poses many challenges for first-time mothers. The assumption that mothers should be able to breastfeed without difficulty causes mothers undue stress. The mother’s immediate physical and social ecology and knowledge base may be negatively influencing her self-expectations and perceived ability to breastfeed.

6.3.2.3 Theme 3 – Maternal grandmothers have a greater influence than paternal grandmothers, and grandmothers’ infant feeding experience and attitude influences a mother’s attitudes and confidence in breastfeeding

Overall, most grandmothers in this cohort did not express a positive attitude towards breastfeeding and were unconvinced that it was essential. Although grandmothers accepted that breastfeeding was best, the emphasis of their responses were more on the challenges they faced with breastfeeding. Grandmothers’ experiences were found to be similar to mothers. The difference in their circumstances appear to be that mothers today have more structural support with breastfeeding clinics and easy access to public health nurses and resources to help overcome their challenges. In addition,
mothers reported having more support from their partner than grandmothers did, which is also reflected in Theme 1 above.

Fathers discussed the challenges faced by their wives. At least one father, from India, thought formula was not an alternative for infants, and therefore, assumed breastfeeding was the only option and supported his wife through it. This belief appears to stem from the father not having witnessed infant formula feeding. He associated formula feeding with toddlers and not infants.

Regarding the influence across maternal and paternal grandmothers, mothers in this cohort constantly communicated with maternal grandmothers, regardless of whether the grandmother lived in Perth or not. Mothers who had seen their mothers breastfeed with ease were more confident and reported breastfeeding successfully themselves.

“I think because my mum fed me I just, that is what I did, I didn’t think of any other way, I didn’t think of doing it any other way really.” (26-year-old mother).

Conversely paternal grandmothers had little influence on parents’ decisions. Both grandparents and parents agreed that it was the maternal grandmother who had the strongest influence on mothers’ infant feeding decisions. Paternal grandmothers in the focus groups explicitly stated that they needed to tread carefully in their relationship with their daughters-in-law and did not offer unsolicited advice.

“My daughter when the baby was small would always phone but once they got, once she got confidence, no if they want to know something they’ll ask, if they don’t want to know something and they haven’t asked I am not going to butt in. My daughter-in-law asks my opinion a lot, but I have never offered without being asked because I know that if she is not sure about something she’ll ask me.” (64-year-old grandmother)
Parents agreed that maternal grandmothers had an influence on their infant feeding decisions and experiences. This effect, however, may not be explicit and only upon reflection did mothers feel that grandmothers had influenced them. Besides the maternal grandmother, mothers said their sisters who had children advised them on preparing for the challenges of breastfeeding. Maternal grandmothers who had not breastfed or had faced challenges and difficulties, also influenced a mothers’ perception of her ability to initiate and sustain breastfeeding, but in a negative manner.

“And I also think it’s interesting in that my mum she told me she struggled to breastfeed all of us and she only did it for four months and before I even had [baby] and I had this preconceived idea that I would struggle to breastfeed just based on the fact that she did so when I went into having [baby] I was I set myself to be like well my mum struggled with us so I’ll probably because my mum struggled and then I struggled even though it probably has no link at all.” (29-years-old mother)

Fathers and grandfathers agreed that matrilateral influence was stronger on breastfeeding and general childcare behaviour. Fathers stated that their wives spoke at length with their mothers on the telephone or over Skype and other means if the grandmother was not close by. With daily communication between mothers and maternal grandmothers and a lifetime of sharing each other’s stories the influence of the grandmothers’ beliefs and attitudes will most likely influence young mothers’ infant feeding behaviour. The pathway is likely to be indirect through shared experiences rather than direct advice. However, given that grandmothers did not express positive knowledge, beliefs and attitudes towards breastfeeding, it is not certain whether this influence translates into breastfeeding behaviour that reflects WHO recommendations.
6.3.2.4 Theme 4 – Despite easy access to information there is limited knowledge of the WHO recommendations around infant feeding

None of the groups within the non-Aboriginal cohort spoke of infant feeding practices that were close to WHO recommendations. Mothers who had successfully initiated and established breastfeeding were not fully aware of how long they should breastfeed. Although most of them spoke of struggling to breastfeeding, the biggest challenge appeared to be with maintaining exclusive breastfeeding in early infancy. Mothers who had exclusively breastfed for the first few months did not know that they are recommended to continue exclusive breastfeeding for at least six months.

“I think that child health generally recommends that you do it for a few months and then after that whatever really.” (26-year-old mother)

When discussions came up about breastfeeding beyond six months, grandmothers expressed reservations. They were not comfortable with infants being breastfed beyond the first year. When one grandmother spoke of breastfeeding children up to two and three years some of them reacted negatively stating it was “horrible” and “unnatural”. The perception of breastfeeding as normal and natural until six months and unnatural beyond one year provides a glimpse into the culture of breastfeeding experienced by grandmothers in this sample.

“I fed my daughter, but I couldn’t feed my son and I can remember feeling devastated because I couldn’t feed my son but some people, perhaps in the earlier years would feed them until they were two or three years old.” (65-year-old grandmother)
“I actually didn’t like that, that’s horrible, that’s just unnatural.” (78-year-old grandmother)

Grandmothers acknowledged that mothers of today are feeding their infants longer than they did. Prolonged breastfeeding was not favoured by the grandmothers. The aversion to breastfeeding beyond the first year was also shared by mothers.

“I think for me it’s zero to twelve months, I breastfed quite comfortably in public to twelve months, and after twelve months I was like now, people start, what you’re still breastfeeding after twelve months, yeah, I am like she’s now fourteen months, fifteen months and then I pretty much stopped.” (36-year-old mother)

Breastfeeding up to four years is common in some traditional societies (Shostak, 1981). In a post-industrial society such as Perth, feeding up to two years of age if the mother is able to, is likely to be beneficial to both mother and child. In this sample, the majority of the parents and grandparents were not aware of the WHO recommendations and reported breastfeeding rates that fell short of the WHO and local public health recommendations, in terms of both duration and exclusivity of breastfeeding in early infancy.

6.3.3 General overview of the knowledge, beliefs and attitudes towards breastfeeding of Aboriginal and Torres Strait Islander participants

“…It’s lovely enjoying imparting some of the knowledge that I know that my mum gave to me to give to my kids and recognising all those little signs and stuff. It’s good fun being a grandmother and um sort of taking on that role, and it’s a different kind of love and feeling and affection, it’s just totally different, different than when your kids were born, completely different.” (52-year-old grandmother)
Aboriginal grandmothers expressed positive attitudes and experiences towards breastfeeding. Breastfeeding was spoken of as the normal and best option for infant feeding. However, the younger grandmothers and mothers did report issues of milk inadequacy and began supplementing breastfeeding with infant formula in the initial months.

Participants in this cohort were predominantly from Noongar Country, which is the South West region of Western Australia. Their lived experiences involve navigating the post-colonial environment in Western Australia, while trying to maintain their culture and tradition. One grandmother in the cohort was removed from her family in early childhood and learned about her family and child care traditions through her extended kin. A few of the participants had raised families in the city, while others had raised children in the country. Grandmothers’ experiences varied significantly in the ways they spoke of how child rearing is viewed and experienced by older women in their communities.

All of the mothers in this cohort had given birth to their children at hospitals in the Perth metropolitan area. Many spoke about feeling discriminated against and shamed in their efforts to breastfeed in public. Although the mothers held positive attitudes and beliefs towards breastfeeding, they preferred to formula feed when in public for fear of embarrassment.

Analysis of the qualitative data from focus groups 14-17 (see Table 5.1) for participants’ characteristics presented in table 6.5, revealed four themes. First, mothers and grandmothers feel that the current societal conditions are not suited for breastfeeding in public and they feel uncomfortable about feeding in public. Second, grandmothers, or as they referred to themselves as “old girls”, expressed a positive attitude towards breastfeeding, which would help mothers establish and continue to
breastfeed. Third, in addition to grandmothers within the Aboriginal community, 
matrilineal kin or “sister girls” have a strong influence on the mother’s infant feeding 
decisions. Finally, while traditional Aboriginal breastfeeding practices are similar to 
WHO recommendations for breastfeeding, assimilation into the post-colonial and 
materialistic culture had led some mothers to turn to breastmilk alternatives. The themes 
are presented in table 6.5 and discussed below with key quotes from the participants.
Table 5.5  Codes and themes for Aboriginal and Torres Strait Islander mothers and grandmothers as it relates to breastfeeding

<table>
<thead>
<tr>
<th>Family member</th>
<th>In vivo codes (examples)</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother</strong></td>
<td>…breastfeeding it is not accepting like out in public like it used to be It promotes don’t breastfeed public …you know you shouldn’t really do that in public…</td>
<td>Mothers do not feel supported in their efforts to breastfeed in public.</td>
</tr>
<tr>
<td><strong>Grandmother</strong></td>
<td>…in my time was less of an issue to actually breastfeed No one ever looked at you or judged you back in the day But nowadays they say you can’t [breastfeed in public]</td>
<td></td>
</tr>
<tr>
<td><strong>Mother</strong></td>
<td>I was always taught growing up that breast is best We were always told by our mums, aunties and nannas that it’s your maternal right. My nan just teaching what breastmilk can do</td>
<td>Grandmothers or “old girls” have a positive view of breastfeeding and play a key role in helping mothers increase breastfeeding rates and duration.</td>
</tr>
<tr>
<td><strong>Grandmother</strong></td>
<td>…we’ll tell them you will be breastfeeding… I did try and persevere because my mother told me I pressured her a little to breastfeed past twelve months</td>
<td></td>
</tr>
<tr>
<td><strong>Mother</strong></td>
<td>I just became their [sister’s children] wet nurse …undid my sister’s bra and chucked my niece on the lap [helped feed her niece when her sister was ill] I got my cousins and they would breastfeed</td>
<td>When available matrilineal kin or “sister girls” in general form the support network for breastfeeding mothers.</td>
</tr>
<tr>
<td><strong>Grandmother</strong></td>
<td>The younger ones want their sisters or cousins It’s more the sister girls now It’s really hard to say [for the grandmother] let’s do this</td>
<td></td>
</tr>
<tr>
<td><strong>Mother</strong></td>
<td>She’s just adamant she’s gonna bottle feed the baby There was no social media so it wasn’t an issue She was working and she needed to get back into the work force</td>
<td>Traditional Aboriginal breastfeeding practices are closest to WHO recommendations, but inadequate societal support is causing a shift away from it.</td>
</tr>
<tr>
<td><strong>Grandmother</strong></td>
<td>Nyoongar mums will have their tin of milk their couple of bottles… …so all my encouraging didn’t do much good [daughter stopped breastfeeding] I see more one sort of putting on the bottle straight away It’s the modern world…if you can’t breastfeed…there’s all these different formulas</td>
<td></td>
</tr>
</tbody>
</table>
6.3.3.1 Theme 1 – Mothers do not feel supported in their efforts to breastfeed in public

Aboriginal and Torres Strait Islander mothers reported negative experiences of breastfeeding in public. Mothers who participated in this study said they felt embarrassed and uncomfortable when they chose to breastfeed their infants in public. One mother described her experience of being approached by a stranger and was told not to breastfeed in public. The law in Australia has incorporated the Innocenti Declaration which aims to protect, promote and support breastfeeding (ABA, 2015; WHO, 2011a; UNICEF, 2014a). However, participants felt that they could not comfortably breastfeed in public for fear of being shamed.

“...I was breastfeeding one time when he started getting better I had the cloth over me and I had this one lady come up and she said ah you know you shouldn’t really do that in public and I said look my culture has been breastfeeding for millennia before your mob come here and we still gonna be doing it millennia from today. I said this is what my grandparents have taught me to do and this is what my mum has showed me to do I said I am doing it, but I just said to her what’s the difference between you breastfeeding your baby and me breastfeeding my baby?” (31-year-old mother).

Grandmothers felt that mothers needed more support and encouragement to breastfeed in public. However, the sense of constantly being watched and monitored does not help encourage the intimate nature of breastfeeding in public. The consensus was that, despite being promoted as the best source of nutrition for infants and the myriad of health benefits for the mother, breastfeeding in public was not acceptable.

“No, it promotes don’t breastfeed publicly, there’s more negative views of breastfeeding in public than there are positive views of it. There are positive
views of breastfeeding but then again breastfeeding in public is not good, so it’s like mixed signals.” (29-year-old mother)

Participants felt that the issue was not specifically breastfeeding, but rather the sexualisation of the breast.

“I think the breastfeeding is not the problem it’s the breast, pulling your boob out and being shamed that’s the problem.” (Mother, age not available)

Aboriginal culture promotes breastfeeding modestly in public for a number of reasons, one of them being to avoid jealous confrontations between the mothers’ partner and other male members who may be present. Even within their homes mothers and grandmothers said they would remove themselves from the company of male members of the family to breastfeed. Where modesty is promoted, and breastfeeding is viewed as positively as in this population, more effort is required to encourage and support breastfeeding in public.

6.3.3.2 Theme 2 – Grandmothers or “old girls” have a positive view of breastfeeding and play a key role in helping mothers increase breastfeeding rates and duration

Grandmothers have a positive outlook on breastfeeding. They felt that it was the natural and ideal infant feeding method and were knowledgeable of the benefits of breastfeeding. Grandmothers supported breastfeeding for extended periods of time and held no reservations against feeding beyond infancy. However, grandmothers were of the opinion that establishing breastfeeding in the hospital postpartum has become very clinical, and in order for mothers to breastfeed successfully they believe mothers should be allowed the support of kin rather than clinical staff.
The circumstances for successful breastfeeding is made more challenging for mothers who identify as Aboriginal and Torres Strait Islander when they present for antenatal care. Mothers are typically assigned a social worker for the duration of the pregnancy and beyond. The sense of being constantly monitored may compromise the mother’s agency and cause her undue stress. In such circumstances, grandmothers, or grand “aunties could help improve breastfeeding rates among young mothers within this population. Grandmothers stressed that in addition to the health benefits it is also an economic imperative for young Aboriginal mothers to breastfeed.

“I think if when my granddaughters have their babies, um we’ll tell them you will be breastfeeding, and we’ll be sitting down and talk about the benefits of breastfeeding…” (69-year-old grandmother)

Grandmothers remember being encouraged to breastfeed, and while it was an anxious time for them, especially with their first-born children, they had followed their mothers’ advice. The influence of the maternal grandmother was emphasised when referring to the source of advice and support for breastfeeding. Grandmothers had also been concerned with inadequate milk supply and the wellbeing of their infants, similar to the accounts shared by young mothers. However, grandmothers had persisted with breastfeeding as there were few alternatives.

“I remember my mum saying that um try and persevere, and I did try and persevere because my mother told me, (laughs), and um which I did, but I was, if I remember rightly, I seemed to be nervous about things and wasn’t sure you know, whether I was doing the right thing…” (82-year-old great grandmother)

Seeing older women breastfeed in their formative years also seems to be a strong predictor of a mother choosing to breastfeed herself. From this it is clear that
grandmothers’ positive beliefs and attitudes and experience of breastfeeding transfers into practice among breastfeeding mothers.

“Um I guess for me I am you know my ‘cos I was actually a teenage mum so, but I’d always seen my mother with my younger siblings and they, she breastfed and everyone else, the aunties all breastfed around me, so I guess when I became a mum I was only ever going to breastfeed my kid.” (45-year-old mother).

Grandmothers feel that breastfeeding has become a “science” now, and mothers view it as a challenge to conquer rather than a normal process to embrace following pregnancy, labour and delivery.

6.3.3.3 Theme 3 – When available matrilineal kin or “sister girls” in general form the support network for breastfeeding mothers

In this sample, the general consensus was that matrilineal kin had a stronger influence on child health decisions than patrilineal kin. In addition, grandmothers conceded that it was the “sister girls”, referring to sisters and cousins of the same age group, who formed the support network for mothers. They spoke of their daughters seeking out peers within their families rather than elders for support during childbirth and in the post-partum period. Regardless, the positive influences of grandmothers do seem to trickle down in the form of the peer support for breastfeeding.

“I was always taught growing up that breast is best just as my nanas and my aunties and everything so like it’s just for instance my sister when she had her baby she was actually quite crook with the flu one time and my niece was crying so I just put my niece next to her, undid my sister’s bra chucked my niece on the lap put a pillow so she won’t fall off the bed and walked out and my sister wasn’t even awake for the whole thing.” (31-year-old mother)
Participants reported that mothers who have multiple children struggled the most with breastfeeding due to the exhaustion of child birth, short post-partum hospital stays and the burden of caring for young children at home. The challenges of breastfeeding after a caesarean section were discussed, stressing the importance of kin support over healthcare professionals’ care in the post-partum period for maternal and child well-being. Participants felt that with difficult births kin support would be more successful in helping the mother establish breastfeeding than clinical support.

“I notice you know, you always had a week in hospital after you had your bub anyway, but now some of the women like you know you’re in and you’re out within that 24 hours and some of the ones who’ve got more than one bub are like oh but I really need that rest so they are not getting that either, they’re getting burned on both ends really, so it’s a bit, it’s interesting.” (51-year-old grandmother)

Younger mothers who have persevered with breastfeeding despite the challenges are strong advocates for breastfeeding within their communities. They advocate for breastfeeding among peers, but not always with success. The negative attitudes towards breastfeeding among some young mothers was attributed to the discomfort experienced with feeding in public (see also Theme 1). This could be an indication that interventions are required at policy levels to attempt a shift in the general public’s attitudes towards breastfeeding.

“I’ve got a niece who’s expecting her first child um in a few weeks and she’s just adamant she’s gonna bottle feed the baby, ‘cos I think, It’s a bit of an embarrassment for her and yeah, but I said to her when you see him you might change your mind, but for some reason she wants to bottle feed not breastfeed but it could just be her personal choice.” (31-year-old mother)
Younger women within the Aboriginal community may be potential positive influence on each other to breastfeed with the guidance of elders. The intergenerational influence in this community is a positive one. The obstacles and barriers to the positive knowledge, beliefs and attitudes translating to breastfeeding behaviour consistent with WHO recommendations appears to be at the level of the society. A shift in the societal expectations around breastfeeding may reduce these barriers in public.

6.3.3.4 Theme 4 – Traditional Aboriginal breastfeeding practices are closest to WHO recommendations, but inadequate societal support is causing a shift away from it.

Traditional infant feeding practices in the Australian Aboriginal population more broadly mirrors WHO recommendations for breastfeeding. Grandmothers are knowledgeable about the benefits of breastfeeding, and while feeding children up to four years of age is considered normal, it is not the norm anymore. Years of colonial oppression followed by structural inequality poses many challenges for Aboriginal mothers to breastfeed as freely as their grandmothers did. This appears to impact how they choose to feed their infants. Given the propensity for metabolic disorders among Australian Aboriginal and Torres Strait Islander populations (Anderson et al., 2006), it is absolutely essential that grandmothers and kin are mobilised in health promotion activities among young Aboriginal parents to promote breastfeeding.

“Well, I think I think like from the time that when I had children there’s definitely been a change, so but I’ve, I am actually from the country so you know but I have a lot of family up in the city and the young people today are a lot different than you know ten years ago, twenty years ago, thirty and back to [great-grandmother’s] era and things yeah. So, you know nowadays you know like there’s probably not as many Aboriginal ladies that are breastfeeding. It was
the norm once upon a time, but it is no longer the norm and things like nappies were the norm, but now it’s kimbies [disposable diapers] and things, so there’s been a generational change and shift.” (52-year-old grandmother)

Furthermore, Aboriginal mothers face additional challenges when dealing with the welfare state. In some cases, mothers with a history of medical issues and domestic discords are unsure of whether they will be able to keep their babies, let alone breastfeed.

“…It’s different for all the women obviously, but for one to have um the welfare involved is huge you know like that kind of impact already on whether a mum is going to be able to keep her baby let alone get the opportunity to breastfeed, do you know what I mean? The ideal Aboriginal world of course you want your mum if you’ve got the privilege of having your mum, um aunties or the younger ones want their sisters or cousins and that there now with the families its more the sister girls now.” (51-year-old grandmother)

Grandmothers feel that they were never as engaged with the society as mothers are in the current times. Living in the city is synonymous with nuclear families with limited kin support. Kin support and connection to Country, however, is critical to the overall wellbeing of Aboriginal families (Purdie, Dudgeon, & Walker, 2010). The stress of everyday life, balancing paid employment and raising a family, means breastfeeding an infant is not a priority anymore for young parents.

“But I think times have changed to the point where um, society in my time was less of an issue to actually breastfeed um, and you know it’s not, it was never full on like it is now, so you know these young mums that have to work they have to rush off. They have other children to take to school so to navigate a daily process of trying to fit a breast feed in nowadays is such a, it’s a much more complex journey than it would have been for me or even my grandmother or mother.” (69-year-old grandmother)
In summary, a community that holds knowledge, beliefs and attitudes that are similar to those promoted by the WHO has the potential for continued positive breastfeeding outcomes. However, this is currently under a negative influence by the perception that society does not support breastfeeding in public and the challenges of working outside the home and maintaining breastfeeding. Benefits of understanding Australian Aboriginal and Torres Strait Islanders’ values around breastfeeding should be incorporated in general breastfeeding promotion for the broader public.

6.4 DISCUSSION

6.4.1 Non-Aboriginal participants

Non-Aboriginal participants agreed that breastfeeding is the most natural, convenient and healthy means of providing nutrition for infants. Grandmothers tended to discuss their personal experience with daughters and other kin rather than the specific benefits of breastfeeding. While explicitly stating that it was the best way to feed an infant, grandmothers could not provide conclusive information on what they believed was the norm when their children were born. Various factors, such as country of residence, dominant culture around infant feeding practices and personal family situations seemed to influence their experiences and consequently, their perception of best practice around infant feeding practices, consistent with existing literature (Dykes, 2005; McDade & Worthman, 1998). Knowledge related information such as benefits of breastfeeding influences the mothers but did not appear to have influenced the grandmothers when they were young mothers.

Grandmothers in this cohort were on average six years younger than mothers when they had their first child. They also had their children at a time when information was not freely available. Among grandmothers of Non-Aboriginal European heritage,
doctors were considered the authority on all matters related to the care and wellbeing of infants. This fits well with the ecocultural framework of families that situates a mother in her ecology and the ways in which agency would influence her ability to navigate the influences and expectations of her social and physical ecology from her ideological core (Figure 1.1). The circumstances are very different among mothers today. For mothers, health information is freely available, and they exercise agency in their infant feeding choices, at least among non-Aboriginal mothers. Despite mothers seeming to have more agency, the pressure from medical professionals to breastfeed their newborns were viewed as placing undue stress on the mothers, to the point of pushing a mother towards depressive symptoms. Mothers who had not been successful in their efforts to breastfeed their babies expressed guilt.

The short-fall in following recommendations could partly be attributed to poor communication on current best practices to new parents and grandparents. One of the major challenges for breastfeeding mothers currently is employment outside the home. In Australia, the lack of universal parental employment benefits means most mothers are forced to return to work before six months postpartum, which would impact the duration and exclusivity of breastfeeding recommended for the first six months of an infants’ life.

The results of the qualitative phase of the study partially supports the first hypothesis that positive beliefs and attitudes of parents and grandparents regarding breastfeeding will translate into more optimal breastfeeding practices. Parents and grandparents who were aware of the benefits of breastfeeding stated that it was the best method of infant feeding. Whether parents are following through with recommendations is also influenced by a range of factors beyond the beliefs and attitudes. This will require further investigation and will be explored in the quantitative phase of this study.
The second hypothesis that in environments that pose a considerable challenge to mothers initiating and successfully breastfeeding, grandparents will be perceived as a source of positive influence is not supported by the data for non-Aboriginal Australians. In fact, grandmothers who had not breastfed or faced challenges with breastfeeding were found to negatively influence mothers. In instances where mothers are breastfeeding and able to continue for two years grandmothers could be a reason for limiting the duration of breastfeeding. This claim is based on grandmothers’ attitudes that breastfeeding is only necessary for the first six months and generally not beyond acceptable the first year of the child’s life. This is similar to the findings reported by Grassley and Eschiti (2008) that grandmothers’ own feeding practices and preferences were imposed upon mothers, albeit inadvertently.

The third hypothesis that maternal grandmothers, given their high levels of biological relatedness with their daughter’s and grandchildren will be perceived as having the most positive influence on breastfeeding behaviour is partially supported. Although all participants agreed that maternal grandmothers have the strongest influence on parenting decisions, their influence on breastfeeding was also not always positive. Moreover, some mothers had witnessed their mothers’ breastfeeding and were fortunate enough to be able to breastfeed themselves. While others, whose mothers had experienced challenges, struggled and related this to the breastfeeding experiences shared with their maternal grandmothers. These findings are consistent with the different influences of grandmothers on child survival found in pre-demographic societies (Sear & Mace, 2008; Sear & Coall, 2011).

The data presented here does not provide sufficient evidence to draw conclusions on whether beliefs and attitudes of grandparents could positively influence breastfeeding behaviour. The hypotheses will be tested further using the quantitative
data collected through the administration of questionnaire prior to arriving at conclusions.

6.4.2 Aboriginal and Torres Strait Islander participants

Aboriginal and Torres Strait Islander mothers and grandmothers have a positive attitude towards breastfeeding but feel constrained in their efforts to breastfeed based on their perception of public attitudes towards breastfeeding. This is in stark contrast to the experiences of the non-Aboriginal participants. The perceived lack of support cannot be overlooked as it is increasingly pushing mothers with positive intergenerational attitudes towards infant formula feeding. In a population with an increased risk of metabolic disorders, it is imperative that mothers be supported in their efforts to breastfeed and the potential benefits breastfeeding brings to this. The positive attitudes of grandmothers in this population could be mobilised to encourage and support new mothers to breastfeed. Although not all mothers have kin support, the closeness of the Aboriginal community could be used to the advantage of young mothers and provide the necessary support. This would be particularly useful for mothers with multiple children at home.

Short hospital stays and turning breastfeeding into a science was a consistent criticism echoed throughout the discussions. Allowing family support in hospital in the post-partum period may help mothers develop a healthy attitude and positive outlook towards breastfeeding. The suggestion that the social support network is shifting from “old girls” to “sister girls” could be a helpful one in mobilising the peer support sought out by young mothers.

Once again, hypothesis one, which states that positive beliefs and attitudes of parents and grandparents regarding breastfeeding will translate into optimal breastfeeding practices is only partially supported. In the case of the Aboriginal and
Torres Strait Islander mothers, the challenge with beliefs and attitudes translating into practice appears to be a societal issue. The issue of perceived discrimination against breastfeeding in public requires an in-depth study. There needs to be policy changes that protect Aboriginal and Torres Strait Islander mothers and allows them to exercise their right to breastfeed anywhere and anytime the infant needs to.

The second hypothesis that when mothers face challenges with breastfeeding, grandparents will be a source of positive influence is also partially supported. Grandmothers did claim to have encouraged their daughters and daughters-in-law to breastfeed and with some success. The general view of older women as keepers of information related to maternal and child health is still strong in this community, similar to the findings reported by an extensive literature review on the influence of senior women on maternal and child health (USAID, 2011). This notion of grandmothers as keepers of maternal and child health knowledge may be usefully fostered from a public health point of view to ensure their continued influence on younger generations.

Maternal grandmothers were perceived as having the most positive influence, which provides support for the third hypothesis that matrilateral kin, in general, were viewed as having a positive influence on breastfeeding behaviour. Several examples come to light showing how maternal grandmothers and maternal kin support and encourage breastfeeding within their families.

The qualitative data in this exploratory analysis provides a good base understanding. However, it is too early to draw conclusions based on this qualitative data alone. Data from the male members of the community that could provide more context to the stories shared by the mothers and grandmothers could not be accessed. The opinion of men around women breastfeeding in public would be especially valuable in exploring policy changes to support mothers choosing to breastfeed in public.
However, the striking information in the data from this sample of Aboriginal and Torres Strait Islander women is the knowledge on the benefits and general positive attitude towards breastfeeding. Their practices and attitudes mirror WHO recommendations and this fact must be highlighted in health promotion efforts. Aboriginal and Torres Strait Islander positive attitudes towards breastfeeding may go beyond their community, and through public health promotions benefit the broader Australian community by following in the footsteps of the original “old girls” of Australia.
CHAPTER 7
PERCEIVED GRANDPARENTAL INFLUENCE ON BREASTFEEDING BEHAVIOUR: QUANTITATIVE RESULTS

7.1 INTRODUCTION

Breastfeeding rates remain suboptimal with only 39% of infants being breastfed globally (UNICEF, 2015). In Australia, while 90% of mothers initiate breastfeeding, only 15% of infants are reported to be exclusively breastfeeding at five months (ABA, 2015). Various factors have been linked to the low rates of breastfeeding, including knowledge about the benefits (Lok, Bai, & Tarrant, 2017), employment outside the home (Magner & Phillipi, 2015), the medicalisation of births (WHO, 2011a), and the roles of families as sources of support for breastfeeding mothers (Meehan, 2005). Based on parental investment theory, the high energy demands of lactation and the positive health benefits for infants means breastfeeding is considered a valuable but costly investment (Martin, 2018).

To successfully breastfeed, mothers must negotiate their immediate physical and social ecologies. In the context of WEIRD societies, where family relations are typified by psychological dependence (family type C) (see Figure 1.1), grandparents may have an influence on parents’ decision to breastfeed. More specifically grandmothers may influence mothers’ breastfeeding behaviour. Given the cognitive and immunological benefits of breastfeeding, grandparental influence through knowledge sharing could be considered an investment in grandchildren (Coall & Hertwig, 2010).

This chapter presents findings from the quantitative questionnaire phase of the study for each of these hypotheses:
1) Positive beliefs and attitudes of parents and grandparents regarding breastfeeding will translate into adherence to public health recommended breastfeeding practices;

2) Where parents face challenges in breastfeeding, grandparents will be perceived as a source of influence by parents in their infant feeding; and,

3) Maternal grandmothers will be perceived as having a positive influence on breastfeeding rates compared to paternal grandmothers and grandfathers.

7.2 METHOD

Residents of Western Australia with dependent children were recruited, regardless of whether they had parents living in the country, outside Australia or were deceased. A total of 584 questionnaires were placed and 285 were completed and returned (see Table 5.4). Data from paper copies of the questionnaire were entered into Qualtrics for storage online and were then downloaded when data collection ceased. Data collected through questionnaires were only exported into SPSS once qualitative data analysis was complete. This was done to be certain no findings from the quantitative phase could influence my analysis of the qualitative data from focus groups.

Statements on beliefs, attitudes and breastfeeding behaviour that were used in the questionnaire were drawn from previously validated surveys (McIntyre, Hiller, & Turnbull, 2001; Newby et al., 2014) (see Appendix M). Statements on breastfeeding as best practice and the benefits of breastfeeding were used to measure beliefs about breastfeeding. Influence of family were based on the respondents’ degree of agreement on the influence of mothers, mothers-in-law and partner. Influence of external factors was based on agreement with statements about support needed for breastfeeding, the experience of feeding the first child influencing breastfeeding subsequent children, and infant feeding practices of others in one’s social network. Finally, the child care ecology
as an influencing factor was assessed based on agreement with continued breast milk feeding (expressed milk) convenience when grandparents cared for children compared to formal child care centres. Questions that contained the term ‘bottle feeding’ were replaced with ‘formula feeding’ to prevent confusion with breast milk being fed through the bottle. To collect information on family relationships and grandparental investment, previously validated questions on infant nutrition advice (received by parents and imparted by grandparents), frequency of contact and distance between parental and grandparental residence were used (Borsch-Supan & Jurges, 2005).

7.3 STATISTICAL ANALYSIS

Descriptive statistics were used to summarise socio-demographic information, distance between parents and grandparents, frequency of contact and grandparental advice on nutrition. Grandparents’ data for distance from children’s residence, nutritional advice offered, and frequency of contact was summarised only for the oldest child. Scales were computed from breastfeeding statements in the questionnaire to assess individual attitude, perceived influence of external factors (support, convenience and social ecology), family members (partner, mother and mother-in-law) and child care ecology (infant feeding when infants are cared for by grandparents versus formal childcare). Positively worded items on a Likert scale of strongly agree – strongly disagree were reverse coded to ensure that a higher mean reflected positive beliefs, attitudes and behaviours.

One-way ANOVAs were used to determine the effect of breastfeeding attitude, influence of external factors, influence of family members and childcare ecology across categories of breastfeeding intentions, perceived optimal breastfeeding and actual breastfeeding behaviour. A significance level of \( p<0.05 \) was used. Pearson’s correlations were conducted to examine associations between challenges reported with
breastfeeding and individual items on perceived sources of influence. Friedman’s tests were conducted on rank order questions exploring participants’ highest ranked sources of information about breastfeeding and perceived influence on breastfeeding.

7.4 RESULTS

7.4.1 Participant characteristics

Percentages and frequency of socio-demographic variables for mothers, fathers, grandmothers and grandfathers are presented in Table 7.1. Participants (N=278) were mostly Australian born, 58% of mothers, 57% of fathers, 54% of grandmothers and 50% of grandfathers. In addition to the countries listed in Table 7.1, participants from other countries included the United States, Bulgaria, Hungary, Italy, New Zealand, Lebanon, Sri Lanka and Iran.

Parents reported higher levels of schooling than grandparents, with 65% of mothers and 71% of fathers reporting qualifications at the undergraduate or postgraduate level. The combined household income was over $150,000 for 39% of the mothers and 50% of the fathers. The reported rate of marriage and living with their partner were similar across generations with 69% of mothers, 75% of grandmothers and 90% of fathers and grandfathers being married. Mothers reported the highest rates of being breastfed at 71%, followed by fathers at 70%, grandfathers at 56% and grandmothers at 55%.
Table 7.1  Socio-demographic variables for mothers, fathers, grandmothers and grandfathers and knowledge of being breastfed

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Mother (n=133)</th>
<th>Father (n=30)</th>
<th>Grandmother (n=83)</th>
<th>Grandfather (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age M (SD)</td>
<td></td>
<td>40 (7.4)</td>
<td>43 (8.6)</td>
<td>65 (7.8)</td>
<td>70 (7.7)</td>
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<td>53% (16)</td>
<td>54% (45)</td>
<td>50% (16)</td>
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<td>47% (14)</td>
<td>46% (38)</td>
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<td>Practice religion</td>
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<td>20% (6)</td>
<td>45% (37)</td>
<td>38% (12)</td>
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<tr>
<td></td>
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<td>80% (24)</td>
<td>55% (46)</td>
<td>63% (20)</td>
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<tr>
<td>Breastfed</td>
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<td>71% (94)</td>
<td>70% (21)</td>
<td>55% (46)</td>
<td>56% (18)</td>
</tr>
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<td></td>
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<td>22% (29)</td>
<td>10% (3)</td>
<td>21% (18)</td>
<td>10% (3)</td>
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<td>High school to Year 12</td>
<td>90% (120)</td>
<td>90% (27)</td>
<td>71% (59)</td>
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<td>Father (n=30)</td>
<td>Grandmother (n=83)</td>
<td>Grandfather (n=32)</td>
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<tr>
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<td></td>
<td>Trade or apprenticeship</td>
<td></td>
<td>7% (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Certificate from College, e.g. TAFE</td>
<td>11% (13)</td>
<td>7% (2)</td>
<td>12% (10)</td>
<td>8% (2)</td>
</tr>
<tr>
<td></td>
<td>Diploma (beyond Year 12)</td>
<td>16% (21)</td>
<td>7% (2)</td>
<td>25% (21)</td>
<td>12% (4)</td>
</tr>
<tr>
<td></td>
<td>Bachelor's degree</td>
<td>35% (47)</td>
<td>38% (12)</td>
<td>23% (19)</td>
<td>18% (6)</td>
</tr>
<tr>
<td></td>
<td>Postgraduate degree</td>
<td>30% (39)</td>
<td>33% (10)</td>
<td>13% (11)</td>
<td>15% (5)</td>
</tr>
<tr>
<td>Employment</td>
<td>Employed full-time</td>
<td>30% (40)</td>
<td>90% (27)</td>
<td>16% (13)</td>
<td>15% (5)</td>
</tr>
<tr>
<td></td>
<td>Employed part-time</td>
<td>37% (49)</td>
<td>7% (2)</td>
<td>25% (21)</td>
<td>9% (3)</td>
</tr>
<tr>
<td></td>
<td>Seeking employment</td>
<td></td>
<td>-</td>
<td>1% (1)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Not seeking employment</td>
<td></td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Stay at home parent</td>
<td>17% (23)</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Retired</td>
<td>1% (2)</td>
<td>3% (1)</td>
<td>54% (45)</td>
<td>75% (24)</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>14% (19)</td>
<td>-</td>
<td>2% (1)</td>
<td>-</td>
</tr>
<tr>
<td>Combined household income</td>
<td>Less than $19,999</td>
<td>5% (6)</td>
<td>-</td>
<td>6% (5)</td>
<td>6% (2)</td>
</tr>
<tr>
<td></td>
<td>Between $20,000 and $34,999</td>
<td>2% (2)</td>
<td>3% (1)</td>
<td>18% (15)</td>
<td>6% (2)</td>
</tr>
<tr>
<td></td>
<td>Between $35,000 and $49,000</td>
<td>2% (3)</td>
<td>-</td>
<td>8% (7)</td>
<td>33% (11)</td>
</tr>
<tr>
<td></td>
<td>Between $50,000 and $74,999</td>
<td>11% (15)</td>
<td>13% (4)</td>
<td>17% (14)</td>
<td>15% (4)</td>
</tr>
<tr>
<td></td>
<td>Between $75,000 and $99,999</td>
<td>10% (13)</td>
<td>3% (1)</td>
<td>10% (8)</td>
<td>12% (4)</td>
</tr>
<tr>
<td></td>
<td>Between $100,000 and $149,999</td>
<td>32% (43)</td>
<td>23% (7)</td>
<td>15% (12)</td>
<td>6% (2)</td>
</tr>
<tr>
<td></td>
<td>Between $150,000 and $199,999</td>
<td>20% (26)</td>
<td>17% (5)</td>
<td>13% (11)</td>
<td>6% (2)</td>
</tr>
<tr>
<td></td>
<td>$200,000 or more</td>
<td>19% (25)</td>
<td>33% (10)</td>
<td>10% (8)</td>
<td>9% (3)</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married and living with partner</td>
<td>69% (92)</td>
<td>90% (27)</td>
<td>75% (62)</td>
<td>90% (26)</td>
</tr>
<tr>
<td></td>
<td>In a de facto relationship</td>
<td>17% (23)</td>
<td>3% (1)</td>
<td>1% (1)</td>
<td>3% (1)</td>
</tr>
<tr>
<td></td>
<td>Separated</td>
<td>4% (5)</td>
<td>-</td>
<td>1% (1)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>5% (6)</td>
<td>7% (2)</td>
<td>11% (9)</td>
<td>3% (1)</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>-</td>
<td>-</td>
<td>12% (10)</td>
<td>3% (1)</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>4% (5)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

- Options not applicable to respondents were left blank.
7.4.2 Attitudes and beliefs as predictors of breastfeeding behaviour

The summary of breastfeeding beliefs, attitude and actual breastfeeding behaviour for mothers and fathers are presented in Figures 7.1, 7.2 and 7.3 respectively. Mothers reported a slightly more positive belief and attitude towards breastfeeding compared to fathers. While 80% of mothers reported they intended to breastfeed their infants, and believed breastfeeding was the best option (72%), exclusive breastfeeding in first six months of the infant was reported only by 44% of the mothers. Compared to mothers and fathers, grandparents had a lower intent (belief) to breastfeed, but more conviction it was the optimal thing to do. Ultimately this translated into similar levels of actual breastfeeding. The summary of grandparents’ breastfeeding belief, attitude and behaviour are presented in Figures 7.4, 7.5 and 7.6.
Figure 7.1  How did you plan to feed your baby during the first six months? (Parents’ belief/intent)

Figure 7.2  What is the best way to feed a baby? (Parents’ attitude)

Figure 7.3  How did you actually feed your baby? (Parents’ actual breastfeeding behaviour)
Figure 7.4  How did you plan to feed your baby during the first six months? (Grandparents’ belief/intent)

Figure 7.5  What is the best way to feed a baby? (Grandparents’ attitude)

Figure 7.6  How did you actually feed your baby? (Grandparents’ actual breastfeeding behaviour)
To test the hypotheses that positive beliefs and attitudes of parents and grandparents regarding breastfeeding will translate into adherence to public health recommended breastfeeding practices one-way ANOVAs were conducted. Attitude towards breastfeeding and the beliefs and behaviours of mothers, fathers, grandmothers and grandfathers were compared. The means and significance levels are presented in Table 7.2 for mothers’ breastfeeding beliefs and behaviours and the effect of their reported attitudes. The results of one-way ANOVA for mothers’ beliefs and behaviours showed that there was a significant effect of belief on attitudes about breastfeeding ($F_{1, 127} = 18.7, p<0.01$). There was also a significant effect of attitudes on breastfeeding behaviour ($F_{3, 125} = 6.92, p<0.01$).

One-way ANOVAs comparing grandmothers’ attitudes showed no significant effect of their attitudes and beliefs towards breastfeeding behaviour. Due to the fathers’ and grandfathers’ sample sizes being small (Father n=30, Grandfathers n=32) the between group comparisons were not possible.
Table 7.2  Effect of breastfeeding attitudes, perceived influence of external factors, family and child care ecology on mothers’ breastfeeding beliefs and behaviour

<table>
<thead>
<tr>
<th>Attitudes</th>
<th>External factors</th>
<th>Influence of family</th>
<th>Child care ecology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before you actually fed this baby, how did you plan to feed your baby?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Breastfeed</td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>107</td>
<td>3.89</td>
<td>0.94</td>
</tr>
<tr>
<td>- Formula feed</td>
<td>4</td>
<td>2.95</td>
<td>0.45</td>
</tr>
<tr>
<td>- A mix of both breastfeed and formula feed</td>
<td>12</td>
<td>3.33</td>
<td>0.91</td>
</tr>
<tr>
<td>Which of the following is closest to your opinion? The best way to feed a baby is:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Breastfeeding</td>
<td>96</td>
<td>4.01</td>
<td>0.87</td>
</tr>
<tr>
<td>- Formula feeding*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- A mix of both breastfeeding and formula feeding</td>
<td>33</td>
<td>3.24</td>
<td>0.88</td>
</tr>
<tr>
<td>How was your child actually fed during the first six months?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Breastfeed only</td>
<td>59</td>
<td>4.10</td>
<td>0.85</td>
</tr>
<tr>
<td>- Formula feed only</td>
<td>5</td>
<td>3.06</td>
<td>0.36</td>
</tr>
<tr>
<td>- Mainly breastfed with a few formula feeds</td>
<td>40</td>
<td>3.83</td>
<td>0.95</td>
</tr>
<tr>
<td>- Mainly formula fed with some breastfeeding</td>
<td>25</td>
<td>3.24</td>
<td>0.87</td>
</tr>
</tbody>
</table>

*There were no responses for formula feeding
7.4.3 Perceived sources of influence on breastfeeding decisions and behaviours

To test the perceived influence of grandparents on breastfeeding behaviour one-way ANOVAs between mothers’ breastfeeding behaviours and influence of family was conducted. Table 7.2 shows that no significant effect was found between the influence of family and mothers’ breastfeeding behaviour. The ANOVA between mothers’ breastfeeding belief/intent and the influence of external factors showed a significant effect ($F_{1, 127} = 4.11, p<0.05$), but there was no effect of belief/intent on breastfeeding behaviour. Child care ecology also did not have a significant effect on mothers’ breastfeeding beliefs or behaviour. The ANOVA showed an effect of external factors influencing mothers and mothers’ reporting physiological difficulties with breastfeeding in the first six months ($F_{1, 12} = 5.52, p<0.05$).

Friedman’s tests conducted on rank order questions about who the main influence on infant feeding decisions was, had mothers rank ‘personal choice’ (M=1.29) most frequently, followed by ‘partners’ (M=3.02) and ‘friend’ (M=4.43). In relation to who was most useful in terms of help received on infant feeding, mothers ranked ‘midwife’ as the most useful (M=3.11), followed by ‘partner’ (M=5.51) and ‘friend’ (M=3.99). Table 7.3 lists the main influences and useful sources of information by mean rank for all members of the family.
Table 7.3  Mean ranks of sources of information and perceived influence on infant feeding as reported by mothers, fathers, grandmothers and grandfathers

<table>
<thead>
<tr>
<th>MAIN source of perceived influence on infant feeding decision.</th>
<th>Mothers</th>
<th>Fathers</th>
<th>Grandmothers</th>
<th>Grandfathers</th>
</tr>
</thead>
<tbody>
<tr>
<td>It was my/her personal decision</td>
<td>1.29</td>
<td>1.34</td>
<td>1.21</td>
<td>1.52</td>
</tr>
<tr>
<td>My partner/I was a source of influence</td>
<td>3.02</td>
<td>3.52</td>
<td>3.39</td>
<td>3.22</td>
</tr>
<tr>
<td>Friend</td>
<td>4.43</td>
<td>4.59</td>
<td>4.44</td>
<td>-</td>
</tr>
<tr>
<td>Family GP</td>
<td></td>
<td></td>
<td></td>
<td>3.93</td>
</tr>
</tbody>
</table>

From whom did you seek help about infant feeding that was useful?

<table>
<thead>
<tr>
<th>From whom did you seek help about infant feeding that was useful?</th>
<th>Mothers</th>
<th>Fathers</th>
<th>Grandmothers</th>
<th>Grandfathers</th>
</tr>
</thead>
<tbody>
<tr>
<td>I helped my partner</td>
<td></td>
<td>2.97</td>
<td></td>
<td>2.93</td>
</tr>
<tr>
<td>Midwife</td>
<td>3.11</td>
<td>3.48</td>
<td>3.62</td>
<td>-</td>
</tr>
<tr>
<td>Partner</td>
<td>3.51</td>
<td>-</td>
<td>3.72</td>
<td>-</td>
</tr>
<tr>
<td>Friend</td>
<td>3.99</td>
<td>-</td>
<td>3.77</td>
<td>3.61</td>
</tr>
<tr>
<td>Family GP</td>
<td></td>
<td>4.14</td>
<td>-</td>
<td>3.11</td>
</tr>
</tbody>
</table>

7.4.4  Maternal grandmothers will be perceived as more influential than paternal grandmothers

Table 7.2 also displays the one-way ANOVAs conducted to discern the effect of family influence, which included the influence of maternal and paternal grandmothers, on breastfeeding behaviour, however no statistically significant results were found. Pearson’s correlation conducted to study the association of difficulties experienced with breastfeeding and the perceived influence of maternal grandmothers and paternal grandmothers revealed no significant correlation.

Data from grandmothers regarding advice given on infant feeding and distance from children was analysed only for the oldest child. More maternal grandparents responded to the questionnaire (grandmother: 76%, n=64; grandfather: 56%, n = 18)
than paternal grandparents (grandmother: 24%, n=20; grandfather: 44%, n=14). Maternal and paternal grandmothers reported the oldest child as their biological child. Among paternal grandfathers one child was listed as adopted and another as step-child. Mothers reported more maternal grandmothers (44%) living less than 25km away from maternal residence, compared to paternal grandmothers (31%). Of maternal grandmothers, 56% reported living less than 25km away from their oldest child, this was consistent with mothers reported distance from maternal grandmothers.

Figure 7.7 displays the frequencies of mothers reported receiving infant feeding advice from grandparents. Mothers reported receiving breastfeeding advice from their maternal grandmothers twice as frequently (62.4%) as paternal grandmothers (27.8%). Maternal grandmothers reported offering advice more frequently (40%) than paternal grandmothers (13%). Maternal grandmothers were reported as offering more advice on breastfeeding, formula feeding, when to introduce solids and what type of foods to introduce, compared to maternal grandfather, paternal grandmother and paternal grandfather. Paternal grandfather was more frequently reported as never offering infant nutrition advice. Summary of nutritional advice offered by maternal and paternal grandmothers to their oldest child is presented in Figure 7.8. Maternal grandmothers reported offering the most advice on breastfeeding, formula feeding and introducing solids, consistent with mothers’ reported frequencies.

Contact between mothers and grandparents is displayed in Figure 7.9. Daily contact, either in person or via telephone between mothers and maternal grandmothers was at 33% compared to 1.5% for paternal grandmothers. Less than 5% of mothers reported never contacting their mothers. Maternal grandmothers also reported daily contact with their oldest child at 19% compared to 1% for paternal grandmother (Figure 7.10).
Maternal grandparents reported caring more for grandchildren without their parents being present on a weekly basis (47%), compared to paternal grandmothers (35%) (Table 7.4). More maternal grandfathers reported caring less than once a month for grandchildren (33%).
Figure 7.7  Frequency of mothers reporting advice received from grandparents regarding infant nutrition and care

Figure 7.8  Frequency of biological grandparents reporting advice offered to their oldest child regarding infant nutrition and care
Figure 7.9 Mothers reporting frequency of contact with grandparents

Figure 7.10 Maternal and paternal grandmothers reporting frequency of contact with their oldest child
### Table 7.4 Frequency of childcare provided by grandparents to grandchildren from their oldest child.

<table>
<thead>
<tr>
<th>Frequency of childcare provided</th>
<th>Maternal grandmother</th>
<th>Maternal grandfather</th>
<th>Paternal grandmother</th>
<th>Paternal grandfather</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost daily</td>
<td>14% (9)</td>
<td>6% (1)</td>
<td>10% (2)</td>
<td>7% (1)</td>
</tr>
<tr>
<td>Almost every week</td>
<td>47% (30)</td>
<td>44% (8)</td>
<td>35% (7)</td>
<td>21% (3)</td>
</tr>
<tr>
<td>Almost every month</td>
<td>19% (12)</td>
<td>11% (2)</td>
<td>10% (2)</td>
<td>7% (1)</td>
</tr>
<tr>
<td>Less often</td>
<td>11% (7)</td>
<td>33% (6)</td>
<td>25% (5)</td>
<td>29% (4)</td>
</tr>
</tbody>
</table>

#### 7.5 DISCUSSION

The study sample is consistent with a WEIRD society reporting high levels of educational qualifications and combined household income. Parents and grandparents reported high intent to breastfeed and positive attitudes, which is similar across the generations. The intent/belief and attitude did not transfer to breastfeeding behaviour suggesting a similar influence of sociocultural transformations across the generations, which have been attributed to the decline in breastfeeding rates (Tomori, Palmquist, & Quinn, 2018; Lok, Bai, & Tarrant, 2017). Participants reported positive intent/beliefs and attitudes towards breastfeeding, which had a statistically significant effect on mothers reported breastfeeding behaviour. In the grandmothers’ data there was no significant effect of attitudes and beliefs on grandmothers reported breastfeeding behaviour. This finding that a positive attitude towards breastfeeding did not have an influence on breastfeeding behaviour suggests there may be a range of other factors involved (Dykes, 2005; McDade & Worthman, 1998). External factors such as support for breastfeeding, the convenience of formula feeding, and a mother’s social ecology were found to have a significant effect on mothers reported breastfeeding behaviour. Based on these findings it cannot be concluded that positive attitudes will necessarily translate into breastfeeding behaviour.
Therefore, there is insufficient evidence to support hypothesis one that positive beliefs and attitudes of parents and grandparents regarding breastfeeding will translate into adherence to public health recommended breastfeeding practices.

Hypothesis two examined whether parents facing challenges or difficulties with breastfeeding, will perceive grandparents as a source of influence in their infant feeding decisions. Mothers did report receiving more advice on breastfeeding from maternal grandmothers compared to paternal grandmothers, maternal grandfathers and paternal grandfathers. While this demonstrates that conversations about breastfeeding are happening within families, the type of information shared and how this ultimately influences a mother’s behaviour cannot be discerned from this data. However, additional evidence is available. According to mothers, grandparents were not ranked highly among sources of influence on breastfeeding. Midwives and friends were ranked as more useful sources of advice or information on breastfeeding. Mothers ranked the strongest influence as their personal choice to breastfeed. Breastfeeding decisions may have been influenced through conversations about breastfeeding, witnessing breastfeeding successes and failures as a child or being breastfed themselves. However, this potential indirect influence of family members is difficult to measure. This type of individual level information is clearly evident from the qualitative analysis (see Chapter 6) and will be pursued in the general discussion. Therefore, once again, there is insufficient evidence to suggest that grandparents do positively influence parents, and specifically mothers’ breastfeeding behaviours when they are faced with physiological and physical difficulties in relation to breastfeeding.

From both the mothers’ and grandparents’ perspectives, maternal grandmothers live closer to and are in more frequent contact with and offer more advice and child care support than all other grandparents in this cohort. However, this agreement in maternal
grandmother role does not seem to translate into breastfeeding behaviour. It is important to point out that the direction of influence on breastfeeding behaviour per se cannot be discerned from this data. It is being assumed, based on the literature (Coall & Hertwig, 2010), and positive questionnaire responses that living closer and being frequently in contact means maternal grandmothers’ influence is likely to be the strongest. However, negative effects of grandparents on grandchildren nutrition have been identified before (Gibson & Mace, 2005). Intergenerational influence on parenting behaviour is likely to be indirect and hypothesis three that maternal grandmothers would be perceived as having the most influence on breastfeeding behaviour is also not supported by the data, even though there is evidence of frequent contact and advice on infant nutrition.

The pathway between generations is very clear and easy to identify from the qualitative data. The positive influence on breastfeeding is more common but more diffuse with a number of external factors influencing breastfeeding behaviour. Therefore, the positive effects of grandparents are harder to identify. On the basis of this exploratory analysis however, it is clear equally positive effects of grandparents on breastfeeding exists, but independent effect is difficult to identify. Because there are so many positive influences on breastfeeding within the society, the breastfeeding effect of grandparents is likely to be present but washed out due to shared variance with other factors.

In future research, clearer and direct measures must be constructed to determine the type of influence grandparents have that could support intervention programs. This study does have some limitations. A key limitation is the lack of diversity in levels of education, qualification and socio-economic status and the near lack of Aboriginal and Torres Strait Islander participants completing questionnaires. The cultural difference in infant feeding practices is certain to impact breastfeeding behaviour. Successfully targeting more diverse cohorts in future studies may help compare groups and better understand the influence of
culture and family relationships on a broader range of parents’ breastfeeding decisions and behaviours.
CHAPTER 8
PERCEIVED INFLUENCE OF GRANDPARENTS ON
PAEDIATRIC VACCINATION UPTAKE: QUALITATIVE RESULTS

8.1 INTRODUCTION

The current generation of parents have grown up with little knowledge or experience of infectious diseases that are now prevented by paediatric vaccines. With growing scepticism in the community around research-informed arguments, grandparents, through their experiences of the disease may have pro-vaccine views and positively influence paediatric vaccine uptake. However, this is a strikingly under studied area. A systematic review of the literature on the perceived influence of grandparents on parents’ decision to vaccinate their children revealed just six papers (see Chapter 3). None of the studies specifically set out to explore the impact of grandparents on vaccine uptake, however, they found grandparents were involved indirectly to varying degrees in paediatric vaccine uptake within young families. Currently there is no research clearly showing that grandparents, and older people more generally, promote vaccination uptake. The dearth of literature shows the need for research exploring the perceived and real influences of grandparents on childhood vaccination. This will establish whether grandparents’ memory and knowledge of preventable childhood infectious diseases could be harnessed as a public health measure to counteract the current, ill-informed, negative attention on paediatric vaccines.

Grandparents are well positioned to help increase the Australian national immunisation average of 93% (NCIRS, 2018) to herd immunity levels of 95%. Western Australia lags behind the national average for vaccination rates. A pressing concern is that only 88% of Aboriginal and Torres Strait Islander children are fully vaccinated (NCIRS, 2018; WHO, 2018). One of the objectives of this study was to investigate the
perceived influence of grandparents on parents’ decision to vaccinate their children, which may highlight pathways to influence these rates.

This chapter lays out the findings from the exploratory qualitative phase of the study. The results informed the development of a questionnaire to assess the knowledge, beliefs and attitudes of parents and grandparents towards paediatric vaccinations, and the perceived sources of influence on parents’ decision to vaccinate their children. Following a brief description of the qualitative data analysis, the results are presented for non-Aboriginal Australian and Aboriginal and Torres Strait Islander Australian focus groups separately. The chapter concludes with a discussion of the findings as it relates to the hypotheses:

1) Positive beliefs and attitudes of parents and grandparents regarding paediatric vaccinations will be associated with full the vaccination of infants and children;

2) In environments of high vaccine anxiety, grandparents will be perceived as a source of influence by parents in their paediatric vaccine decision-making;

3) Given their high levels of biological relationship with their grandchildren, maternal grandmothers will be perceived as having the most positive influence on vaccine uptake.

8.2 METHOD

A total of 17 focus groups were conducted (Table 5.1) with different family member types. Most of the focus groups were conducted separately with one family member type to minimise the contamination of discussions. Due to convenience sampling, six of the seventeen groups were mixed: five groups were a mix of mothers and grandmothers (groups 1, 14, 15, 16, 17) and one grandfather group included a grandmother (group 4). Given the multicultural nature of the communities in the
metropolitan area and the heavy reliance on convenience sampling, it was not possible to ensure ethnic homogeneity in focus groups.

To examine the hypotheses, transcribed data from the focus groups were coded in vivo and analysed using an interpretative phenomenological framework (Joseph, 2014). The second cycle of coding involved rearrangement of the codes into categories under short phrases from participant quotes. The short phrases/codes from the second cycle of coding and the themes are illustrated in table 8.4 and table 8.5 for non-Aboriginal and Aboriginal participants, respectively. Interpretation of the data as it related to the hypotheses following two cycles of coding, and discussions with supervisors revealed three major themes each for non-Aboriginal and Aboriginal and Torres Strait Islander participants. The findings were shared with participants to gain confirmation that the themes were an accurate interpretation of their beliefs and experiences.

With three of the four Aboriginal and Torres Strait Islander focus groups (group 14, 15, 16 and 17), members of other ethnic groups joined the discussions. After careful reading of the data and reflection on the Aboriginal and Torres Strait Islander only focus groups, it was determined that participation of individuals of other ethnic groups did not hinder Aboriginal and Torres Strait Islander participants from expressing their opinions about their perceptions around grandparental influence on paediatric vaccinations. Data from non-Aboriginal participants was not included in the analysis given the diverse cultural perspectives. Aboriginal participants’ data were analysed and are presented separately primarily due to the cultural differences in the perception of paediatric vaccination that exists in the literature and the differences in themes that arose from the analysis. There were no Aboriginal and Torres Strait Islander father and grandfather focus groups.
8.3 RESULTS

Findings from the qualitative data analysis are presented separately for non-Aboriginal Australians and Aboriginal and Torres Strait Islander participants. Demographic data is presented first, followed by a general introduction to the qualitative findings for both groups followed by the tables with the codes and themes. Finally, the themes are outlined with key quotes to illustrate each theme.

8.3.1 Participant characteristics

Tables 8.1 and 8.2 describe the participant characteristics for non-Aboriginal focus groups and Aboriginal and Torres Strait Islander focus groups. Mothers in this cohort ranged from first time mothers with infants as young as a few months old to mothers with adult children. As described in chapter 6, participants were ethnically diverse with mothers from India, England, Singapore, the Philippines, Indonesia, Thailand, Ireland, Wales, Botswana and Germany in addition to Australian born mothers of European descent. Fathers’ focus groups were also ethnically diverse with only one Australian born father of European heritage, the rest of the participants were immigrants from India, Belgium and Iran. All but one father was married to mothers who participated in the focus groups.

<table>
<thead>
<tr>
<th>Table 8.1</th>
<th>Characteristics of non-Aboriginal Australian parents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age range</td>
</tr>
<tr>
<td>Mothers (n=31)</td>
<td>29 – 62</td>
</tr>
<tr>
<td>Fathers (n=8)</td>
<td>28 – 47</td>
</tr>
</tbody>
</table>
The grandmothers who participated in the qualitative phase of this study were predominantly of European descent, with some having migrated recently from the United Kingdom, South Africa and Zimbabwe. Grandfathers were similar to grandmothers in their ethnic make-up and were all of European descent with some having migrated from the United Kingdom, South Africa and Kenya. None of them were related to the grandmothers who participated in the focus groups.

<table>
<thead>
<tr>
<th>Table 8.2 Characteristics of non-Aboriginal Australian grandparents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Grandmother (n=18)</td>
</tr>
<tr>
<td>Grandfather (n=16)</td>
</tr>
</tbody>
</table>

A significantly smaller number of Aboriginal mothers and grandmothers participated in the study (Table 8.3). Multiple factors pose challenges to recruiting Aboriginal participants. Two of the four focus groups conducted with Aboriginal participants were in a hospital where non-Aboriginal grandmothers and mothers wanted to be part of the discussion and given that I was highly dependent on the hospital staff for recruitment I was unable to refuse their participation.

<table>
<thead>
<tr>
<th>Table 8.3 Characteristics of Aboriginal Australian participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Mothers (n=5)</td>
</tr>
<tr>
<td>Grandmothers (n=7)</td>
</tr>
</tbody>
</table>

*Data not available for one mother
** Data not available for one grandmother
8.3.2 General overview of the beliefs and attitudes towards paediatric vaccines of Non-Aboriginal participants

“When my mother had rheumatic fever, she had tuberculosis, and in the family, there was scarlet fever, and so we thought she must have thought that vaccinations were a gift from God. Absolutely, this wonderful advancement and how lucky they were, and we just accepted it, and when my kids came along they just had their vaccinations like, you know they had a new dress or new shoes. It was just part of life.” (65-year old grandmother)

Grandparents were supportive of paediatric vaccinations, and some of them belonged to the first generation of Australians to have access to vaccinations for their children (NCIRS, 2018a). These grandparents had their children vaccinated with all the available vaccines when they were young. Similarly, parents in this cohort, expressed a positive attitude towards paediatric vaccines and claimed to have vaccinated their children. Being vaccinated as children normalised the process for them, appears to be a good predictor of parents vaccinating their children, and can be seen as an indirect effect of grandparents’ positive attitudes towards paediatric vaccinations.

Grandparents’ attitude towards paediatric vaccinations appears to stem to a large extent from their extensive experience of the diseases. They were familiar with the symptoms and consequences of illnesses such as measles, mumps, rubella, diphtheria, tetanus and whooping cough. The disease most feared by grandparents is polio, perhaps due to the permanent nature of the physical ailments that result from the illness. Polio dominated the conversations during focus group discussions, and grandparents recalled receiving oral polio vaccines themselves when it became available for their children. Grandparents also recalled some family members becoming gravely ill following immunisations, however, in light of their belief that the benefits of vaccinating far
outweigh the risks meant this did not deter them from continuing to approach paediatric vaccinations with a positive attitude.

From the parents’ point of view in this cohort, grandparents were neither sought after and nor were grandparents keen to impart advice regarding paediatric vaccines. However, mothers and fathers who had heard their parents speak of the vaccine preventable paediatric diseases stated that their parents may have intervened had they decided not to vaccinate their children. Furthermore, on occasions when parents approached grandparents for advice, grandparents claimed to have always encouraged parents to vaccinate their grandchildren.

Experiencing disease as a child had a strong positive influence on parents’ and grandparents’ attitudes towards vaccination. Although grandparents stated that they were not directly involved in the vaccination decisions made by their children, grandparents do help indirectly. For example, when parents called on grandparents to care for their grandchildren who were feeling unwell after being vaccinated, they did care for their grandchildren.

One of the main concerns of parents that was discussed was in relation to the discrepancy in the advice given by health care practitioners and the information available on the internet. Parents’ who stated that they used the internet to research vaccines and their safety did so in order to gain clarity on the conflicting information they had received from their general physicians and public health agencies. For example, some parents received pamphlets advising their children be vaccinated against meningitis B, which is not freely available on the paediatric vaccine schedule and therefore not encouraged by health care practitioners.

Discussions around conflicting information led to at least one participant in each of the focus groups stating that they knew someone personally or knew of individuals
in their extended social networks who do not vaccinate their children. However, parents stated that vaccinating children was not discussed in parenting groups. Parent’s vaccination preferences were not a topic of conversation among parenting groups as they felt it was a controversial and polarising subject. This in turn, then led to discussions around the recent government mandate around paediatric vaccines.

In 2015, Australia mandated paediatric vaccines through the ‘no jab no pay’ policy which required parents to vaccinate their children on scheduled in order to receive child care benefit payments. The ‘no jab no play’ policy requires all children attending play schools, day-care centres and pre-schools be vaccinated (NCIRS, 2018a). Some of the participants stated they knew parents who only vaccinated their children after the introduction of the policy, so they could continue receiving their child care benefits. This does however, raise the issue of what informs the beliefs of the parents who had refused paediatric vaccines until the policy was enforced. Participants associated the term “hippie” with individuals who refused vaccines stating that the terms hippie and vaccination were mutually exclusive. They further added that anti-vaccine belief holders were likely to lean towards naturopathic vaccines. It is not clear if these are clinically trialled vaccinations or entirely natural and requires further investigation. Efforts to learn about naturopathic vaccines led to numerous vaccine refusers websites and were not followed up further.

One mother with adult and teenage children felt paediatric vaccination should be delayed. She believes that an infant’s immune system is not ready to cope with the number of vaccinations that are on the schedules. The perplexing nature of anti-vaccinators beliefs and their choice of alternatives, considering current medical and scientific recommendations, helps explain parents’ reluctance to discuss vaccinations with peers. Among the parents and grandparents who participated, if any of them had
held anti-vaccine beliefs, with the exception of the one mother who did speak out, the
general consensus is they would not have spoken about it given the overwhelmingly
positive attitude expressed by all of the focus groups.

Analysis of data in light of the recent literature on vaccine anxiety, hesitancy and
negative propaganda and the study hypotheses revealed three major themes (see Table
8.4). The first, was that childhood experience of vaccine preventable diseases was a
good predictor of a positive attitude towards paediatric vaccines among parents and
grandparents. The second theme was that being vaccinated as a child results in viewing
paediatric vaccines as a normal part of child rearing. Third, parents and grandparents
want transparency in healthcare practice to increase confidence in paediatric vaccines.
The themes are discussed below with key corresponding quotes for illustration.
<table>
<thead>
<tr>
<th>Family member</th>
<th>In vivo codes (examples)</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>I’ve had the mumps</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I think one of my mum’s relatives died of polio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>My brother got meningitis</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>I grew up with the polio epidemic in ‘48</td>
<td>Childhood experience of vaccine preventable diseases is a good predictor of positive attitudes towards paediatric vaccines.</td>
</tr>
<tr>
<td></td>
<td>I was named after a girl that got diphtheria and died</td>
<td></td>
</tr>
<tr>
<td></td>
<td>My children got both chicken pox and measles</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>Diseases are not confined to regions anymore</td>
<td>Being vaccinated as a child results in viewing paediatric vaccines as a normal part of child rearing.</td>
</tr>
<tr>
<td></td>
<td>Our neighbours got chicken pox twice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Typhoid, polio, tuberculosis, mumps</td>
<td></td>
</tr>
<tr>
<td>Grandfather</td>
<td>That [disease] was scary for us in that generation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In the 50s we had the polio scare</td>
<td></td>
</tr>
<tr>
<td></td>
<td>You always got the mumps, you always got the measles</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>She [mother] vaccinated all of us</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In primary school we used to have needle days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>We’ve all been vaccinated</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>I did it probably because my mum had done it</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It was just part of your life, you got your babies vaccinated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There was no question [about vaccinating children]</td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td>It [vaccinations] was one of those things that we just assume would happen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I think this [vaccinating] is the best that we can do for the baby</td>
<td></td>
</tr>
<tr>
<td></td>
<td>We had to take vaccines when we were small</td>
<td></td>
</tr>
<tr>
<td>Grandfather</td>
<td>You just lined up, got your needle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>It was just regular then</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There was no thought of it [vaccinations] not being done</td>
<td></td>
</tr>
<tr>
<td>Family member</td>
<td>In vivo codes (examples)</td>
<td>Themes</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Mother        | We didn’t follow the schedule  
It’s just that they [doctors] don’t encourage it [BCG] here  
And I am not sure about like do we need it [meningitis vaccine]                                                                                           | Parents and grandparents want transparency in healthcare practice to increase confidence in paediatric vaccines.             |
| Grandmother   | Some of them [parents] get very frightened  
I think there are more injections than the childhood diseases  
It is harder for your [moderator’s] generation                                                                                                                                                                      |                                                                        |
| Father        | I have a different view on the ones that are non-mandatory  
I think it needs to be done by a certain age  
I would turn to google I think [for information on vaccine]                                                                                                       |                                                                        |
| Grandfather   | Younger generation are perhaps quick to consult Dr Google  
There are all sorts of side effects that parents today are concerned about  
Frequently they [parents] need to bounce off us [information]                                                                                               |                                                                        |
8.3.2.1 Theme 1 – Childhood experience of vaccine preventable diseases is a good predictor of a positive attitudes towards paediatric vaccines

Personal experience of childhood infectious diseases was a positive influence on attitudes towards vaccinations. Grandparents had vivid childhood memories of family members and peers being ill and accepted falling ill as a normal part of childhood and attending school. Participants in 50-60-year age group associated receiving vaccines with attending school. Overall, illness had been common throughout their childhood and therefore, older participants stated vaccines were welcomed when they became available. Parents who had been ill or had family members who were ill viewed vaccinating their children as essential.

“Also, as far as immunisations is concerned, vintage we are, our parents they were more aware of the repercussions of children who didn’t have the availability of inoculations to things like diphtheria, whooping cough, measles, polio, all those things, and every family, and I had diphtheria as a child, and I had whooping cough as well. So, they know how terrible the repercussions can be, so you just did it. However, these days because of the immunisations the problem’s [diseases] not here and it is still, when you hear of babies...[voice trails off]” (71-year old grandmother)

Grandparents mentioned a range of vaccine preventable illnesses that were widespread in their communities when they were young. They were more aware of the consequence of the illnesses such as deteriorating vision following measles, and the complications polio survivors had to endure for the rest of their lives. The polio epidemic has had the most lasting impact on vaccine attitudes for grandparents in this cohort. Grandparents’ positive attitude stems from witnessing the drastic reduction in disease prevalence. The devastating consequence of the illness was very visible and
present in their communities and served as excellent motivation to get themselves and
their children vaccinated. They recalled vaccine vans coming around to their local
neighbourhoods, which made vaccines more accessible to parents with young children.
Had there been any concerns about the safety of vaccines, the fear of the illness appears
to have driven them out.

“But then I grew up with the polio epidemic in ’48 and with the people dying
and the severe disabilities afterwards I wasn’t going to have that for my children,
so as soon as that came available, I mean, even I had it, off a spoon…” (64-year
old grandmother)

Among parents who participated in the focus groups memory of a family
member being ill with a vaccine preventable disease affirmed their faith in vaccines as
a means of protecting their children. In instances where one parent was hesitant to
vaccinate, the other parent having experienced the disease, either personally being ill or
someone they knew being ill caused them to negotiate getting the child vaccinated. The
concerns around the safety of vaccinations appear to stem from an inundation of
inconsistent information on the internet.

“I persisted we are going to do them all ‘cos my brother got meningitis in what
1990, and my research, we were debating it because I had researched it
[meningitis vaccine], the vaccine came out a year later so he probably wouldn’t
have got it and he was fine I think [laughs], well he’s pretty much fine. I mean
he was a difficult child growing up and you don’t know the reason why that was
you know, so, he was a great baby [before the illness] but after he had that
[meningitis] he was really hard to, people thought he had ADHD and all that.
You don’t know what causes these things so he’s fine now, but um ya, but I am
very pro, and once I realised that [meningitis probably resulted in brother’s
health issues] and it was one of the ones that I said we really need this one, oh
my god this is what caused that [brother’s illness] and once I realised that I was nah, we are going to get them all because the disease is worse.” (36-year old mother).

This mother’s partner was concerned about vaccine safety and confused about the effectiveness of the immunity acquired through vaccines and by contracting the disease itself. One mother with adult and teenage children was vocal about not vaccinating infants, attributing her teenage daughter’s allergies and health complications to the chicken pox vaccine. She was the only participant to speak out against paediatric vaccines. She had raised her children in Hong Kong and it is not clear as to what extent she may have been exposed to the illnesses. Her partner who was part of the fathers focus group held opposing views. If this couple had young children, it is not clear who might win the case for paediatric vaccines.

“I would have liked to wait, I would not have liked to follow the government’s schedule. I would have liked to wait at least until my child was about three years, once their immunity is a little bit developed because I definitely believe that there is a strong link to whatever diseases and so yes, I am not against vaccinations, but I am not for vaccinating babies. If I had a grandchild today or a child I would definitely consider when I was going to vaccinate the child. I would not straight away trust the doctors.” (47-year old mother)

Adverse reactions to vaccines and any health issues that arise after a vaccination has a negative effect on attitudes towards vaccinations. It could be argued that while experience of disease is positively associated with vaccine uptake, one adverse reaction would be weighed more heavily and negatively associated with vaccine uptake. In summary, experience of a disease has the strongest positive influence on vaccination decisions made by grandparents and parents.
8.3.2.2 Theme 2 – Being vaccinated as a child results in viewing paediatric vaccines as a normal part of child rearing

Those who had been vaccinated as children viewed paediatric vaccines as a normal process of child rearing. Participants spoke about the disadvantages, such as the fever and discomforts that follow vaccinations, but did not consider them a deterrent to vaccines. Being vaccinated against childhood infectious diseases normalised the vaccination process and parents readily accepted it as part of child rearing. Parents who had a positive attitude towards vaccinations did not feel the need to consult grandparents. In circumstances where it had been explained to parents why vaccinations were good, it helped establish a positive attitude and have their children vaccinated. In the current climate of negative attitudes towards big pharmaceutical companies, one mother explained how her father who was employed in the pharmaceutical industry, while not keen on giving his children antibiotics, explained the benefits of vaccines.

“It’s like my dad, worked in pharmaceuticals all his life, so making drugs and bulk drugs and everything so from childhood we were never, not never, I would say we were never given allopathic, just because my dad knew all the flora and fauna things, so [we] were always homeopathic children, though my dad was, um making drugs. But when we ask him about vaccination I remember he very clearly telling, when I was a child also, I remember he’s telling, vaccination is in a controlled environment you are getting the disease okay, so your body is able to fight it out and build the immunity for that. So, he said that that is a good thing for your body because if you don’t do that in a small form and you get it in a big form, it will really affect you in a negative way, and that was one of the things I will always never feel negative about vaccination, and that’s just again because how we were, grew up, no drugs as far as you can because it’s not good for you, but vaccination it was told, it was in a controlled environment. So your body is dealing [with] something in a very controlled thing, so that’s one way of putting it.” (34-year-old mother)
It is essential that this type of information is communicated to young parents who are conflicted about vaccine safety. This mother has had her father set the stage for a positive attitude towards vaccines, and she holds onto the information and has ensured her children were vaccinated. It could be argued that she does not completely embrace Western medicine or allopathic drugs as she explains here. However, she is willing to accept vaccinations for her children because of the way in which it was presented to her as a child. Other parents and grandparents who had been vaccinated also accepted it as a normal.

“I did it probably because my mum had done it, right from when I was very young because we were part of the first trial of the first polio vaccine, and a lump of sugar with it.” (71-year old grandmother)

Parents in the study stated that they did not approach the grandparents of their children about vaccination decisions. All participants were in favour of paediatric vaccines and claimed to have vaccinated their children. Even the mother who expressed her concerns about vaccinating infants had vaccinated her children. Vaccinating their children was considered such a normal process that parents did not feel the needed to consult grandparents, other family members or health care practitioners.

“And it’s kind of like, do you talk to them about putting a seat belt on your child, you just do, so you wouldn’t really talk to them about vaccinations.” (39-year-old mother)

The focus group data collected does not contain the information necessary to understand whether parents who are vaccine anxious/hesitant were vaccinated as children. The data does show that where one parent is reluctant, having a second parent
with strong positive beliefs in paediatric vaccinations ensures children are vaccinated. However, it must be reported that these parents had compromised on the schedule and delayed some of the vaccines. What is evident is that parents are not clear on why vaccinations have been scheduled the way they are. The inundation of inconsistent information from multiple sources only serves to confuse parents more.

8.3.2.3 Theme 3 – Parents and grandparents want transparency in healthcare practice to increase confidence in paediatric vaccines

The internet has opened up the opportunity for parents of today to research all aspects of parenting and health issues that were not available only twenty years ago. Conducting research to arrive at a vaccination decision does not always result in vaccine hesitancy and anxiety as one mother explains. Her research on paediatric vaccines helped her decide that her child needed all the vaccines on the schedule. Grandparents heavily relied on health care practitioners and followed their advice without questioning it. More recently this has changed, and the majority of parents question the knowledge and authority of healthcare practitioners and prefer to verify information on websites that are not always credible sources of health information. However, it must be reported that these parents had compromised on the schedule and delayed some of the vaccines. What is evident is that parents are not clear on why vaccinations have been scheduled the way they are. The inundation of inconsistent information from multiple sources only serves to confuse parents more.

I remember when I was doing research on when I was thinking whether vaccines are okay. I remember seeing this ad, it had a small doll, it had a doll, like a proper doll, not a barbie, like a proper doll, and it had needles, injections on it, and it was an ad that, I don't know, it was an ad that said something along the lines of, that's a lot of injections those are all vaccines the doll has, and there were people talking about how, why do you want to put your baby through so many injections. The doll was filled with injections, but there was another, I
can’t remember the line, but the person underneath the thing said that, you know that’s a lot of injections, no doubt, throughout the lifetime of the baby, but which of those diseases would you want your baby to have. You understand what I am trying to say? So it’s a lot of injections no doubt about it, but remove one injection, which one of those many things [diseases] even if you were to pick one thing [disease], which one would you pick for your baby to have?” (35-year old mother)

The challenge with the information on the internet is that not all parents, like this mother, would view the information positively. As this quote highlights, there are individuals who see it as too many injections. A well-meaning message such as this doll could still be misconstrued based on what the pre-existing concerns were. It is worth noting that the information is not necessarily accurate, injections on this image are depicted as single doses, while most vaccines now are combined now with at least three antigens in each injection.

Further complicating an already contentious topic is that the information from health care practitioners and on the internet are often contradictory. In the absence of extensive knowledge in health care and vaccine preventable infectious diseases, the contradictions would be a challenge to navigate. It is conceivable that parents who have grown up in an environment where preventable infectious diseases have been non-existent for decades. The health forums that discuss adverse reactions to vaccines could cause a significant amount of anxiety. In the focus groups parents discussed looking up symptoms on the internet and preferred to check online rather than consult grandparents for advice before deciding if they needed to see a doctor or not. While parents research all aspects of parenting and health care on the internet, grandparents are still trusting the advice of their health care practitioners.
“In some cases it is harder for your generation [refers to the moderator] because we generally were brought up that what doctors or medical people said you took it for gospel, you wouldn’t have queried it.” *(68-year old grandmother)*

“…they go and read up on everything there is, and sometimes I think they read too much. A lot of them is about anti-vaccine.” *(78-year old grandmother)*

In the social network of this sample, anti-vaccine attitude seemed to consistently recur. At least one participant per focus groups mentioned personally knowing someone who either refused or were reluctant to vaccinate their children. However, they are a minority group, and are therefore not likely to speak out. Ironically, the incidence of vaccine preventable infectious diseases being rare in WEIRD societies further strengthens beliefs that vaccines are not essential. This is further compounded by opposition to mandates and sentiments that counteract ideas of exercising freedom.

“I wonder if the concept of it today, people don’t actually see it [vaccines] as prevention. It’s like, why do we need to do this [vaccines] because, this is just government, it’s the nanny state, the government are telling us what to do. And then every now and then something happens and it’s a terrible tragedy last year where I think where a baby died, because it’s coming back to hear about people bringing back measles, and I think people are shocked to see and they do, oh it [disease] still exists and yeah, it is still out there in the community and it [disease] gets brought back in.” *(55-year old mother)*

Throughout discussions participants spoke about the diseases prevalent in certain parts of the world. All participants spoke about travelling, and in some cases to disease endemic regions of the world. However, the absence of disease in Australia appears to have instilled a false sense of protection from disease. There is an assumption that their children will be protected as long as other children are vaccinated. The idea of
herd immunity is not well understood. The key to promoting paediatric vaccines is to educate young parents. Parents do seem to be receptive to grandparents’ stories of illnesses. The key to counteracting their scepticism towards health care practitioners and big pharmaceutical companies could be facilitated through grandparents’ experiences of infectious diseases and their consequences.
8.3.3 General overview of the beliefs and attitudes towards paediatric vaccinations of Aboriginal and Torres Strait Islander participants

“I think it’s important, um and it’s only because you know we had this health system, where we [were] made aware of it like when our kids were born, we were told from the very beginning all about immunisation and how important vaccines are, and I think that knowledge from the beginning sort of you know. It’s why we have our kids immunised today, and we wanna do it because we don’t want them to catch this or get that and all these things that they can that back in the day there wasn’t, you know my grandparents day there wasn’t you know anything [infectious disease] around that really that is now so think it is talking even about the meningococcal vaccines that [are] out now you know that’s just really important I just, there’s so many things that’s coming you know, diseases that’s coming with the different strains that’s connected to the influenza, or you know there’s a wide variety of them you know and we get immunised against one there’s another one that comes out so I reckon it’s really important.”

(Grandmother of twenty grandchildren, age not available)

All aspects of childcare are embedded in traditional Noongar practices. Whether it be infant feeding or vaccinations, they follow the advice of their elders, and there is an inherent trust and respect within their social networks and kin. Noongar mothers and grandmothers have a very positive outlook towards paediatric vaccinations, and the advice of elders is regarded highly and often followed. Noongar women associate infectious diseases with colonisation and the ongoing immigration into Australia. The belief that disease arrives with newcomers has been shared with the young families over time and their primary concern is disease prevention. Participants were unconcerned about vaccine safety and generally accepted it as a necessity.

Within the Aboriginal and Torres Strait Islander communities, children are revered and not seen as ‘belonging’ to just the biological parents but the entire community. Therefore, the wellbeing of the child is seen as the responsibility of the
entire community. Elders in the community watch each other’s biological grandchildren and do not hesitate to call on the parents should they feel the child is in any way lagging in development or showed symptoms of health conditions that parents may not be aware of. Grandmothers, who are affectionately referred to as ‘old girls’ in the community, are regarded highly by young mothers and their advice is often followed through.

Despite the overwhelmingly positive attitude of mothers and grandmothers, the Aboriginal and Torres Strait Islander population more broadly, is lagging on the rates of vaccination (NCIRS, 2018). Some of the issues that could be hindering vaccination uptake were discussed in the focus groups and most of the issues do not involve personal knowledge, attitude or beliefs. The issues are at the level of the system and far more complicated than providing knowledge of or access to vaccines.

Australia’s colonial history is marred by the maltreatment of the first people of this country. Families being displaced from their home countries and separated from extended families, removes them from a structure that is inherent to their mental and physical well-being (Purdie, Dudgeon, & Walker, 2010). Living in separate homes, as is the case in nuclear families, is not conducive to their culture and could be a contributing factor to some of the health issues that they struggle with as a population. One grandmother explained that young mothers struggling with racism, social stigma, domestic violence and abuse may not have the capacity to prioritise paediatric vaccines. The ‘no jab, no pay’ policy in this instance, could cause more harm than good as mothers lose their source of supplementary income and become further marginalised. Although these issues were raised during discussions and warrant mention, it is beyond the scope of this thesis to explore them further.

Data analysis of focus group discussions was confined to intergenerational influences on parents’ decisions to accept paediatric vaccines for their children.
Analysis revealed three themes, the first was that the association of immigration with infectious disease, and the memory of disease itself has resulted in general positive attitudes and beliefs towards paediatric vaccines. The second theme was that grandparents explicitly advise parents to vaccinate grandchildren when healthcare fails to provide the necessary information to parents. Third, vaccines are accepted as being essential to ensure child health, but without transparency in the healthcare information, mothers are unable to make informed decisions.
Table 8.5  Codes and themes for Aboriginal and Torres Strait Islander mothers and grandmothers as it relates to paediatric vaccinations

<table>
<thead>
<tr>
<th>Family member</th>
<th>In vivo codes (examples)</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>Vaccinations can in some ways be called an investment [in child]</td>
<td>The association of immigration with infectious disease, and the memory of disease itself has resulted in general positive attitudes and beliefs towards paediatric vaccines.</td>
</tr>
<tr>
<td></td>
<td>The only means I know that to protect my son is by vaccinations…</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Even though we have border protection they are not 100% proof</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>My mum used to be frightened of all the diseases</td>
<td></td>
</tr>
<tr>
<td></td>
<td>We all knew what the measles could do</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polio was the worst thing back then you know</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>She kept us up to date with immunisations</td>
<td>Grandparents explicitly advise parents to vaccinate grandchildren when healthcare fails to provide the necessary information to parents.</td>
</tr>
<tr>
<td></td>
<td>Mum was pretty proactive in making sure we all got our immunisations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I couldn’t do my job and provide for my son unless he was fully vaccinated</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>It’s just a normal thing to immunise your kids</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am a real advocate for immunisation with my daughter and daughter-in-law</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I remember my mother telling you must get your kids to have these needles</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>Why do you do it, just understanding why you do it</td>
<td>Vaccines are accepted as essential to ensure child health, but without transparency in healthcare information mothers are unable to make informed decisions.</td>
</tr>
<tr>
<td></td>
<td>They just expect you to know these things, as a mother you should know</td>
<td></td>
</tr>
<tr>
<td></td>
<td>They don’t give us enough information</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>Everything at the moment today is mandated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>They don’t have the capacity to understand [policies]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Run some education program that’s going to convince me</td>
<td></td>
</tr>
</tbody>
</table>
8.3.3.1 Theme 1 – Association of immigration with infectious disease, and the memory of disease itself has resulted in general positive attitudes and beliefs towards paediatric vaccines

Aboriginal mothers and grandmothers have incorporated vaccination, an aspect of Western medicine, into their traditional child care routines. Observations made by great-grandmothers about infectious diseases that were non-existent until the arrival of colonisers, have been passed down through the generations. This seems to have stood the community in good stead in terms of maintaining a positive attitude towards paediatric vaccinations. Paediatric vaccinations are considered a part of the child rearing tradition to the extent of being considered ‘natural’. The idea of vaccinations being natural and a normal part of child rearing has been passed down the generations in a few different ways. Some have come to accept it as part of the healthcare regimen for their children. Others have accepted it as a way to ward off ‘evil’.

“My mother always taught me that vaccinations kept sort of evil spirits away and um I never understood that growing up because my age group was the sort of policy changing age group, where you know it was about self-determination, um, and we were able to make decisions of our own, so I could never understand what that meant for mum. Well what did she mean by that, but all the aunties used to say that too, and they had different ways of saying it, but what was interesting about it on reflection as I got older, it was more about than the actual, um, needle whatever the vaccination doing what it needed to do for polio or things like that, because my grandmother’s generation believed that those things were done by, using the word evil spirits is not quite, Nyoongar way like maman or something like that, so those times were, those incidents happened because the family did the wrong thing, and they were making kids suffer, so mum always taught me that. And whether it was a way of accepting that needles were a very natural thing, I don’t really know but that was the rationale she used to give, and I used to accept that.” (51-year old grandmother)
While this great-grandmother is very familiar with Western medicine, the internalisation of the cultural explanation for vaccination given by her mother appears to have survived the test of scientific reason. This is an example of the influential nature of the intergenerational transfer of information. The notion of ‘evil spirits’ or ‘payback’ that was shared with this great-grandmother is not confined to her generation. It is still quite pervasive among young mothers from other regions within Western Australia. To one young mother, quoted by her friend, it is not just the idea of protecting children from bad or evil things, but also viewing vaccines as protective ‘white magic’.

“I’ve got a friend from [region] and she, I asked her. She said ah ya, I need to get my son vaccinated quick, so I asked her why and she said generational payback. I said what do you mean, and she said sometimes, if you can’t go after the mum or the father or the daughter or the son they go after the next line. And I asked her to explain about her son, and her son is the first-born male since her great-grandfather so he has a significant importance in that community for that, and they are all arguing about title, and who is the head of the family, and who’s got to do this, and who’s got to do that, and I said what do you mean, and she said, I wouldn’t put it past my dad’s so and so to try and use maran to come after me or my son. She said black fella magic wouldn’t know how to deal with this white fella medicine because it hasn’t fought against it before and I said what do you mean by that? She said well my culture, and we know each other’s everyone’s capable of, everybody knows and who’s got this power and who’s got that power, she said, but nobody knows what power my son got because he’s got white medicine protecting him too. And I was like, she said but this isn’t just for my son she said, it’s for everybody, and she said she was always worried about payback because her grandfather did do wrong in the community, and he was exiled, the kids were allowed to stay, but her dad and her aunties and uncles were allowed to stay but the grandfather had to go, and that’s the whole reason why she said she’s worried about the generational payback coming back to her son, because he is the only male in that whole line.” (31-year old mother)
The idea of Western medicine providing protection beyond preventing infectious disease being incorporated into a culture as old as that of the Noongar people is noteworthy. The general assumption that the Aboriginal and Torres Strait Islander community does not accept Western medicine and is distrustful of health care providers is not supported by the data from the focus group discussions. However, the way Noongar mothers and grandmothers have accepted it requires Western medical practitioners to educate themselves and approach the community in a culturally appropriate manner to promote paediatric vaccines. These ideas of protection beyond infectious diseases may not be as pervasive in the community and will require further investigation and ought not to be generalised to the entire Aboriginal population. The general consensus is that paediatric vaccinations are considered normal and accepted without much doubt and anxiety.

“They do it, it’s the norm, that’s what I am saying, it’s a norm with inside our culture at the moment because of the nought to five program that was brought in, you know back in the 80s probably, it was, so there was a big big push and not only that, we know that if you don’t have it, the effect that if you don’t have the immunisations, so it’s not our culture that has the issue in the vaccinations.”

(59-year old grandmother)

Mothers and grandmothers do not think that the Noongar population in the Perth metropolitan area are reluctant to vaccinate. As mentioned above, parents who fail to vaccinate their children may be faced with challenges that they do not have the capacity to cope with. Living in the isolation of nuclear families also makes it harder to see and help people deal with the challenges faced by young parents, especially mothers. Mobilising elders who understand the importance of paediatric vaccines, rather than
social workers, may help mothers access the necessary health care and ensure their children are vaccinated on schedule.

8.3.3.2 Theme 2 – Grandparents explicitly advise parents to vaccinate grandchildren when healthcare fails to provide the necessary information to parents

Mothers and grandmothers generally accept that elders will provide advice in relation to maternal and child health, and the advice is appreciated. The acceptance of paediatric vaccines without trepidation likely stems from the confidence elders have in vaccines. Matrilateral kin have the strongest influence, although paternal grandmothers in the group whose sons lived in the same house with their partners and children described the various ways in which they supported the women who joined their families. Participants’ expressed concern that male family members who married out of the cultural group could lose touch with their traditions and they strongly believed that the matrilateral influence was the strongest in relation to maternal and child health.

“For us our mum you know she was, buck stopped with her. So there was no questions, if it had to be done this way it had to be done, and nobody questioned her and things, we just followed the family line and we still do today and things. So, if the older ones step in and say hold it that’s wrong and things, then the younger ones adjust very quickly.” (82-year old great-grandmother)

The advice of elders is highly valued, albeit with some humour among younger mothers. There was laughter and jokes shared as they shared stories of how parents and grandparents step in to advice. While they recalled resisting the advice at first, they did follow through because they trusted their elders when it came to issues around the health of their children. If the dominant peer in the group valued elders’ advice it had an impact on the entire social group with peers promoting the advice of grandparents.
“…the grandparents are always there, and they are the last call if something, ‘cos they are monitoring and watching everything from the side, so if something’s not happening we are telling them, come on what are you doing, you better make sure you go and get that there done because later on it might affect the littlies from having babies or something or other in years to come. Or you know if they pick up this sickness like polio and things like this and, if you’ve seen people with various sicknesses and things we all knew what the measles could do, and we’d put babies in a dark room and put blankets up on the windows to keep that room dark so they couldn’t go blind and things, well that’s what we were told whether it was true or not I don’t know.” (Grandmother of twenty grandchildren, age not available)

As this grandmother explains, they observe all young children in the extended family and community and not just biological grandchildren. Furthermore, they do not hesitate or let issues such as estrangement between family members concern them when it comes to approaching parents about any perceived health issues that they observe. Elders appeared to always act in the best interest of children.

“I was talking about our parents, dad didn’t say a lot he was just always around but mum, if you had a difference of opinion she will say oh who do you think you are to be different to everybody else you know. Say if I didn’t want to vaccinate my children, she would growl at you to say well who are you to be different you know, I had all my children vaccinated and look how you turned out. So, she would, that would be her way of saying just step in line and do the right thing, that was her subtle way of saying just go and do it and it is for the benefit of the baby. You don’t want them to get the bad case of the measles or mumps or whatever, polio was the worst thing back then you know, to think about you know, you don’t really hear of anybody having polio these days.” (52-year old grandmother)
The absence of preventable infectious disease does not appear to be a concern nor has it led to questions about the need for vaccines anymore within the Aboriginal and Torres Strait Islander community. Stories of diseases in the community that had not existed prior to colonisation, and the consequences of infectious have been passed down the generations. Grandmothers recalled the symptoms and the effect of many vaccine preventable infectious disease. However, participants did mention there were members within their community who do not vaccinate their children. One example was that of a male member of the family who married out of the community. Matrilateral influence was discussed here, with participants agreeing that it was always stronger, and therefore, they could not convince this individual to vaccinate his children.

8.3.3.3 Theme 3 – Vaccines are accepted as essential to ensure child health, but without transparency in healthcare information mothers are unable to make informed decisions

In a community that readily accepts paediatric vaccines and does not hold negative attitudes and beliefs, not being provided information they request when presenting for paediatric vaccines may foster distrust in the healthcare system. The history to date does not bode well for earning the trust of the Aboriginal and Torres Strait Islander people, therefore transparency is critical to ensuring that young families continue to seek health care services. Young mothers reported similar concerns to non-Aboriginal mothers regarding the number of vaccines children receive in the first year of an infant’s life. Explaining when and why infants must be immunised and the reason for the number of needles infants receive will reassure parents rather than deter them.

“Some of them expect you to know, it’s just you know sometimes there is this ignorance within this medical um to do with a lot of that, they just expect you to know these things, as a mother you should know.” (29-year old mother)
This mother spoke of feeling patronised and intimidated. Assuming mothers possess extensive knowledge about all aspects of child health is unreasonable. Grandparents repeatedly mentioned young parents’ reliance on the internet for information. It would appear that grandparents buffer the negative information that Aboriginal and Torres Strait Islander parents locate on the internet. Grandparents also reported a need for more information and transparency around when and why vaccinations needed to be given to children.

“But you see what they do is they don’t give us enough information, so we gotta go and have these needles, and we know that because if, you know, if we don’t do this you’re gonna get mumps or you’re gonna get the measles and things, and these are the consequences or and things, and you don’t want all of that so you go and do it, but why do you do it, just understanding why you do it.” (59-year old grandmother)

The difference in vaccine schedules for Aboriginal and non-Aboriginal populations is another concern that was repeatedly mentioned. The difference must be made transparent and justified to ensure Aboriginal parents continue to comply with a schedule. Once again, the issue is one of maintaining trust to ensure parents continue to use these essential health services.

“Yes, they give it to all Aboriginal babies and there was a lady in the bed in the room with me, why are you letting them give you, why are you allowing them to give you that injection, where are you even going to be exposed to that, and I don’t know if it was Hep C.” (52-year old grandmother)
This was the experience of this mother after the birth of her child in a rural hospital where she was advised by an elder from a different community to refuse the vaccine. Had the mother been provided an explanation by the healthcare professionals as to what the vaccine was and its importance, she may have complied.

8.4 DISCUSSION

8.4.1 Non-Aboriginal Australian participants

Non-Aboriginal Australian parents and grandparents in general hold very positive attitudes towards paediatric vaccines. Many of the participants in this cohort belong to the first generation of people vaccinated. They recounted memories of the disease and the consequences of illnesses that had few treatment options during their childhood. Their experiences with disease meant they do not question vaccinating their children, who are now parents with young children. Being vaccinated as young children was the strongest predictor of a positive attitude among parents, consistent with previous findings in an American cohort (Evers, 2000).

Grandparents in European descended families were not sought after for advice. However, in instances where parents did approach grandparents, they were able to sway the parents towards having their grandchildren vaccinated as they believed the benefits outweighed any real or perceived adverse reactions. The first hypothesis that positive beliefs and attitudes of parents and grandparents regarding paediatric vaccinations will be associated with full vaccination of infants and children is supported by the data. A majority of the parents and grandparents explicitly stated that they believed the benefits of vaccinating outweigh the risks and therefore they had their children vaccinated. Grandparents’ positive attitude is transferred to parents in two ways. First, by having their children vaccinated grandparents in this group had normalised the process for
young parents of today. Second, grandparents have instilled their positive beliefs and attitudes in their children is by sharing their experience of infectious disease and the protection conferred by paediatric vaccines.

Sharing experience of disease overlaps and partially supports the second hypothesis, which is that in environments of high vaccine anxiety grandparents will be perceived as a source of influence by parents in their paediatric vaccination decisions. Parents recalled stories shared by their parents or other community members about being ill with vaccine preventable infectious diseases. This seems to have reinforced the faith in paediatric vaccines. However, there is no concrete evidence that grandparents influence vaccine anxious or hesitant parents within the non-Aboriginal population, especially within families of European heritage. This goes back to the ecocultural framework of families (Figure 1.1) where families dominated by the European culture would be influenced by the family model of independence. Within this model, nuclear families live independent of the extended families both materially and psychologically and are not likely to follow the advice of older members of the family. Cultures that emphasise the importance of elders within their communities will probably benefit the most from the influence of grandparents in vaccine anxious and hesitant circumstances.

The third hypothesis that maternal grandmothers, given their high levels of biological relatedness with their grandchildren, will be perceived as having the most positive influence on paediatric vaccine uptake is not supported among the non-Aboriginal participants. Paediatric vaccination is not an embodied investment like breastfeeding, and while grandparents’ experience of disease and being vaccinated had an influence on parents’ decisions, it was not possible to discern the difference in influence between paternal and maternal grandparents for vaccination decisions. Parents who reported have grandparents residing overseas had a stronger influence with
grandparents checking on grandchildren’s vaccination schedules. Once again, it was both maternal and paternal grandparents who had queried it. The grandparents’ degree of relatedness on parents’ health related decisions for their children warrants further investigation (Sear & Coall, 2011).

In summary, among non-Aboriginal Australians grandparents have a positive influence on their children by having had them vaccinated. This influence is persistent across generations. Therefore, the potential impact of grandparents’ positive beliefs on parents who hold anti-vaccine beliefs and those who do not vaccinate their children must be investigated. If being vaccinated as children normalises paediatric vaccine uptake and influences future generations, it is imperative that the implications for public health be investigated. The potential role of grandparents, and older individuals in the community in general, in positively influencing vaccine hesitant parents must be specifically investigated to support intervention programs.

8.4.2 Aboriginal and Torres Strait Islander participants

The trepidation expressed by non-Aboriginal grandparents in offering advice to their children was not shared by Aboriginal and Torres Strait Islander participants. The extent to which grandparent advice is sought after and imparted appears to be influenced by culture as was evident with the Noongar grandmothers. They do not wait to be asked to impart advice related to maternal and child health. Intergenerational influence on child health, especially with paediatric vaccination decisions in vaccine anxious populations, is likely to be strongest in cultures where the knowledge and advice of grandparents and elders is valued.

Mothers and grandmothers who joined the focus groups expressed positive attitudes towards vaccinations. The lower rates of vaccination among Aboriginal children more broadly goes beyond the attitude of parents and grandparents. There are
issues of discrimination and social stigma which marginalises young parents, especially mothers and have consequences for health decisions.

Both mothers and grandmothers are concerned they do not have all the information required to make informed decisions regarding vaccines. Educational programs on disease prevalence, infections and consequences, and how vaccines will protect children will ensure better compliance. The schedule itself needs to be explained to parents in order for them to understand why infants receive the number of vaccinations they do. Overall, transparency is the key to ensuring the continued success of vaccine programs.

Findings from the Aboriginal and Torres Strait Islander mothers and grandmothers supports the first hypothesis that positive beliefs and attitudes of parents and grandparents regarding paediatric vaccinations will be associated with full vaccination of infants and children. Both mothers and grandmothers expressed positive attitudes and reported having vaccinated their children and grandchildren.

The data also supported the second hypothesis that in environments of high vaccine anxiety grandparents will be perceived as a source of influence by parents in their paediatric vaccination decisions. It was evident from the discussions that grandmothers would step in should they see their children not complying with vaccine schedules or any other form of health care needed by their grandchildren. This was not just in relation to biological grandchildren but also with other young children within the extended family and community.

The third hypothesis, that maternal grandmothers, given their high levels of biological relatedness with their grandchildren, will be perceived as having the most positive influence on vaccine uptake was partially supported. Paternal grandmothers also encourage vaccine uptake, so the precise degree of influence of the maternal
grandmother could not be discerned. However, matrilateral influence was strongly emphasised throughout discussions. Men marrying out of the community was a concern, as the general consensus is that the influence of the maternal family is stronger than the paternal family and therefore his culture and family will have limited influence.

In summary, participants of focus groups, both in Aboriginal and Torres Strait Islander groups and non-Aboriginal groups have positive beliefs and attitudes and reported compliance with vaccine schedules. They do however, report knowing individuals within their social network who do not vaccinate. The potential for positive intergenerational influence on paediatric vaccine uptake could not be studied in this cohort because of the overwhelming positive response to vaccines. Targeting vaccine hesitant parents and conducting in-depth interviews may shed light on whether grandparents could moderate the negative influence of media on vaccine anxious/hesitant parents. The perceived influence of grandparents on paediatric vaccine uptake will be further explored in Chapter 9 through the quantitative questionnaire data.
CHAPTER 9

PERCEIVED INFLUENCE OF GRANDPARENTS ON PAEDIATRIC VACCINATION UPTAKE: QUANTITATIVE RESULTS

9.1 INTRODUCTION

The health benefits of paediatric vaccinations are to be celebrated, but the success of immunisation campaigns and the simultaneous ‘disappearance’ of infectious diseases has ironically increased vaccine hesitancy (WHO, 2017). The absence of symptoms, disease and death in WEIRD societies, due to infectious diseases that vaccinations have prevented, has paradoxically raised the question of how important it is to continue to vaccinate children against these diseases. It is often mentioned anecdotally in the media that grandparents would remember the infectious diseases that are not prevalent now (Immunisation Canada, 2017), and therefore positively influence vaccine uptake. Memory of diseases and the immunological benefits of vaccination for survival and reproduction is valuable information that could benefit younger generations. However, a systematic literature review showed no evidence for the direct influence of grandparents on parents’ decisions to vaccinate their children (see Chapter 3). To investigate these claims and assumptions this study was designed to explore the perceived influence of grandparents on parents’ paediatric vaccination decisions.

This chapter presents findings from the quantitative phase of the study for each of the hypotheses:

1) Positive beliefs and attitudes of parents and grandparents regarding paediatric vaccinations will translate into adherence to public health recommended schedules;

2) Where parents express vaccine anxiety and hesitancy, grandparents will be a positive source of influence;
3) Maternal grandmothers will be perceived as having a positive influence on paediatric vaccination decisions compared to paternal grandmothers and grandfathers.

9.2 METHODS

Residents of Western Australia with dependent children were recruited to complete a questionnaire exploring grandparents influence on parents’ decisions to vaccinate and breastfeed their children. Questionnaire could be completed electronically or via hard copies. A total of 584 questionnaires were placed and 285 were completed and returned (see Table 5.4). Data from paper copies of the questionnaire were entered into Qualtrics for storage online with the electronic questionnaires and were then downloaded when data collection ceased. Data collected through questionnaires were only exported into SPSS once qualitative data analysis was complete. This was done to be certain no findings from the quantitative phase could influence my analysis of the qualitative data from focus groups.

Statements on beliefs, attitudes and knowledge about vaccinations and questions on whether participants had knowledge of other individuals’ vaccine uptake in their social networks were drawn from validated and published surveys (Larson et al., 2015; Kennedy, Basket, & Sheedy, 2011; Shoup, 2015; Opel 2011). The four key independent variables were information (When you hear negative comments about vaccines, do you: ask a friend; health worker; a family member or relative; go to the internet; go to social media), beliefs (do you think most parents like you have their children vaccinated with all the recommended vaccines), attitudes (Do you think it is important for everyone to get the recommended vaccines for themselves and for their children?), and behaviour (I did, and intend to continue to vaccinate my child on schedule). Previously validated
questions on grandparents, frequency of contact and distance between parental and
grandparental residence were also used (Borsch-Supan & Jurges, 2005).

9.3 STATISTICAL ANALYSIS

Descriptive statistics were used to summarise socio-demographic information,
frequency of contact and distance between parents and grandparents. Grandparents’ data
for distance from children’s residence and frequency of contact was summarised only
for the oldest child. Positively worded items on a Likert scale of strongly agree –
strongly disagree were reverse coded to ensure that a higher mean reflected more
positive influences and knowledge and, and a lower mean to reflect lower levels of
vaccine anxiety. Scales were computed from statements in questionnaires to assess
knowledge of vaccines (the benefits and need for it), group influence (perception of
similar beliefs within the family), and vaccine anxiety (concern about adverse reactions,
the number of vaccines needed and the perceived need for it).

One-way ANOVAs were used to determine the effect of knowledge about
vaccines, group influence, belief and attitudes and vaccine anxiety. Friedman’s tests
were conducted to calculate the mean ranks of most common and trusted sources of
information on vaccines reported by parents and grandparents. Pearson’s Chi-square test
was used to examine the proportion of participants’ exposure to adverse vaccine events
that would have discouraged vaccinations and induced a reluctance to vaccinate.

9.4 RESULTS

9.4.1 Participant characteristics

Percentages and frequencies of socio-demographic variables for mothers,
fathers, grandmothers and grandfathers are presented in Table 9.1. Participants (n=278)
were mostly Australian born, (58% of mothers, 57% of fathers, 54% of grandmothers
and 50% of grandfathers). In addition to the countries listed in Table 9.1, participants from other countries included the United States, Bulgaria, Hungary, Italy, New Zealand, Lebanon, Sri Lanka and Iran.

Parents reported higher levels of schooling than grandparents, with 65% of mothers and 71% of fathers reporting qualifications at the undergraduate or postgraduate level. The combined household income was over $150,000 for 39% of the mothers and 50% of the fathers. The reported rate of marriage and living with their partner were similar across generations with 69% of mothers, 75% of grandmothers and 90% of fathers and grandfathers being married. Of the 278 participants, 50% reported knowing someone who does not vaccinate their children.
Table 9.1  Socio-demographic variables for mothers, fathers, grandmothers and grandfathers and frequency of knowledge of individuals who do not vaccinate children

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Mother (n=133)</th>
<th>Father (n=30)</th>
<th>Grandmother (n=83)</th>
<th>Grandfather (n=32)</th>
</tr>
</thead>
</table>
| Age  
* M (SD)                         |                                   | 40 (7.4)       | 43 (8.6)      | 65 (7.8)          | 70 (7.7)          |
<p>| Born in Australia                  | Yes                               | 58% (77)       | 53% (16)      | 54% (45)          | 50% (16)          |
|                                    | No                                | 42% (56)       | 47% (14)      | 46% (38)          | 50% (16)          |
| Practice religion                  | Yes                               | 33% (43)       | 20% (6)       | 45% (37)          | 38% (12)          |
|                                    | No                                | 67% (90)       | 80% (24)      | 55% (46)          | 63% (20)          |
| Do you know anyone who             | Yes                               | 50% (66)       | 50% (15)      | 35% (28)          | 16% (5)           |
| does not vaccinate their children? | No                                | 48% (63)       | 47% (14)      | 65% (52)          | 84% (27)          |
| Ethnicity                          | Australian                        | 58 (77)        | 63 (19)       | 64 (53)           | 75 (24)           |
|                                    | Aboriginal and Torres Strait Islander | 1 (1)        | -             | -                 | -                 |
|                                    | Chinese                           | 4 (5)          | -             | 1 (1)             | -                 |
|                                    | Dutch                             | 2 (3)          | -             | -                 | -                 |
|                                    | English                           | 8 (10)         | 13 (4)        | 13 (11)           | 9 (3)             |
|                                    | German                            | 1 (1)          | 3 (1)         | -                 | -                 |
|                                    | Indian                            | 5 (6)          | 3 (1)         | 4 (3)             | 6 (2)             |
|                                    | Irish                             | 4 (2)          | 3 (1)         | 2 (2)             | -                 |
|                                    | Scottish                          | 2 (2)          | 3 (1)         | 8 (7)             | 3 (1)             |
|                                    | Greek                             | 1 (1)          | -             | -                 | -                 |
|                                    | Other                             | 17 (22)        | 3 (1)         | 7 (6)             | 6 (2)             |
| Schooling                          | Primary school                    | -              | -             | -                 | 3% (1)            |
|                                    | High school to Year 10            | 10% (13)       | 10% (3)       | 29% (24)          | 44% (14)          |
|                                    | High school to Year 12            | 90% (120)      | 90% (27)      | 71% (59)          | 53% (17)          |</p>
<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Mother (n=133)</th>
<th>Father (n=30)</th>
<th>Grandmother (n=83)</th>
<th>Grandfather (n=32)</th>
</tr>
</thead>
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<td>Qualification</td>
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<td>7% (2)</td>
<td>16% (13)</td>
<td>28% (9)</td>
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<td>Trade or apprenticeship</td>
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<td></td>
<td>Certificate from College, e.g. TAFE</td>
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<td>7% (2)</td>
<td>12% (10)</td>
<td>8% (2)</td>
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<td>Bachelor's degree</td>
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<td>38% (12)</td>
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<td>33% (10)</td>
<td>13% (11)</td>
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<td>90% (27)</td>
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<td></td>
<td>Employed part-time</td>
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<td>7% (2)</td>
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<td>-</td>
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<tr>
<td></td>
<td>Not seeking employment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Stay at home parent</td>
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<td>3% (1)</td>
<td>54% (45)</td>
<td>75% (24)</td>
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<tr>
<td></td>
<td>Retired</td>
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<td>3% (1)</td>
<td>54% (45)</td>
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<td></td>
<td>Student</td>
<td>14% (19)</td>
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<td>Combined household income</td>
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<td></td>
<td>Between $20,000 and $34,999</td>
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<td>3% (1)</td>
<td>18% (15)</td>
<td>6% (2)</td>
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<td></td>
<td>Between $35,000 and $49,000</td>
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<td>-</td>
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<tr>
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<td>Between $75,000 and $99,999</td>
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<td>3% (1)</td>
<td>10% (8)</td>
<td>12% (4)</td>
</tr>
<tr>
<td></td>
<td>Between $100,000 and $149,999</td>
<td>32% (43)</td>
<td>23% (7)</td>
<td>15% (12)</td>
<td>6% (2)</td>
</tr>
<tr>
<td></td>
<td>Between $150,000 and $199,999</td>
<td>20% (26)</td>
<td>17% (5)</td>
<td>13% (11)</td>
<td>6% (2)</td>
</tr>
<tr>
<td></td>
<td>$200,000 or more</td>
<td>19% (25)</td>
<td>33% (10)</td>
<td>10% (8)</td>
<td>9% (3)</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married and living with partner</td>
<td>69% (92)</td>
<td>90% (27)</td>
<td>75% (62)</td>
<td>90% (26)</td>
</tr>
<tr>
<td></td>
<td>In a de facto relationship</td>
<td>17% (23)</td>
<td>3% (1)</td>
<td>1% (1)</td>
<td>3% (1)</td>
</tr>
<tr>
<td></td>
<td>Separated</td>
<td>4% (5)</td>
<td>-</td>
<td>1% (1)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>5% (6)</td>
<td>7% (2)</td>
<td>11% (9)</td>
<td>3% (1)</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>-</td>
<td>-</td>
<td>12% (10)</td>
<td>3% (1)</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>4% (5)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

- Options not applicable to respondents were left blank.
9.4.2 Attitudes and beliefs as predictors of paediatric vaccine uptake

Across parents and grandparents, the levels of confidence that they had the information to make good decisions about vaccination (Figure 9.1) and that vaccinations worked (Figure 9.2) were high with 95% or more reporting they were absolutely or fairly confident.

Figure 9.1 Level of confidence reported for information available to make decisions on paediatric vaccination
One-way ANOVAs were conducted to determine the effect of mothers’ reported vaccine knowledge, group influence and vaccine anxiety on having vaccinated their children and their intention to continue. These analyses are detailed in Table 9.2. Mothers who vaccinated their children and intended to continue this practice (behaviour) reported the highest vaccine knowledge ($F_{3, 124} = 62.50, p<0.05$), more individual and group influence ($F_{3, 124} = 19.31, p<0.05$) and the lowest vaccine anxiety ($F_{3, 124} = 16.17, p<0.05$). Table 9.2 shows that the same patterns, higher knowledge, more group influence and low vaccine anxiety, were associated with more positive beliefs and attitudes towards paediatric vaccinations. Interestingly, where mothers sought out information was not associated with knowledge, group influences or vaccine anxiety. The small sample size of fathers limited the comparison of groups and showed no significant effects.
Table 9.2  Effect of vaccine knowledge, group influences and anxiety and knowledge on mothers’ source of information, social network and attitude

<table>
<thead>
<tr>
<th></th>
<th>Vaccine knowledge</th>
<th>Group influence</th>
<th>Vaccine anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>When you hear negative comments about vaccines, do you:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ask a friend</td>
<td>14</td>
<td>5.32</td>
<td>0.49</td>
</tr>
<tr>
<td>- Ask a health worker</td>
<td>79</td>
<td>5.50</td>
<td>0.49</td>
</tr>
<tr>
<td>- Ask a family member or relative</td>
<td>9</td>
<td>5.09</td>
<td>1.36</td>
</tr>
<tr>
<td>- Go to the internet</td>
<td>26</td>
<td>5.26</td>
<td>0.86</td>
</tr>
<tr>
<td>- Go to social media</td>
<td>1</td>
<td>5.71</td>
<td>0.67</td>
</tr>
<tr>
<td>Do you think that most parents like you have their children vaccinated with all the recommended vaccines?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Definitely yes</td>
<td>37</td>
<td>5.66</td>
<td>0.37</td>
</tr>
<tr>
<td>- Probably yes</td>
<td>82</td>
<td>5.27</td>
<td>0.77</td>
</tr>
<tr>
<td>- Might or might not</td>
<td>10</td>
<td>5.58</td>
<td>0.26</td>
</tr>
<tr>
<td>I did and intend to continue to vaccinate my child on schedule.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Strongly agree</td>
<td>94</td>
<td>5.66</td>
<td>0.31</td>
</tr>
<tr>
<td>- Agree</td>
<td>29</td>
<td>5.03</td>
<td>0.44</td>
</tr>
<tr>
<td>- Somewhat agree</td>
<td>4</td>
<td>3.53</td>
<td>1.41</td>
</tr>
<tr>
<td>- Somewhat disagree</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- Disagree</td>
<td>1</td>
<td>2.71</td>
<td>-</td>
</tr>
<tr>
<td>- Strongly disagree</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Do you think it is important for everyone to get the recommended vaccines for themselves and their children?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td>123</td>
<td>5.49</td>
<td>0.45</td>
</tr>
<tr>
<td>- No</td>
<td>6</td>
<td>3.61</td>
<td>1.60</td>
</tr>
</tbody>
</table>
One-way ANOVAs were also conducted to examine the association between grandmothers’ reported knowledge of vaccines, group influences, beliefs, attitudes and vaccine anxiety on the source of information for vaccines, perception of vaccine acceptance in participants’ social network and attitude towards vaccines in the society (Table 9.3). Grandmothers predominantly accessed information via a health professional or the internet, with grandmothers who used a health worker reporting significantly better knowledge and less anxiety ($F_{1, 79} = 40.31, p<0.05$). Grandmothers who intended to advise their children to vaccinate had more group influence and less vaccine anxiety ($F_{1, 79} = 19.86, p<0.01$). Grandmothers who believed individuals in their social network vaccinated has significantly higher knowledge and more group influence, however, their lower vaccine anxiety was not significant. Finally, grandmothers with positive attitudes and belief that everyone should follow the vaccination schedule, reported significantly more knowledge, group influence and less anxiety.
Table 9.3  Effect of vaccine knowledge, group influences and anxiety and knowledge on grandmothers’ source of information, social network and attitude

<table>
<thead>
<tr>
<th></th>
<th>Vaccine knowledge</th>
<th>Group influence</th>
<th>Vaccine anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>When you hear negative comments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>about vaccines, do you:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ask a friend</td>
<td>1</td>
<td>3.42</td>
<td>-</td>
</tr>
<tr>
<td>- Ask a health worker</td>
<td>58</td>
<td>5.47</td>
<td>0.46</td>
</tr>
<tr>
<td>- Ask a family member or relative</td>
<td>2</td>
<td>3.50</td>
<td>3.53</td>
</tr>
<tr>
<td>- Go to the internet</td>
<td>20</td>
<td>5.01</td>
<td>1.13</td>
</tr>
<tr>
<td>- Go to social media*</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think that most parents like you have their children vaccinated with all the recommended vaccines?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Definitely yes</td>
<td>44</td>
<td>5.57</td>
<td>0.38</td>
</tr>
<tr>
<td>- Probably yes</td>
<td>32</td>
<td>4.94</td>
<td>1.23</td>
</tr>
<tr>
<td>- Might or might not</td>
<td>3</td>
<td>4.71</td>
<td>0.65</td>
</tr>
<tr>
<td>- Probably not</td>
<td>1</td>
<td>5.28</td>
<td>-</td>
</tr>
<tr>
<td>- Definitely not</td>
<td>1</td>
<td>5.14</td>
<td>-</td>
</tr>
<tr>
<td>I intend to advice my children about vaccinating their children.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Strongly agree</td>
<td>25</td>
<td>5.57</td>
<td>0.99</td>
</tr>
<tr>
<td>- Agree</td>
<td>28</td>
<td>5.22</td>
<td>0.89</td>
</tr>
<tr>
<td>- Somewhat agree</td>
<td>16</td>
<td>5.10</td>
<td>0.58</td>
</tr>
<tr>
<td>- Somewhat disagree</td>
<td>6</td>
<td>5.04</td>
<td>0.84</td>
</tr>
<tr>
<td>- Disagree</td>
<td>5</td>
<td>4.88</td>
<td>1.02</td>
</tr>
<tr>
<td>- Strongly disagree</td>
<td>1</td>
<td>5.85</td>
<td>-</td>
</tr>
<tr>
<td>Do you think it is important for everyone to get the recommended vaccines for themselves and their children?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td>75</td>
<td>5.42</td>
<td>0.49</td>
</tr>
<tr>
<td>- No</td>
<td>6</td>
<td>3.47</td>
<td>2.17</td>
</tr>
</tbody>
</table>
9.4.3 Perceived sources of influence on parents’ paediatric vaccination decision

Parents with more positive vaccine beliefs, attitudes and behaviours reported a higher level of group influence than those with less positive views (see Table 9.2). Friedman’s tests on the most common and trusted sources of information for parents and grandparents had both ranking their child’s health care provider first as the most common and trusted, followed by the internet and then friends (Table 9.4). Pearson’s Chi-square test to determine the association between exposure to adverse events that would have discouraged vaccine uptake and reluctance to vaccinate children showed a strong positive association among mothers ($X^2= 24.51$, df = 1, $p < 0.01$) and grandmothers ($X^2= 8.60$, df = 1, $p< 0.05$). Internet was ranked second to health care providers as a common and most trusted source of information for parents on paediatric vaccines (Table 9.4).

### Table 9.4 Mean ranks of sources of information and perceived influence on paediatric vaccinations for parents and grandparents. Grandparents ranked sources for when their children were young parents

<table>
<thead>
<tr>
<th></th>
<th>Mothers</th>
<th>Fathers</th>
<th>Grandmothers</th>
<th>Grandfathers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAIN common source of information on vaccines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s healthcare provider</td>
<td>1.29</td>
<td>1.28</td>
<td>1.38</td>
<td>1.00</td>
</tr>
<tr>
<td>Internet search</td>
<td>3.29</td>
<td>4.21</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Friends</td>
<td>4.50</td>
<td>4.24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mother</td>
<td>-</td>
<td>-</td>
<td>3.98</td>
<td>3.78</td>
</tr>
<tr>
<td><strong>MOST trusted source of information on vaccines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s healthcare provider</td>
<td>1.22</td>
<td>1.14</td>
<td>1.53</td>
<td>1.56</td>
</tr>
<tr>
<td>Internet</td>
<td>3.37</td>
<td>3.90</td>
<td>3.76</td>
<td>2.83</td>
</tr>
<tr>
<td>Friends</td>
<td>4.63</td>
<td>4.38</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Family members</td>
<td>-</td>
<td>-</td>
<td>3.42</td>
<td>-</td>
</tr>
</tbody>
</table>
9.4.4 Maternal grandmothers will be perceived as more influential than paternal grandmothers

The analysis to explore the influence of different grandparents used data from grandmothers and grandfather questionnaires and then categorised them by lineage. There was no significant difference between maternal and paternal grandparents in their reported agreement on whether they would advise their children on vaccinations, with 86% of grandmothers and 82% of grandfathers agreeing that they would advise their children about vaccinating grandchildren. Table 9.4 shows mothers did not rank asking their mothers (maternal grandmothers) for advice on vaccinations, however, both grandmothers and grandfathers did highlight their mothers’ as a common source of advice.

Although this does not separate out maternal and paternal lineages, the finding that grandmothers ranked their family as a trusted source of advice, while grandfathers did not suggest a hint of the matrilateral bias in advice about vaccines. Further support for this comes from grandparents when they were asked to rank their children’s most common sources of advice, maternal grandmothers were ranked the second most common source of advice for their children. This was second only to their grandchildren’s health care provider. Parents, however, did not rank grandparents as a common or trusted source of information on paediatric vaccinations.

9.5 DISCUSSION

This is a cohort of participants with relatively high confidence in the information available on vaccines and the protection it confers. Less than 2% of the respondents had high mean scores on vaccine anxiety and reported low confidence on vaccine information and the ability to protect children. Knowledge about vaccines and their
benefits are associated with having had children vaccinated and the intent to continue to
vaccinate according to the stipulated schedule. Respondents who reported knowledge
about the benefits of vaccines also had a higher mean group influence score and a lower
mean score on vaccine anxiety. This suggests vaccine anxiety could be associated with
lower levels of knowledge about vaccines. This is consistent with the literature
investigating vaccine anxiety and hesitancy (Larson et al., 2015; Dube, Gagnon,
Nickels, Jeram, & Schuster, 2014).

Mother who had positive attitudes and beliefs about vaccines also reported better
knowledge about vaccines and less vaccine anxiety. The data supports hypothesis one
that positive attitudes and beliefs will result in adherence to paediatric vaccine uptake.
Knowledge about vaccine is likely an important factor in positive beliefs and attitudes.
While unable to test the effect on fathers and grandfathers due to the small sample size,
they reported high levels of confidence in vaccines and reported vaccinating their
children and intending to do so again in the future. These findings also validate the
qualitative data in this study that parent and grandparents generally hold positive beliefs
and attitudes and vaccinate their children on schedule.

The average reported vaccine anxiety score is low in this cohort with a small
proportion of the cohort reporting low confidence and increased anxiety. Those who
reported not vaccinating, and vaccines as not being necessary had a low score on group
influence suggesting the influence of family was poor or non-existent in these
individuals. Based on available information, vaccine hesitant and anxious individuals
seem to be in an ecology of others who do not share the same beliefs as they do.
Although the cause and effect cannot be established this suggests their information
isolation extends to include their families. Having said that, qualitative analysis in
Chapter 8 showed clear vaccination trends within families.
Regarding hypothesis three, there was no significant difference in the reported intent to advise children about vaccines between maternal and paternal grandparents. However, based on the frequency of contact between mothers and maternal grandmothers reported (see Chapter 7), it can be assumed that if there are discussions about vaccines, it will likely be with the maternal grandmother. Hypothesis two aimed to explain whether grandparent help could reduce vaccine anxiety, however, the vaccine anxious participants were few in this cohort, consistent with literature (Dube, Gagnon, Nickels, Jeram, & Schuster, 2014; Larson et al., 2014). In order to understand the information that contributes to vaccine hesitant individuals, their attitude formation must be studied as a separate group. Being a minority and effectively isolating themselves from health workers and family discussions means it is difficult to see clear pathways for interactions. Furthermore, their trust would have to be earned, which is difficult when some contribution to their position on vaccine is anti-science.

It is worth noting that grandparents believe that they are a source of information for their children on vaccinations, only second to their grandchildren’s health care provider. However, parents did not rank grandparents as a source of information. Instead parents rank the internet and friends higher than family members. Parents ranked the children’s health care providers as the most common and trusted source of information, which explains the lower scores on vaccine anxiety in this cohort. It is interesting to note that vaccine anxiety does not seem to spread rapidly and influence the parents and grandparents who participated in this study. Although the respondents on this questionnaire have a low mean score on vaccine anxiety half of all participants reported knowing someone who does not vaccinate. This suggests knowledge, attitudes and beliefs are equally difficult to change in terms of paediatric vaccinations.
In summary, the influence of grandparents, if there were any is a positive one as grandparents report good knowledge, high levels of confidence and the belief that paediatric vaccines confer protection against infectious diseases. Parents’ statistics mirror that of the grandparents. Therefore, if there was an intergenerational influence, it is a positive one. From the grandparents’ point of view their mothers were a source of influence and they may still believe that they are a source of information and influence on their children. This, however, is not supported from the mothers’ perspectives.

Based on these findings it appears that grandparents could have a positive impact on parents’ decision to vaccinate their children if parents welcome or ask for their input. Additional variables such as socioeconomic status and culture cannot be ignored as they influence the relationships within families and ultimately the degree of influence grandparents have on parental health seeking behaviour, especially with regard to paediatric vaccine uptake.
CHAPTER 10
GENERAL DISCUSSION AND CONCLUSION

“The fact of a mother at home alone with an infant or a toddler is a new one in human experience, and it may not be “natural” for either.”

(Konner, 2011)

10.1 INTRODUCTION

If longevity is the result of selection, then grandparental investment, such as child care provision and the transfer of knowledge acquired through one’s own life would ensure inclusive fitness through the increased survival and reproduction of grandchildren. These intergenerational investments from older to younger individuals if it reduces mortality in younger generations, then selection for longevity increases. This in turn increases the return on higher levels of prolonged periods of investment, creating a self-reinforcing cycle, a characteristic of highly social species such as humans (Judge & Carey, 2001).

Parenting involves imparting knowledge, beliefs and attitudes to improve the child’s ability to navigate his/her physical and social environments. But with grandparents this is not always done directly or consciously. Attitudes and beliefs are often transferred through behaviour modelling within a child’s developmental ecology (Harkness & Super, 1994). In WEIRD societies, which are mostly characterised by families that are materially independent, but psychologically dependent on extended relatives (family type C, Figure 1.1) grandparents, among other things remain a family resource that is likely to indirectly influence parents’ child health decisions.

Using an interdisciplinary theoretical framework, this thesis investigated the perceived influence of grandparents’ attitudes and beliefs on parents’ breastfeeding
behaviour and paediatric vaccination decisions. To understand behaviour at the group and individual levels, an exploratory mixed method research design was employed. After 17 separate focus group discussions with parents and grandparents of non-Aboriginal and Aboriginal Australians, and subsequent data collection through questionnaires, evidence supports the position that grandparents do indirectly influence parents’ behaviour with regard to breastfeeding and paediatric vaccinations.

Although it is clear grandparents have an influence, the direction of the influence is harder to pin down. Only in the Aboriginal focus groups was there evidence that grandparents had a direct influence on parenting. Whether the influence is positive or negative depends on grandparents’ lived experience of breastfeeding and paediatric vaccination. Grandparents’ behaviours, attitudes and beliefs are indirectly picked up through seeing and hearing about the grandparents’ and broader families’ experiences. Therefore, parents’ breastfeeding behaviour and paediatric vaccination uptake depends on the manner in which they have embodied grandparents’ attitudes and behaviour towards breastfeeding and paediatric vaccines.

10.2 GRANDPARENTAL INFLUENCE OF BREASTFEEDING BEHAVIOUR

As mammals, breastfeeding is the most common source of infant feeding, however, this does not imply it is a simple given. A breastfeeding mother must negotiate dominant ideologies, attitudes and behaviours of those in her physical and social ecology (Dykes, 2005; McDade & Worthman, 1998). Nuclear families have become the norm in WEIRD societies and parents are separated by distance and time from grandparents in WEIRD societies. Some of this is remedied through technology, which allows regular communication and the sharing of ideas and beliefs across generations. Both focus group discussions and questionnaire data showed frequent communication
still exists between mothers and maternal grandmothers suggesting the exchange of beliefs and attitudes which could influence parenting behaviours is present.

The diversity in age and culture of parents and grandparents meant that their knowledge, beliefs and attitudes were informed by the popular infant feeding culture in which they were raised as children and at the time of the birth of their children (Dykes, 2005; Grassley & Eschiti, 2008). Non-Aboriginal Australians who participated in focus groups expressed positive attitudes and beliefs towards breastfeeding, but the extent to which this informed their behaviour depended on the context of their breastfeeding ecologies. Grandmothers in particular did not express positive attitudes towards breastfeeding and were surprised about the duration for which their daughters breastfed.

The lack of a statistically significant effect of family influence on breastfeeding behaviour can be attributed to grandparents and especially mothers’ and grandmothers’ diverse knowledge and beliefs in breastfeeding. In the instances that grandparents did share breastfeeding experiences it was not always positive and therefore is not likely to have been influential, especially if the mother was attending antenatal classes and was being educated on the benefits of breastfeeding. The positive attitude seen both in the focus groups and from the questionnaire data is evidence that parents and grandparents are aware that breastmilk is the best source of infant nutrition. It does not translate to meeting the WHO recommendations (behaviour), however, suggesting there is a strong effect of external factors on breastfeeding behaviour. The generation of grandmothers have not all had a positive experience with their own breastfeeding experiences. Some were even explicitly advised not to breastfeed. They are not all knowledgeable about the myriad benefits of breastfeeding, strongly suggestive of the need to educate grandparents.
Among mothers with a strong British heritage breastfeeding during their formative years was associated with classism. While social class did not come into conversation, the notion of Victorian ideologies informing breastfeeding practices were eluded to (Huck, 1994, 1995). Breastfeeding, and the breast are still highly sexualised, which was raised as an issue particularly in the Aboriginal focus groups, and there is a strong need for the broader community to get beyond that influence to maintain the view that breastfeeding is the optimal source of nutrition for infants to ensure a healthier future.

Culture, in all its complexity informs infant feeding practices and is a variable that plays a critical role in breastfeeding behaviour. Aboriginal and Torres Strait Islander participants have a positive attitude towards breastfeeding. Their knowledge of breastfeeding and the benefits of breastmilk are extensive. The knowledge transfer across generations is explicit and interaction between family members around child health is focused on the benefits to the child. Elders opinions are valued, and advice is followed through on, this is very similar to the findings of an extensive literature review of the influence of older women in 85 different cultural settings (USAID, 2011). Therefore, culture is the variable that could help understand how grandparents could have in the past and could again in the future, influence breastfeeding behaviour.

But the complexity of breastfeeding in the context of a WEIRD society, where a mother must work away from her infant is a challenge in and of itself. This could potentially negate, through formal child care, and promote, through grandparental child care an influence on breastfeeding behaviour. Medicalised births, the increasing rates of caesarean sections and older age at first birth (Arora et al., 2017; McIntyre et al., 2000) are all variables that can and do contribute to sub-optimal breastfeeding behaviour among mothers. Finally, the general positive attitudes and beliefs toward breastfeeding
provided by health workers may be masking any positive benefit grandparents are likely to have had in the past.

10.3 GRANDPARENTAL INFLUENCE ON PAEDIATRIC VACCINATION UPTAKE

Vaccinations against infectious diseases remains one of the most cost-effective public health interventions established to date (UNICEF, 2017). This pioneering study provides evidence to support the often-heard anecdotes that grandparents would remember the infectious disease that are not prevalent anymore (Immunisation Canada, 2017) and that this would generate positive attitudes and beliefs towards paediatric vaccinations. Because, some of the grandparents in this study cohort were the first to be vaccinated as children, this provided a window into their memories of diseases and their health effects. Memory of diseases was found to be a strong predictor of vaccine uptake among parents and grandparents. Therefore, grandparents could prove to be effective public health agents within their families and communities, especially when it comes to promoting the importance of timely uptake of paediatric vaccinations.

Paediatric vaccinations, however, were not a topic of conversation within families. Once again, the effects appear to be indirect. For example, being vaccinated as children normalised the process as part of childhood and it was more likely to be repeated. This is consistent with the findings of previous studies (Evers, 2000; Pruitt et al., 1995). Therefore, ensuring continued vaccinations is what is likely to ensure families recognise its value and promote the continued success of paediatric vaccination programs.

Both Aboriginal and Torres Strait Islander and non-Aboriginal parents and grandparents expressed positive knowledge, beliefs and attitudes towards paediatric vaccines. The positive attitude expressed during focus group discussions were reflected
in the questionnaire data. Parents’ attitudes were consistent with the quantitative data on reported levels of having vaccinated children and the willingness to continue to vaccinate on schedule. It would also appear that these individuals are isolated and do not share their knowledge or ask questions of health professionals or family. Only one parent reported not vaccinating and scored high on the vaccine anxiety scale. This limited the exploration of grandparental influence on vaccine anxious and hesitant parents. The complex nature of how one embodies and executes negative beliefs into attitudes and behaviours is made more complex in the case of paediatric vaccines by the manner in which information is transmitted through the array of sources now. The human propensity for sensational news and a cognitive bias for rare and dangerous events has contributed to a decline in vaccine uptake. This is difficult to counter in the current science-sceptic environment, however, data presented here suggests grandparents can help, and this can be counteracted to some extent by ensuring transparency and taking the time to answer questions parent may have.

10.4 MATERNAL GRANDMOTHERS TRUMP ALL OTHER GRANDPARENTS

In both qualitative and quantitative data maternal grandmothers were frequently referred to and cited as the grandparent most in contact with mothers. Maternal grandmothers also reported advising parents more than all other grandparents. Therefore, maternal grandmothers’ influence is likely to be stronger, but is it positive? That could not be conclusively answered by the data presented in this study. Focus group data suggested non-Aboriginal grandmothers may not have the most positive influence on mothers’ breastfeeding attitudes and behaviours, because of their own negative experiences and the prevailing culture. However, quantitative data shows they report
equally positive beliefs about breastfeeding. Conversely, non-Aboriginal paternal grandmothers are reluctant to advise parents for fear of estrangement.

Focus group data from Aboriginal mothers and grandmothers suggested maternal grandmothers have a strong positive influence on breastfeeding among young mothers. But this could not be confirmed through quantitative data due to low participation rates. Matrilateral influence is considered to be strong and matriarchs in the family are respected and their opinions valued. Because of this known bias there is concern over sons who leave the family because parents, as the paternal grandmothers have no influence. Overall, the mother-daughter relationship, no matter how tumultuous often endures the test of time and trial, and ultimately maternal grandmothers prove to be the most influential.

10.5 LIMITATIONS

There were a number of limitations in the study. First and foremost, the estimated sample size based on the power calculations for questionnaire responses was not reached. Questionnaires were only sent out when solicited, following efforts to promote the study in person at hospitals and community centres. The response rate was much lower than anticipated, particularly for the fathers and grandfathers. The questionnaires being lengthy could have also proved a deterrent to high response rates.

The challenge of recruiting homogenous ethnic groups for discussions to evaluate the effect of culture was negated by the multicultural nature of society. Attempting to recruit diverse participants through questionnaire dissemination proved a challenge. The questionnaire sample became homogeneously high income, high education levels and of European descent. This limits the extent to which this study can be generalised. However, it does provide detailed information on this specific WEIRD group. Targeted studies are necessary to understand the precise nature of grandparental
influence in the socio-economic and education sub-groups. The influence of grandparents on single-parent families (Evers, 2000; Pruitt et al., 1995) is something that this study was not able to discern.

A key limitation is the lack of quantitative data from Aboriginal and Torres Strait Islander participants. Although the questionnaire included the option of identifying as Aboriginal and Torres Strait Islander on the question pertaining to ethnic identity, only one participant self-identified. This low number is despite extensive networks and groups being established and visited regularly for recruitment. The issue here is one of trust since identifying as Aboriginal and Torres Strait Islander comes with its challenges due to being targeted and treated differently within the health care systems. Chapters 6 and 8 briefly outlines the challenges experienced by mothers.

Response bias is a concern with the questionnaires. Within focus groups, mothers did express discomforts about some questions, but overall came forward with their concerns about both formula feeding and breastfeeding should be supported given that some mothers struggle with breastfeeding. Future questionnaires need more explicit and diverse questions on grandparental influence on breastfeeding and paediatric vaccination. The qualitative demographic questionnaire failed to collect information on income and education would have allowed further exploration of the qualitative data and comparison with the quantitative data.

10.6 CONCLUSION

This unique study found evidence of intergenerational influences on parents’ breastfeeding behaviour and paediatric vaccine uptake. The type and extent of influence is difficult to discern as it varies with the interpersonal relationship parents and grandparents share, the dominant culture within a society, and the influence of their extended social network. Nevertheless, the evidence of intergenerational influence
presented here provides a baseline understanding that must be investigated further. This will help elucidate the precise nature of influences within the various socio-economic and ethnic groups to plan intervention programs that promote optimal breastfeeding and vaccine uptake.

Breastfeeding behaviour is subject to the influence of a myriad of factors. Grandparents are generally positive but are a product of their time. However, grandparents can play a role in moderating the negative influences on breastfeeding if educated on the current best practice. Maternal grandmothers may prove most influential given the frequency of communication and contact, which is suggestive of a positive relationship.

Paediatric vaccinations are generally well accepted in this cohort. However, this is not the case more generally as half of all participants reported knowing someone who do not vaccinate their children. Given the human partiality for negative information, grandparents could be deployed to buffer negative publicity. The memory of infectious diseases and their effects will die with the current generation of grandparents, therefore, garnering their support to share their experiences with young parents may ensure children will continue to be vaccinated.

If longevity evolved to confer reproductive fitness to offspring, and in return enhancing the inclusive fitness of grandparents, within the context of a WEIRD society, my evidence shows grandparents want to be involved in ensuring good health outcomes for grandchildren. They may help by sharing their memories and experiences, and if available may be willing to educate themselves for the benefit of their grandchildren. Grandparents could be the current generations’ as yet untapped public health resource. We could use this different love of grandchildren to the benefit of all children.
“It is good fun being a grandmother and taking on that role, and it’s a different kind of love and feeling and affection. It’s just totally different, different than when your kids were born, completely different.” (52-year-old grandmother)
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APPENDICES
APPENDIX A

FOCUS GROUP PARTICIPATION INFORMATION SHEET
PARTICIPANT INFORMATION SHEET

Health/Social Science Research - Adult providing own consent

Edith Cowan University

Title: Beliefs, attitudes and behaviours of parents and grandparents in relation to selected issues of child health.

Short Title: Parent and grandparent influence on child health

Protocol Number: 12738

Project Sponsor: Edith Cowan University

Coordinating Principal Investigator(s): Shantha Karthigesu

Dr David Coall

Associate Investigator(s): Prof. James Chisholm

Location: Edith Cowan University, Joondalup

Part 1 What does my participation involve?

1 Introduction

You are invited to take part in this research project, which is called Beliefs, attitudes and behaviours of parents and grandparents in relation to selected issues of child health. You have been invited because you expressed interest in participating as a parent/grandparent or soon to be parent/grandparent.

This Participant Information Sheet/Consent Form tells you about the research project. It explains the processes involved with taking part. Knowing what is involved will help you decide if you want to take part in the research.

Please read this information carefully. Ask questions about anything that you don’t understand or want to know more about. Before deciding whether or not to take part, you might want to talk about it with a relative, friend or the coordinator.

Participation in this research is voluntary. If you don’t wish to take part, you don’t have to.

If you decide you want to take part in the research project, you will be asked to sign the consent section. By signing it you are telling us that you:

• Understand what you have read
• Consent to take part in the research project
• Consent to be involved in the research described
• Consent to the use of your personal and health information as described.

You will be given a copy of this Participant Information and Consent Form to keep.
2 What is the purpose of this research?

This project aims to explore parents’ and grandparents’ health beliefs and attitudes in relation to child nutrition and vaccinations.

This research is significant because it is the first study of its kind to be carried out in Western Australia aimed at understanding the role parents’ and grandparents’ health beliefs play in the lives of new families. The findings will help make parents/grandparents information sessions at hospitals more suited to the needs of families with young children and to ensure that we are working together to provide the best possible environment for children to grow and develop.

This research has been initiated by PhD student Shantha Karthigesu under the supervision of Dr David Coall and Prof. James Chisholm. It has been approved by the ECU Human Research Ethics Committee.

3 What does participation in this research involve?

Participation in this research involves completing two short surveys and discussing your experiences as a parent or grandparent involved in the health of your children and grandchildren. The first questionnaire is to establish when you would be able to attend focus group discussions, and the second survey asks a few specific questions about you and your family, such as date and place of birth, number of children and grandchildren. Discussing your experiences as a parent and grandparent involved in the lives of your children and grandchildren will be conducted in a focus group. This discussion will take place with a researcher at a location convenient to you and will be audio recorded. It is anticipated that your participation in this discussion will be approximately one hour in duration.

A consent form will be signed prior to any research activities being performed.

4 Do I have to take part in this research project?

Participation in any research project is voluntary. If you do not wish to take part, you do not have to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage.

If you do decide to take part, you will be given this Participant Information and Consent Form to sign and you will be given a copy to keep.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your routine care, your relationship with professional staff or your relationship with Edith Cowan University.

5 What are the possible benefits of taking part?

There will be no clear benefit to the participant from their participation in this research. However, participants may feel satisfied in the knowledge that their participation will help generate information that can be used to improve child health.

6 What are the possible risks and disadvantages of taking part?

You may feel that some of the questions we ask are a little stressful or upsetting. If you do not wish to answer a question, you may skip it and go to the next question, or you may stop immediately. If you become upset or distressed as a result of your participation in the research project, the research team will provide a list of free counselling services you can access. Any counselling or support will be provided by qualified staff who are not members of the research team.
7 What if I withdraw from this research project?
If you do consent to participate, you may withdraw at any time. If you decide to withdraw from the project, please notify a member of the research team before you withdraw. A member of the research team will inform you if there are any special requirements linked to withdrawing. If you do withdraw, you will be asked to complete and sign a 'Withdrawal of Consent' form; this will be provided to you by the research team.

If you decide to leave the research project, the researchers will not collect additional personal information from you, although personal information already collected will be retained to ensure that the results of the research project can be measured properly and to comply with law. You should be aware that data collected up to the time you withdraw will form part of the research project results. If you do not want your data to be included, you must tell the researchers when you withdraw from the research project.

8 What happens when the research project ends?
Participants will be provided with a summary of the results when the research project is completed. This summary will be mailed to interested participants. You will be able to indicate on the questionnaire if you would like to receive a project summary.

Part 2 How is the research project being conducted?
9 What will happen to information about me?
By signing the consent form you consent to the research team collecting and using personal information about you for the research project. Any information obtained in connection with this research project that can identify you will remain confidential. Information collected will be de-identified and stored in a locked cabinet at Edith Cowan University. Only the research student Shantha Karthigesu and supervisor Dr David Coall will have access to this cabinet.
Your information will only be used for the purpose of this research project and any future research projects that seek to explore similar questions, and it will only be disclosed with your permission, except as required by law. The personal information that the research team collect and use is de-identified questionnaire answers and a de-identifiable qualitative interview.

It is anticipated that the results of this research project will be published and/or presented in a variety of forums. In any publication and/or presentation, information will be provided in such a way that you cannot be identified.

Any information obtained for the purpose of this research project that can identify you will be treated as confidential and securely stored. It will be disclosed only with your permission.

10 Who is organising and funding the research?
This research project is being conducted by research student Shantha Karthigesu and Dr David Coall and it is supported by Edith Cowan University.

11 Who has reviewed the research project?
All research in Australia involving humans is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this research project have been approved by the HREC of Edith Cowan University.

This project will be carried out according to the National Statement on Ethical Conduct in Human Research (2007). This statement has been developed to protect the interests of people who agree to participate in human research studies.
12 Further information and who to contact
The person you may need to contact will depend on the nature of your query. If you want any further information concerning this project or if you have any problems which may be related to your involvement in the project, you can contact the research student on …. or any of the following people:

<table>
<thead>
<tr>
<th>Name</th>
<th>Shantha Karthigesu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Research Student</td>
</tr>
<tr>
<td>Telephone</td>
<td>+61 8 6304 2423</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:s.karthigesu@ecu.edu.au">s.karthigesu@ecu.edu.au</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr David Coall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Chief Investigator</td>
</tr>
<tr>
<td>Telephone</td>
<td>+61 8 6304 2118</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:d.coall@ecu.edu.au">d.coall@ecu.edu.au</a></td>
</tr>
</tbody>
</table>

If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact:

Research Ethics Officer
Edith Cowan University
270 Joondalup Drive
JOONDALUP WA 6027
Phone: (08) 6304 2170
Email: research.ethics@ecu.edu.au
APPENDIX B

INFORMED CONSENT FORM
Consent Form - Adult providing own consent
(Please sign and return this consent form)

Title
Beliefs, attitudes and behaviours of parents and grandparents in relation to selected issues of child health

Short Title
Grandparent influence on child health

Protocol Number
12738

Project Sponsor
Edith Cowan University

Coordinating Principal Investigator(s)
Shantha Karthigesu
Dr David Coall

Associate Investigator(s)
Prof. James Chisholm

Location
Edith Cowan University, Joondalup

Declaration by Participant
I have read the Participant Information Sheet or someone has read it to me in a language that I understand.

I understand the purposes, procedures and risks of the research described in the project.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project as described and understand that I am free to withdraw at any time during the project without affecting my future care.

I understand that I will be given a signed copy of this document to keep.

Name of Participant (please print) ________________________________

Signature ________________________________ Date ________________________________

Declaration by Researcher†
I have given a written explanation of the research project, its procedures and risks and I believe that the participant has understood that explanation.

Name of Researcher† (please print) ________________________________

Signature ________________________________ Date ________________________________

† An appropriately qualified member of the research team must provide the explanation of, and information concerning, the research project.

Note: All parties signing the consent section must date their own signature.
APPENDIX C

FORM FOR WITHDRAWAL OF PARTICIPATION
Form for Withdrawal of Participation - Adult providing own consent

Title: Beliefs, attitudes and behaviours of parents and grandparents in relation to selected issues of child health

Short Title: Grandparent influence on child health

Protocol Number: 12738

Project Sponsor: Edith Cowan University

Coordinating Principal Investigator(s): Shantha Karthigesu, Dr David Coall

Associate Investigator(s): Prof. James Chisholm

Location: Edith Cowan University, Joondalup

Declaration by Participant

I wish to withdraw from participation in the above research project and understand that such withdrawal will not affect my routine care, or my relationships with the researchers or Edith Cowan University.

Name of Participant (please print)

Signature    Date

In the event that the participant’s decision to withdraw is communicated verbally, the Senior Researcher must provide a description of the circumstances below.

Declaration by Researcher†

I have given a verbal explanation of the implications of withdrawal from the research project and I believe that the participant has understood that explanation.

Name of Researcher (please print)

Signature    Date

† An appropriately qualified member of the research team must provide information concerning withdrawal from the research project.

Note: All parties signing the consent section must date their own signature.
APPENDIX D

FOCUS GROUP SESSION FORMAT
Focus group session format and script
Parental and grandparental influence on child health

Good morning / afternoon / evening everyone! I would like to start by welcoming you to this focus group and thanking you for taking the time to participate in our discussion. Today we will be talking about how parents and grandparent may influence the health of their children/grandchildren. Your contributions will help us understand how one’s health beliefs and attitudes influence child health.

Before we continue, let me introduce myself. My name is _____________, and I will be your facilitator. My role is to encourage and guide our discussion by listening and asking questions. I will be asking lots of questions because I would like as much information from you as possible.

Your participation and opinions are important. There are no right or wrong answers. Our discussion is being tape recorded. All of your comments and responses to questions will be kept completely confidential. Your name and anything else that can identify you will be removed from all written records. Any of the materials that come out of our discussion will be evaluated only by me and my supervisor, Dr. David Coall, and will be kept secure and protected.

Each of you should have an information sheet and consent form. They are meant to help you understand your role and rights in this discussion. Before we continue could everyone please carefully read and sign the form. Please let me know if you have any questions.

Once that has been completed, we will take the time to complete a short survey before proceeding to our discussion.

Today, our discussion will last about an hour. We will not be taking a break. If you would like to use the restrooms before we start, they are located ______.

Before we start, let’s review the ground rules so everyone feels safe and comfortable.

Ground rules:
- One person speaks at a time.
- Everyone gets a chance to speak.
- Anyone can pass on speaking.
- Respect everyone – make sure you leave enough time for others to speak.
- It’s okay to disagree but do it in a respectful way.
- Respect everyone’s privacy – keep the discussion confidential.
- There are no right or wrong answers, only differing points of view.
- We’re on a first name basis.
- We ask that you please turn off your phones. If you cannot and if you must respond to a call, please do so as quietly as possible and rejoin us as quickly as you can.

Let’s start by introducing ourselves …
(Lamenza, 2011)
APPENDIX E

FOCUS GROUP QUESTIONS
Interview guidelines (semi-structured and open-ended questions)

*Questions relate to:* health beliefs and attitudes of parents and grandparents in relation to select child health issues.

*Interviewee population:* parents and grandparents.

- Introduction (Start voice recording):
  - Introduce myself (interviewer) to interviewees.
  - Thank the interviewees for agreeing to be interviewed.
  - Reaffirm interviewers’ commitment to their privacy and confidentiality
  - Briefly describe the procedures: interview recorded, then transcribed, interview will be asked to confirm what was said, confirm that it will not be used if they are dissatisfied.
  - Assure the interviewee that there are no right or wrong answers and that I want to know and understand what they think and feel.
  - Confirm that they have given their consent to be interviewed.
  - Ask them if they have any questions or concerns before I begin.

*For documentation purposes, record the following:*
- Name of the interviewee, gender and age
- Name of the interviewer
- Date and time of interview
- Location of the interview
- Confirm interviewer has a signed copy of consent form

**Questions**

**Mothers/Parents**

*(Opening questions)*

1. What is your first name?
2. How many children do you have? How many sons / daughters?

*(Transition questions – breastfeeding)*

3. How do you think people in Perth feel about breastfeeding?
4. Do you think it is becoming more or less common? Why?

*(Key questions)*

5. What do you think about breastfeeding?
6. What do you believe are the advantages and disadvantages of breastfeeding?
7. Did your parents breastfeed you?
8. Do you think your parents influence how you choose to feed your babies?
9. What role (if any) do grandparents play in your children’s health?
   9.1 Do they have anything to do with, or influence on what your children eat and do?

*(Transition question – immunisation)*
10. How do you think people in Perth feel about childhood vaccines?

(Key questions)

11. What do you think about the current vaccination schedule for children?
12. What do you believe are the advantages and disadvantages of vaccinating children?
13. Did your parents get you vaccinated?
14. Do your parents influence your decision in any way to vaccinate your children?

(Concluding questions)

15. Have we missed anything?
16. Is there anything else that you would like to say that we have not talked about today?
Grandmothers/Grandparents

(Opening questions)
1. What is your first name?
2. How many children do you have? How many sons and/or daughters?
3. How many grandchildren do you have?

(Transition questions – breastfeeding)
4. When you first had your children what was the general opinion about breastfeeding?
5. How did people prefer to feed their babies at the time? (breastfeeding or formula feeding?)

(Key questions)
6. How did you feed your children when they were babies?
7. How do you think opinions around breastfeeding have changed?
8. Do you think your opinion on how children should be fed is considered by your children when it comes to how they decide to feed their babies?
9. What do you think about how your grandchildren are being fed?
10. Do you believe sons and daughters are different in terms of how much they need your help with grandchildren?

(Transition questions – immunisations)
11. When you had your children what was the general feeling about vaccinations?
12. How are childhood vaccinations different today from when your children were babies?

(Key questions)
13. What do you think are some of the advantages and disadvantages to vaccinating children?
14. Do you discuss vaccinations for your grandchildren with their parents?

(Concluding questions)
15. Have we missed anything?
16. Is there anything else that you would like to say that we have not talked about today?
APPENDIX F

FOCUS GROUP RECRUITMENT SCRIPT
Parental and grandparental influence on child health

We value your answers and the time you are taking to complete this survey. The information you provide below will help us determine when and in which discussion group to place you and the means to get in touch with you regarding participation in the group discussions. This questionnaire has been approved by the Edith Cowan University Human Research Ethics committee.

1. Full name: ___________________________
2. Date of birth: ___________________________
3. How many children do you have? ___________
   □ I/we are expecting our first child

If a grandparent,
4. How many grandchildren do you have? _________
   □ I/we are expecting our first grandchild
5. Would you be able to attend the discussions with your partner/spouse? 
   Yes / No
6. What are the days/times are most suitable for you to meet with us? (Please circle all convenient days)

   Monday, Tuesday, Wednesday, Thursday, Friday
7. Please provide your contact details for us to get in touch with you regarding dates and times for our discussion groups.

   Address: ___________________________________________________________
   Tel.: (home) ________________________ / (mobile) _______________________
   Email: _____________________________________________________________
APPENDIX G

FOCUS GROUP PARENTS’ PARTICIPANT DEMOGRAPHY QUESTIONNAIRE
Participant information questionnaire (parents)
Parental and grandparental influence on child health

We value your answers and the time you are taking to complete this survey. Please read each question carefully. Your participation is completely voluntary. This is not a test, there are no right or wrong answers so please answer the questions to the best of your ability and as honestly as you can. Generally, we would like people to fill in the questionnaire from their own point of view. So please fill out the survey without discussing questions with other participants. This questionnaire has been approved by the Edith Cowan University Human Research Ethics committee.

1. First name: ___________________________
2. Date of birth: ___________________________ Sex: M / F
3. Place of birth
   City:_______________________/Country:_________________________
4. If born outside Australia, how many years have you lived in Australia?
   _____Years _____ Months
5. What is the postcode of your current residential address? _________________
6. Are you currently employed? Yes / No
   If employed: _____ Days / _____ Hours
7. Please complete the following questions about your children.
   □ I/we are expecting our first child
   □ We have one or more children, please complete the following table.

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<th>Date of Birth</th>
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8. Do your parents live in Perth?  Yes / No
   If No, where do they live? City: ______________/Country: ______________
   Are they employed / retired?
   If employed: _____ Days / _____ Hours

9. Do your in-laws live in Perth?  Yes / No
   If No, where do they live? City: ______________/Country: __________
   Are they employed / retired?
   If employed: _____ Days / _____ Hours

Thank you for taking the time to answer these questions.

For office use only:
Date :__________________________
Time :__________________________
Place :__________________________
Name of facilitator:_________________
Consent form signed and verified by facilitator □
APPENDIX H

FOCUS GROUP GRANDPARENTS’ PARTICIPANT DEMOGRAPHY QUESTIONNAIRE
Participant information questionnaire (grandparents)

Parental and grandparental influence on child health
We value your answers and the time you are taking to complete this survey. Please read each question carefully. Your participation is completely voluntary. This is not a test, there are no right or wrong answers so please answer the questions to the best of your ability and as honestly as you can.
Generally, we would like people to fill in the questionnaire from their own point of view. So please fill out the survey without discussing questions with other participants. This questionnaire has been approved by the Edith Cowan University Human Research Ethics committee.

1. First name: ____________________________
2. Date of birth: ___________________________ Sex: M / F
3. Place of birth     City: _______________Country:_____________________
4. If born outside Australia, how many years have you lived in Australia? ____Years _____ Months
5. What is the postcode of your current residential address? __________
6. Are you currently employed / retired? Yes / No
   a. If employed: _____ Days / _____ Hours
7. Please complete the following table about your children.

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8. How many grandchildren do you have? __________
   □ I/we are expecting our first grandchild
9. How many are your daughter’s children? __________
10. How many are your son’s children? _______________

Thank you for taking the time to answer these questions.

For office use only:
Date : __________________________

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Time :__________________________
Place :__________________________
Name of facilitator:_________________

Consent form signed and verified by facilitator □
APPENDIX I

COUNSELLING CONTACT DETAILS
If answering any of the questions in this survey has raised any issues for you, please talk to someone you can trust, or contact one of the help line numbers we have included below.

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationships Australia</td>
<td>1300 364 277</td>
</tr>
<tr>
<td></td>
<td>654 432</td>
</tr>
<tr>
<td>Parenting WA Line</td>
<td>1800</td>
</tr>
<tr>
<td>Family Relationship Advice</td>
<td>1800 050 321</td>
</tr>
<tr>
<td>Advice Line</td>
<td>643 000</td>
</tr>
<tr>
<td>Family Help Line</td>
<td>1800</td>
</tr>
<tr>
<td>Samaritans Crisis Line</td>
<td>08 9381 5555</td>
</tr>
<tr>
<td>Lifeline Services</td>
<td>13 11 14</td>
</tr>
</tbody>
</table>
APPENDIX J

FOCUS GROUP NOTE TAKING SUMMARY
# FOCUS GROUP NOTE-TAKING SUMMARY

<table>
<thead>
<tr>
<th>Date of Focus Group</th>
<th>Location of Focus Group</th>
<th>Number of Participants</th>
<th>Ethnic group</th>
<th>Category of Group</th>
<th>Moderator Name</th>
<th>Asst. Moderator Name</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

Responses to Questions

Q1. What is your first name? How many children do you have? How many sons and/or daughter? How many grandchildren do you have?

<table>
<thead>
<tr>
<th>Survey code and names – transcribe alongside names</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

Q4. When you first had your children what was the general opinion about breastfeeding?

<p>| |</p>
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</table>

Q5. How did people prefer to feed their babies at the time? (breastfeeding or formula feeding?)

<p>| |</p>
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</table>

Q6. How did you feed your children when they were babies?

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<tbody>
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</tbody>
</table>

Q7. Did your parents influence your decisions on how to feed your babies?

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</table>

Q8. How do you think opinions around breastfeeding have changed?

<p>| |</p>
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<tbody>
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</table>

Q9. Do you think your opinions on how children should be fed are considered by your children when it comes to how they decide to feed their babies?

<p>| |</p>
<table>
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<th></th>
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<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Q10. What do you think about how your grandchildren are being fed?

Q11. Do you believe sons and daughters are different in terms of how much they need your help with grandchildren?

Q12. When you had your children what was the general feeling about vaccinations?

Q13. How are childhood vaccinations different today from when your children were babies?

Q14. What do you think are some of the advantages and disadvantages to vaccinating children?

Q15. Do you discuss vaccinations for your grandchildren with their parents?

Q16. Have we missed anything?

Q17. Is there anything else that you would like to say that we have not talked about today?
APPENDIX K

FOCUS GROUP RECRUITMENT BROCHURE
Please contact us if you have any further questions

In the School of Medical Sciences

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Edith Cowan University
270 Joondalup Drive
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Facsimile: +61 8 63045717
Email: d.coall@ecu.edu.au

Are you a parent or grandparent? You can help!

Researchers at Edith Cowan University are seeking to learn:
What Is This Study About?

Thank you for considering taking part in our research. The goal of our study is to gain a better understanding of whether grandparents influence parents' decisions in relation to grandchildren's nutrition, health and general wellbeing.

As you may know, the early developmental environment is critical for the general wellbeing of individuals as adults. Therefore, your participation in this study may help us reach a better understanding of whether grandparents influence young families.

This project has been approved by the Human Research Ethics Committee of Edith Cowan University.

What would I have to do?

To take part in this research you need to have young children/grandchildren or be expecting your first child/grandchild. You then need to volunteer an hour of your time to participate in a group discussion with other interested parents and grandparents.

Care will be taken at all times to maintain strict confidentiality of the information you provide. No details will be used that could identify any individual.

If you would like to participate in the group discussions, please fill in your name and telephone number/email on the next page, put it in the attached envelope and post/email it back to us. We will then contact you to organize a date and time for the group discussions.

Yes, I am Interested in Participating in Your Study

Please contact me by telephone/email to discuss a suitable time and date for me to participate in your group discussions.

Name:  
Telephone:  
Email:
APPENDIX L

FOCUS GROUP RECRUITMENT POSTER
Are you a parent or grandparent? You can help!

You are invited to participate in a study that will investigate whether grandparents influence parents' decisions in relation to their grandchildren's nutrition, health and general wellbeing.

As you may know, the early developmental environment is critical for the general wellbeing of individuals as adults. Therefore, your participation in this study may help us reach a better understanding of whether grandparents influence young families in any way.

We are interested in speaking to grandparents, and parents of young children with or without routine access to grandparents.

To learn more please see the attached brochure and email either:

Ms Shantha Karthigesu
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Joondalup, WA 6027
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Email: s.karthigesu@ecu.edu.au

Dr David Coall
Supervisor
School of Medical Sciences
Edith Cowan University
270 Joondalup Drive
Joondalup, WA 6027
Telephone: +61 8 63042118
Facsimile: +61 8 63045717
Email: d.coall@ecu.edu.au

Researchers at Edith Cowan University are seeking to learn:

Do grandparents influence the health of children in young families?
APPENDIX M

QUESTIONS USED IN THE PERCEIVED GRANDPARENTAL INFLUENCE QUESTIONNAIRE
<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Response scale</th>
<th>Data obtained</th>
<th>Source of item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is your date of birth?</td>
<td>dd/mm/yyyy</td>
<td>Demographic information</td>
</tr>
<tr>
<td>2</td>
<td>What is your gender?</td>
<td>Male/Female</td>
<td>Demographic information</td>
</tr>
<tr>
<td>3</td>
<td>Were you born in Australia?</td>
<td>Yes / No – If Yes City: If Yes → 4 If No → 5</td>
<td>Demographic information</td>
</tr>
<tr>
<td>4</td>
<td>Where in Australia were you born? Please state which city/town and state.</td>
<td>Text entry</td>
<td>Demographic information</td>
</tr>
<tr>
<td>5</td>
<td>In which country were you born?</td>
<td>Text entry</td>
<td>Demographic information</td>
</tr>
<tr>
<td>6</td>
<td>In which year did you come to live in Australia?</td>
<td>Text entry</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>What was the language that you first learned at home in childhood?</td>
<td>Text entry</td>
<td>Demographic information</td>
</tr>
<tr>
<td>8</td>
<td>Is this the language you speak at home?</td>
<td>Yes / No If No → 9</td>
<td>Demographic information</td>
</tr>
<tr>
<td>9</td>
<td>What language do you speak at home?</td>
<td>Text entry</td>
<td>Demographic information</td>
</tr>
<tr>
<td>10</td>
<td>Do you speak languages other than your first language?</td>
<td>Yes / No If Yes, please list</td>
<td>Demographic information</td>
</tr>
<tr>
<td>11</td>
<td>Do you practice any religion?</td>
<td>Yes / No If Yes, please specify</td>
<td>Demographic information</td>
</tr>
<tr>
<td>12</td>
<td>What ethnicity/culture do you identify with? Your cultural/ethnic identity is the cultural/ethnic group to which you feel you belong. This identity may be the same as your parents, grandparents or ancestors or it may be different. For example, it may be your partner’s ancestry, or it may be the country or countries you have spent a great amount of time or you feel more closely tied to.</td>
<td>• Aboriginal and Torres Strait Islander • Australian • Chinese • Dutch • English • German • Greek • Indian • Irish • Scottish • Other (please specify)</td>
<td>Demographic information</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Options</td>
<td>Demographic information</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>13</td>
<td>What is your postal code?</td>
<td>Text entry</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>What is the highest level of school that you completed?</td>
<td>Did not go to school, Primary School, Year 8, Year 9, Year 10, Year 11, Year 12</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>What is the highest qualification obtained by you since leaving school?</td>
<td>No qualification obtained, Trade or apprenticeship, Certificate from College e.g. TAFE, Diploma (beyond Year 12), Bachelor’s degree, Postgraduate degree, Other – please specify</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Please indicate your current employment status.</td>
<td>Employed full-time, Employed part-time, Seeking employment, Not seeking employment, Stay at home parent, Retired, Student</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>What would you say was the total combined income (include all income such as jobs, pensions, social security payments, business income) of all members of your household this last financial year?</td>
<td>Less than $19,999, Between $20,000 and $34,999, Between $35,000 and $49,999, Between $50,000 and $74,999, Between $75,000 and $99,999, Between 100,000 and $149,999, Between $150,000 and $199,999, $200,000 or more</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>How would you describe your marital status?</td>
<td>Married and living together with spouse</td>
<td></td>
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</tr>
<tr>
<td>19</td>
<td>Have you ever had any siblings?</td>
<td>Yes/No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If No → 21</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>How many brothers and sisters do you have that are still alive?</td>
<td>Biological</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Half-sibling</td>
<td>Family size</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Step-sibling</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>21(p)</td>
<td>Are you currently pregnant?</td>
<td>Yes / No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If No → 23</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>22(p)</td>
<td>What is the estimated due date?</td>
<td>Text entry</td>
<td></td>
</tr>
<tr>
<td>21/23(p)</td>
<td>Tabulated question for details on children – sex/biological or non-biological/ date of birth/living with parents/breastfeeding/vaccination/grandchildren through son/daughter</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>24(p)</td>
<td>Who currently provides most of the child care for your children? Please rank the TOP THREE on the list provided.</td>
<td>Other children in the family</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A friend, nanny or caregiver (not biologically related to the child)</td>
<td>Relative (biologically related to the child)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal grandparents</td>
<td>Paternal grandparents</td>
<td></td>
</tr>
<tr>
<td></td>
<td>My partner and I provide most of the child care ourselves</td>
<td>Kindergarten or school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child care centre</td>
<td>I only work/study while the child is in school</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other (please specify)</td>
<td>Other children in the family</td>
<td></td>
</tr>
</tbody>
</table>

Modified from Child care Canada, 2013
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 22 Please let us know how close to or far from your home each of your children live. (Oldest to 8th oldest child)** | • In the same household  
• In the same building  
• Less than 1 km away  
• Between 1 and 5 km away  
• Between 5 and 25 km away  
• Between 25 and 100 km away  
• More than 500 km away  
• In another state  
• In another country  
• Deceased (p) | Distance from grandparents (if grandparents are alive)  
Modified from Börsch-Supan & Jürges, 2005 |
| 25(p) Please indicate how far your current residence is to that of your parents and parents-in-law. (mother, father, mother-in-law, father-in-law, stepmother, stepfather, stepmother-in-law, step father-in-law)*** | | |
| 23 If your child(ren) live in the same household, how do you help with your children? Please check all that apply. (**) | • Cook meals for children  
• Play with children  
• Do homework with children  
• Bathe children and help with bed time routines  
• Do children’s laundry | Grandparental investment  
Modified from Börsch-Supan & Jürges, 2005 |
| 27(p) If you said your parents/parents-in-law live in the same household, how do they help with your children? Please check all that apply. (*** | | |
| 24/26(p) If you said your children (parents/parents-in-law) live in another country, please say which country they live in? | Text entry | Distance  
N/A |
| 25 If you have young grandchildren – during the last twelve months, have you regularly or occasionally looked after your grandchild/grandchildren without the presence of the parents? | Yes /No  
If No → 28 | Grandparental investment  
Modified from Coall, Hertwig, & Wänke, 2008 |
| 26 On average how often did you look after the child(ren) in the last twelve months? | • Almost daily  
• Almost every week  
• Almost every month  
• Less often | Grandparental investment  
Modified from Coall, Hertwig, & Wänke, 2008 |
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Options</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>About how many hours did you look after the child(ren) of your children in a typical YEAR? (please round up to full hours) (***)</td>
<td>Text entry</td>
<td>Grandparental investment Modified from Coall, Hertwig, &amp; Wänke, 2008</td>
</tr>
<tr>
<td>29(p)</td>
<td>Around how many hours did your parents/parents-in-law look after your child(ren) in a typical YEAR? (please round up to full hours). (****)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28(p)</td>
<td>If your parents/parents-in-law DO NOT live in the same household, how often do your children visit their grandparents?</td>
<td>• Almost daily • Almost every week • Almost every month • Four times a year • Once a year • Less than once a year • Never</td>
<td>Relationship Modified from Coall, Hertwig, &amp; Wänke, 2008</td>
</tr>
<tr>
<td>28/30(p)</td>
<td>During the past twelve months, how often have you had contact with your parent/child (parents/parents-in-law) either personally, by phone, e-mail, SMS/MMS and mail?</td>
<td>• Daily • Several times a week • About once a week • About every two weeks • About once a month • Less than once a month • Never • Not applicable (p)</td>
<td>Relationship Modified from Coall, Hertwig, &amp; Wänke, 2008</td>
</tr>
<tr>
<td>29</td>
<td>Please think of the last twelve months. Have you given any kind of help to your children? By kind of help we mean help with household (e.g. shopping, cleaning, laundry, preparing food), paperwork (e.g. insurance, taxation, investments) and practical help (e.g., household repairs and maintenance, gardening, decorating, rearranging furniture, moving house)</td>
<td>Yes / No If No ⇒ 34</td>
<td>Grandparental investment Modified from Börsch-Supan &amp; Jürges, 2005</td>
</tr>
<tr>
<td>31(p)</td>
<td>...Have you received any kind of help from your parents/parents-in-law who DO NOT live in your household?...</td>
<td>Yes/No/Not applicable</td>
<td>If No / Not applicable → 36</td>
</tr>
<tr>
<td>30</td>
<td>To whom did you provide this help? Please check all that apply.</td>
<td>Oldest to 8th oldest child.</td>
<td>Grandparental investment / influence based on lineage</td>
</tr>
<tr>
<td>31/32(p)</td>
<td>Which types of help did you provide (receive) in the last 12 months (please tick all the responses that apply)</td>
<td>• Household chores • Child care • Paperwork • Practical help</td>
<td>Grandparental investment</td>
</tr>
<tr>
<td>32</td>
<td>How often did you provide help for this person in the last 12 months?</td>
<td>• Almost daily • Almost every week • Almost every month • Four times a year • Less often</td>
<td>Grandparental investment</td>
</tr>
<tr>
<td>33(p)</td>
<td>Considering all the help you receive, please indicate how often you received help from this person(s) in the last 12 months?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Approximately how many hours did you provide help for this person in a typical YEAR? Please round up the time to full hours? (**))</td>
<td>Text entry.</td>
<td>Grandparental investment</td>
</tr>
<tr>
<td>34(p)</td>
<td>Approximately how many hours did they provide help in a typical YEAR? Please round up the time to full hours? (**))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35(p)</td>
<td>How satisfied are you with the help you receive from the person(s)</td>
<td>• I could use more help than I receive • I am happy and content with the help I receive • I would rather receive less help</td>
<td>Relationship / parental satisfaction</td>
</tr>
<tr>
<td>34</td>
<td>Have you ever offered advice about your grandchild(ren)’s diet, nutrition and care? Check all that apply. (**))</td>
<td>• Breastfeeding • Formula feeding • When to introduce solids</td>
<td>Relationship / grandparents’ perceived value in family</td>
</tr>
<tr>
<td>Question</td>
<td>Options</td>
<td>Relationship</td>
<td>Source</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>--------------------</td>
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</tr>
</tbody>
</table>
| Have you ever received advice about your child(ren)’d diet, nutrition, and care? Please check all that apply. (***). | - What types of food to introduce as solids  
- Encouraged pacifier use  
- Routine for baby  
- Never offered any advice |                    |                                                                                             |
| 35 Please think of all your grandchildren and indicate how emotionally close you feel to each set of grandchildren. (**). | - Not at all  
- Seldom feel close  
- Occasionally feel close  
- Often feel close  
- Generally, feel close  
- Always feel close  
- Very close  
- Extremely close | Relationship       | Modified from Gronvold, 1988; Mangen, Bengston, & Landry, 1988 |
| 36(p) How emotionally close do you feel your children are to the following family members? (**). | - Not at all  
- Seldom feel close  
- Occasionally feel close  
- Often feel close  
- Generally, feel close  
- Always feel close  
- Very close  
- Extremely close | Relationship |                                                                                             |
| 36 Considering all the efforts that I have invested into my grandchildren, I have always received adequate appreciation from their mother and father. | - Strongly agree  
- Agree  
- Somewhat agree  
- Somewhat disagree  
- Disagree  
- Strongly disagree | Relationships / perceived level of satisfaction | Modified from Börsch-Supan & Jürges, 2005 |
| 37 Generally, how satisfied are you with your grandparental role? | - Extremely satisfied  
- Moderately satisfied  
- Slightly satisfied  
- Slightly dissatisfied  
- Moderately dissatisfied  
- Extremely dissatisfied | Relationships / perceived level of satisfaction | Modified from Diener, Emmons, Larsen, & Griffin 1985 |
| 38 What do you enjoy most about being a grandparent? Please rank them in order. | Spoil – includes lenient attitudes grandparents display toward their grandchildren, and the opportunity to indulge them  
Centrality – is the central importance of activities with grandchildren, the sense that being a grandparent gives meaning to life | Perceived level of satisfaction as grandparent | Modified from Diener, Emmons, Larsen, & Griffin 1985 |
and the incorporation of the role in the person’s identity

**Valued elder** – is the role of resource person for grandchildren, and the concern that children will remember them when grown

**Re-involvement with personal past** – includes pleasure of reliving earlier experiences through relationships with grandchildren, and reminiscences about the grandparents’ own grandparents

**Immortality through clan** – describes the grandparent’s sense of personal immortality through descendants

**Opportunity to break norms regarding age appropriate behaviour** - grandparents can be foolish, giggling and playing games that their age and dignity normally forbids

---

**Infant feeding experience to assess knowledge, beliefs and attitude**

<table>
<thead>
<tr>
<th>39/38(p)</th>
<th>In the last 12 months have you ever seen or heard any media articles about breastfeeding?</th>
<th>Yes/No</th>
<th>Knowledge</th>
<th>McIntyre, Hiller, &amp; Turnbull, 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>40/39(p)</td>
<td>Overall do you think the media articles were for or against breastfeeding?</td>
<td></td>
<td>Knowledge</td>
<td>McIntyre, Hiller, &amp; Turnbull, 2000</td>
</tr>
<tr>
<td>41</td>
<td>Were you breastfed?</td>
<td></td>
<td></td>
<td>McIntyre, Hiller, &amp; Turnbull, 2000</td>
</tr>
</tbody>
</table>

**Personal experience of infant feeding**
| 42/41(p) | What is the date of birth of your youngest child? | dd/mm/yyyy | N/A |
| 43/42(p) | Is this child a twin, triplet or quad? | Yes/No | N/A |
| 44/43(p) | Before you actually fed this baby, how did you and your partner/spouse plan to feed your baby during the first six months? | • Breastfeed  
• Formula feed  
• A mix of both breastfeed and formula feed  
• My partner(I) was not involved in the feeding decision | Modified from McIntyre, Hiller, & Turnbull, 2000 |
| 45/44(p) | Which of the following is closest to your opinion? The best way to feed a baby is: | • Breastfeeding  
• Formula feeding  
• A mix of both breastfeeding and formula feeding | Newby, Brodribb, Ware, & Davies, 2014 |
| 45(p) | When did you and your partner/spouse finally settle on how to feed your baby during the first six months? | • Before pregnancy  
• During pregnancy  
• After pregnancy | Newly developed |
| 46 | How was your youngest child actually fed during the first six months? | • Breastfeed only  
• Formula feed only  
• Mainly breastfed with a few formula feeds  
• Mainly formula fed with some breastfeeding  
• I don’t know (in father/grandfather survey) | McIntyre, Hiller, & Turnbull, 2000 |
| 47 | Who or what were the MAIN influences that helped you decide how you would feed your baby? Please rank the TOP THREE in order. | • It was my personal decision  
• Partner  
• Friend  
• Family GP  
• Midwife  
• Mother  
• Mother-in-law  
• Father | Source of influence | Modified from Larson et al., 2015 |
<table>
<thead>
<tr>
<th>Question</th>
<th>Possible Responses</th>
<th>Source of influence</th>
<th>Challenges</th>
</tr>
</thead>
</table>
| 48 | Where or from whom did you seek/receive help or advice about infant feeding that was useful. Please rank the TOP THREE in order. | - Father-in-law  
- Local mother’s group  
- Social media groups  
- Based on research on the internet  
- Other (please specify) | Source of influence  
Modified from Larson et al., 2015; McIntyre, Hiller, & Turnbull, 2000 |
| 49 | In the first six months (or less) did you (your partner/spouse) have any problems breastfeeding your baby that made you seek help or advice? | Yes/No/I don’t know  
If No → 51  
If I don’t know → 51 | Challenges  
McIntyre, Hiller, & Turnbull, 2000 |
| 50 | Which of the problems did you (your partner/spouse) experience? Please pick ONE that proved most difficult for you. | - Cracked/sore nipples  
- Engorged breasts  
- Low milk supply  
- Mastitis  
- Breastfeeding associated thrush  
- Overabundant milk supply  
- Breast pain  
- Baby will not breastfeed  
- Blocked duct | Challenges  
Newly developed |
| 51(p) | Is your partner still breastfeeding? | Yes/No  
If Yes → 54(p)  
If No → 53(p) | Duration  
N/A | 
| 52(p) | How old do you think your child will be (in months) when your partner/spouse completely stops breastfeeding? | Text entry | newby, brodribb, ware, & davies, 2014 | 
| 51/ 53(p) | What age was your child (in months) when breastfeeding stopped? | Text entry | duration  
newby, brodribb, ware, & davies, 2014; mcintyre, hiller, & turnbull, 2001 | 
| 52/ 54(p) | How old do you think a child should be /will be (in months) when you first feed him/her any food other than breast milk or formula? | Text entry | knowledge  
newby, brodribb, ware, & davies, 2014 – modified to be open ended | 
| 53 | Do you believe you have had an influence on your children’s infant feeding choices for your grandchildren? | Yes / No / Maybe  
oldest child – 8th oldest child | perceived grandparental influence  
newly developed | 

**Breastfeeding – knowledge, belief and attitude questions**

<p>| 54/ 55(p) | Babies should be exclusively breastfed for the first six months | * | newby, brodribb, ware, &amp; davies, 2014 |
| 55/ 56(p) | Infant formula is as good as breast milk. | * | newby, brodribb, ware, &amp; davies, 2014 |
| 56/ 57(p) | A mother needs a lot of support to breastfeed. | * | mcintyre, hiller, &amp; turnbull, 2000 |
| 57/ 58(p) | Breastfeeding doesn’t come naturally, it needs to be learned. | * | mcintyre, hiller, &amp; turnbull, 2000 |
| 58/ 59(p) | If a baby is fed breast milk only, he or she will be less likely to become obese. | * | newby, brodribb, ware, &amp; davies, 2014 |
| 59/ 60(p) | If a baby is fed breast only, the risk of ear infections will be reduced. | * | newby, brodribb, ware, &amp; davies, 2014 |
| 60/ 61(p) | If a baby is breastfed, he or she will be less likely to get a respiratory illness. | * | newby, brodribb, ware, &amp; davies, 2014 |
| 61/62(p) | If a baby is fed breast milk only, he or she will be more protected from diarrhoea. | * | Newby, Brodribb, Ware, &amp; Davies, 2014 |
| 62/63(p) | A mother’s decision to breastfeed her second child is based on her breastfeeding experience with her first child. | * | McIntyre, Hiller, &amp; Turnbull, 2000 |
| 63/64(p) | Formula feeding more convenient for the mother. | * | McIntyre, Hiller, &amp; Turnbull, 2000 |
| 64/65(p) | Formula feeding means anyone can feed the baby. | * | McIntyre, Hiller, &amp; Turnbull, 2000 |
| 65/66(p) | A mother’s decision to breastfeed is influenced by what she sees others do. | * | McIntyre, Hiller, &amp; Turnbull, 2000 |
| 66/67(p) | A mother’s partner will influence the feeding choice (whether exclusive breastfeeding, formula feeding or a mix of both). | * | McIntyre, Hiller, &amp; Turnbull, 2000 |
| 67/68(p) | A mother’s mother will influence the feeding choice (whether exclusive breastfeeding, formula feeding or a mix of both). | * | McIntyre, Hiller, &amp; Turnbull, 2000 |
| 68/69(p) | A mother’s mother-in-law will influence the feeding choice (whether exclusive breastfeeding, formula feeding or a mix of both). | * | McIntyre, Hiller, &amp; Turnbull, 2000 – edited to replace mother with mother-in-law |
| 69/70(p) | A mother will need to feed baby with infant formula when she returns to work. | * | McIntyre, Hiller, &amp; Turnbull, 2000 |
| 70/71(p) | It would be easier to provide infant formula than breast milk to formal child care centers. | * | Newly developed |
| 71/72(p) | It would be easier to continue to express breast milk after returning to work if a | * | Newly developed |</p>
<table>
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<tbody>
<tr>
<td>mother’s parents cared for the infant at home.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72/73(p)</td>
<td>It would easier to continue to express breast milk after returning to work if a mother’s parents-in-law cared for the infant at home.</td>
<td>*</td>
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</table>

### Vaccines – knowledge, beliefs and attitude questions

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</table>
| 73 | What is the MOST common information source you turned to for information on vaccines when your children young? Rank the TOP THREE in order from most common to less common. | • My child’s health care provider  
• Internet search  
• Mother  
• Mother-in-law  
• Father  
• Father-in-law  
• My child(ren)’s other parent  
• Friends  
• Magazines  
• Television – news shows  
• Newspapers  
• Daytime or entertainment television shows  
• Complementary health care provider  
• Radio  
• Social media  
• Other (please specify) | Source of influence | Modified from Larson et al., 2015; Kennedy, Basket, & Sheedy, 2011 |

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<tbody>
<tr>
<td>74(p)</td>
<td>What is the most common source you turn to for information on vaccines? Please rank the TOP THREE in order.</td>
<td></td>
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</table>

<p>| | | |</p>
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</table>
| 74 | What do you think are the MOST common information source for your children with regard to your grandchildren’s vaccines? Rank the | • Their health care provider  
• Their mother  
• Their mother-in-law  
• Other parent of grandchildren | Source of influence | Larson et al., 2015 – edited to include additional responses. |

<table>
<thead>
<tr>
<th>75/75(p)</th>
<th>Whom do you trust the MOST for information on vaccines? Rank the TOP THREE in order from most trusted to less trusted.</th>
<th>Whom do you trust the LEAST for information on vaccines? Rank the TOP THREE in order from the least trusted to more trusted.</th>
<th>Source of influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP THREE in order from most common to less common.</td>
<td>TOP THREE in order from most common to less common.</td>
<td>TOP THREE in order from most common to less common.</td>
<td>Larson et al., 2015; Kennedy, Basket, &amp; Sheedy, 2011 – edited to include additional responses.</td>
</tr>
<tr>
<td>• Friend</td>
<td>• My health care provider such as doctor</td>
<td>• My child’s health care provider such as doctor</td>
<td>Larson et al., 2015; Kennedy, Basket, &amp; Sheedy, 2011 – edited to include additional responses.</td>
</tr>
<tr>
<td>• Internet search</td>
<td>• Family members</td>
<td>• Family members</td>
<td></td>
</tr>
<tr>
<td>• Magazines</td>
<td>• Friends</td>
<td>• Friends</td>
<td></td>
</tr>
<tr>
<td>• Television – news shows</td>
<td>• Internet search</td>
<td>• Internet search</td>
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<tr>
<td>• Newspapers</td>
<td>• Magazines</td>
<td>• Magazines</td>
<td></td>
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<tr>
<td>• Daytime or entertainment television shows</td>
<td>• Television – news shows</td>
<td>• Television – news shows</td>
<td></td>
</tr>
<tr>
<td>• Complementary health care provider</td>
<td>• Newspapers</td>
<td>• Newspapers</td>
<td></td>
</tr>
<tr>
<td>• Radio</td>
<td>• Daytime or entertainment television shows</td>
<td>• Daytime or entertainment television shows</td>
<td></td>
</tr>
<tr>
<td>• Social media</td>
<td>• Complementary health care provider</td>
<td>• Complementary health care provider</td>
<td></td>
</tr>
<tr>
<td>• Other (please specify)</td>
<td>• Radio</td>
<td>• Radio</td>
<td></td>
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<td></td>
<td>• Social media</td>
<td>• Social media</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Other (please specify)</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>Whom do you trust the LEAST for information on vaccines? Rank the TOP THREE in order from the least trusted to more trusted.</td>
<td>Whom do you trust the LEAST for information on vaccines? Rank the TOP THREE in order from the least trusted to more trusted.</td>
<td>Larson et al., 2015; Kennedy, Basket, &amp; Sheedy, 2011 – edited to include additional responses.</td>
</tr>
<tr>
<td></td>
<td>My child’s health care provider such as doctor</td>
<td>My child’s health care provider such as doctor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family members</td>
<td>Family members</td>
<td></td>
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<tr>
<td></td>
<td>Friends</td>
<td>Friends</td>
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<td></td>
<td>Internet search</td>
<td>Internet search</td>
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<td></td>
<td>Magazines</td>
<td>Magazines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other (please specify)</td>
<td>Other (please specify)</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Options</td>
<td>Source of Influence</td>
<td>Notes</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>77 When you hear a negative comment about vaccine(s), do you:</td>
<td>- Ask a friend what they think?</td>
<td>Larson et al., 2015 – edited to include social media as a response.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Ask a health worker?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Ask a family member or other relative?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Go to the internet?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Go to social media?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>78 In general, most of my close friends have similar beliefs about vaccines as me.</td>
<td>*</td>
<td>Shoup, 2015</td>
<td></td>
</tr>
<tr>
<td>79 In general, my family (e.g. sisters, brothers and cousins) have similar beliefs about vaccines as me.</td>
<td>*</td>
<td>Shoup, 2015</td>
<td></td>
</tr>
<tr>
<td>80(p) In general, my parents have similar beliefs about vaccines as me.</td>
<td>*</td>
<td>Shoup, 2015</td>
<td></td>
</tr>
<tr>
<td>80/81(p) In general, my spouse/partner has similar beliefs about vaccines as me.</td>
<td>*</td>
<td>Shoup, 2015</td>
<td></td>
</tr>
<tr>
<td>81/82(p) Do you remember any events in the past that would have discouraged you from getting a vaccine(S) for yourself or your children?</td>
<td>Yes (please describe the event) / No</td>
<td>Larson et al., 2015</td>
<td></td>
</tr>
<tr>
<td>82/83(p) Childhood vaccines are important for my grandchildren’s health.</td>
<td>*</td>
<td>Modified from Larson et al., 2015</td>
<td></td>
</tr>
<tr>
<td>83/84(p) Childhood vaccines are effective.</td>
<td>*</td>
<td>Larson et al., 2015</td>
<td></td>
</tr>
<tr>
<td>84/85(p)</td>
<td>Having my child/grandchildren vaccinated is important for the health of others in my community.</td>
<td>*</td>
<td>Larson et al., 2015</td>
</tr>
<tr>
<td>85/86(p)</td>
<td>All childhood vaccines offered by the government programme in my community are beneficial.</td>
<td>*</td>
<td>Larson et al., 2015</td>
</tr>
<tr>
<td>86/87(p)</td>
<td>New vaccines carry more risk than older vaccines.</td>
<td>*</td>
<td>Larson et al., 2015</td>
</tr>
<tr>
<td>87/88(p)</td>
<td>My grandchild/child could get a serious disease if he or she were not vaccinated.</td>
<td>*</td>
<td>Kennedy, Basket, &amp; Sheedy, 2011</td>
</tr>
<tr>
<td>88/89(p)</td>
<td>Vaccines make the immune system stronger.</td>
<td>*</td>
<td>Salmon et al., 2005</td>
</tr>
<tr>
<td>89/90(p)</td>
<td>Vaccines are safe</td>
<td>*</td>
<td>Gellin, Maibach, &amp; Marcuse, 2000; Smith et al., 2011</td>
</tr>
<tr>
<td>90/91(p)</td>
<td>Generally, I did what my doctor or health care provider recommended about vaccines for my child/children.</td>
<td>*</td>
<td>Larson et al., 2015</td>
</tr>
<tr>
<td>91/92(p)</td>
<td>I am concerned about serious adverse effects of vaccines.</td>
<td>*</td>
<td>Freed et al., 2010</td>
</tr>
<tr>
<td>92/93(p)</td>
<td>My grandchild(ren) will not need vaccines for diseases that are not common anymore, like polio.</td>
<td>*</td>
<td>Modified from Freed et al., 2010</td>
</tr>
<tr>
<td>93</td>
<td>Compared to when my children were young, children these days get more vaccines than they need.</td>
<td>*</td>
<td>Modified from Gellin, Maibach, &amp; Marcuse, 2000; Smith et al., 2011; Opel et al., 2011</td>
</tr>
<tr>
<td>94(p)</td>
<td>Child get more vaccines than they need.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>94/95(p)</td>
<td>Do you agree with the Australian government’s recently introduced “No Jab No Pay” policy, which makes childhood vaccinations compulsory?</td>
<td>*</td>
<td>Newly developed</td>
</tr>
<tr>
<td>95/96(p)</td>
<td>Do you know anyone who does not get their child(ren) vaccinated for any reason?</td>
<td>Yes/No</td>
<td>Larson et al., 2015</td>
</tr>
</tbody>
</table>

Note: * refers to the author of the statement.
<table>
<thead>
<tr>
<th>Page</th>
<th>Question</th>
<th>Options / Possible Answers</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96/ 97(p)</td>
<td>Do you think they are risking their health or the health of their child if they do not take a vaccine?</td>
<td>Yes/No</td>
<td>Larson et al., 2015; Opel et al., 2011</td>
</tr>
<tr>
<td>97/ 98(p)</td>
<td>Do you know anyone who has had a bad reaction to a vaccine?</td>
<td>Yes/No</td>
<td>Larson et al., 2015; Opel et al., 2011</td>
</tr>
<tr>
<td>98/ 99(p)</td>
<td>Do you know anyone who has a child who had a serious disease because they were not vaccinated?</td>
<td>Yes/No</td>
<td>Larson et al., 2015</td>
</tr>
<tr>
<td>99/ 100(p)</td>
<td>Do you think it is important for everyone to get the recommended vaccine for themselves and their children?</td>
<td>Yes/No</td>
<td>Larson et al., 2015</td>
</tr>
</tbody>
</table>
| 100/ 101(p) | Do you think that most parents (like your children) have their children vaccinated with all the recommended vaccines? | • Definitely yes  
• Probably yes  
• Might or might not  
• Probably not  
• Definitely not  | Larson et al., 2015; Opel et al., 2011         |
| 101 | Thinking back to when your children were young, were you reluctant or hesitant to get a vaccination for your child? | Yes /No                                                                                   | Modified from Larson et al., 2015; Opel et al., 2011 |
| 102(p) | Have you ever been reluctant or hesitant to get a vaccination for your child?              |                                                                                           |                                               |
| 102 | Thinking back to when your children were young, did you ever refuse a vaccine for your child? | Yes/No  
If No → 105                                                                           | Modified from Larson et al., 2015              |
| 103(p) | Have you ever refused a vaccine for your child?                                           | If No → 106(p)                                                                            |                                               |
| 103/ 104(p) | Which vaccines did you refuse? Please check all that apply?                               | • Chickenpox vaccine  
• Hepatitis B vaccine  
• Haemophilus influenza b (HiB) vaccine  
• Human papilloma virus (HPV) vaccine  | Larson et al., 2015                         |
| 104/105(p) | What was/were the reason(s) for refusing the vaccine? Please check all that apply. | Did not think it was needed | Did not know where to get vaccination | Did not know where to get good/reliable information | Heard or read negative media | Did not think the vaccine was effective | Did not think the vaccine was safe/concerned about side effects | Someone else told me that the vaccine was not safe | Had a bad experience with previous vaccinator/health clinic | Had a bad experience or reaction with previous vaccination | Someone else told me that they/their child had a bad reaction | Fear of needles | Larson et al., 2015 |
| 105/106(p) | Thinking about when your children were young, please indicate your confidence levels with regard to vaccinations for your children:  
- How confident were you that you had the necessary information to make decisions about vaccinations for your child?  
- How confident were you that you will be able to protect your child from some types of infectious disease by vaccinating him or her? | - Absolutely confident  
- Fairly confident  
- Not confident;  
- Not at all confident | Kennedy, Basket, & Sheedy, 2011 |
| 106/107(p) | Please state your degree of agreement with the following statement: as a grandparent, I intend to advice my child/children about vaccinating their children.  
Thinking about your youngest child, please indicate your agreement with the statement: I did, and intend to continue to vaccinate my child/children as stipulated by the government. | * | Modified from Shoup, 2015 |
| 107/108(p) | In the past 2 months, how often have you used the Internet to look for health information | - Not at all  
- Less than once a month  
- About once a month  
- Every week  
- Every day | Informational support  
Shoup, 2015 |
<table>
<thead>
<tr>
<th>Question Number</th>
<th>Question</th>
<th>Response Options</th>
<th>Informational support</th>
<th>Source</th>
</tr>
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<tbody>
<tr>
<td>108/109(p)</td>
<td>In the past 2 months, how often have you used the Internet to help get information about vaccines for your child</td>
<td>Not at all, Less than once a month, About once a month, Every week, Every day</td>
<td>Informational support</td>
<td>Shoup, 2015</td>
</tr>
<tr>
<td>109/110(p)</td>
<td>In the past 2 months, how often have you used social media (such as blogging online, Facebook, online discussion boards), in general</td>
<td>Not at all, Less than once a month, About once a month, Every week, Every day</td>
<td>Informational support</td>
<td>Shoup, 2015</td>
</tr>
<tr>
<td>110/111(p)</td>
<td>In the past 2 months, how often have you used social media (such as blogging online, Facebook, online discussion boards) to look for and talk about health information</td>
<td>Not at all, Less than once a month, About once a month, Every week, Every day</td>
<td>Informational support</td>
<td>Shoup, 2015</td>
</tr>
</tbody>
</table>

Note:
Questions with (*) on the response scale column were scored on the following Likert scale ranking - Strongly agree / Agree / Somewhat agree / Somewhat disagree / Disagree/ Strongly disagree.
Question numbers with (p) denotes questions that appeared on parents’ version of the questionnaire and where question numbers varied on the questionnaire for the parent and grandparent versions.
Questions with ** in parenthesis indicates the respondents were required to provide information for oldest to 8th oldest child.
Questions with *** in parenthesis indicates the respondents were required to provide information for mother, father, mother-in-law, father-in-law, stepmother, stepfather, stepmother-in-law, stepfather-in-law.
APPENDIX N

QUESTIONNAIRE PARTICIPATION INFORMATION SHEET
Participant Information Sheet
Health/Social Science Research - Adult providing own consent
Edith Cowan University

Title: Beliefs, attitudes and behaviours of parents and grandparents in relation to selected issues of child health.

Short Title: Parent and grandparent influence on child health

Protocol Number: 12738

Project Sponsor: Edith Cowan University

Coordinating Principal Investigator(s): Shantha Karthigesu
Dr David Coall

Associate Investigator(s): Prof. James Chisholm

Location: Edith Cowan University, Joondalup

Part 1  What does my participation involve?

1  Introduction

You are invited to take part in this research project, which is called Beliefs, attitudes and behaviours of parents and grandparents in relation to selected issues of child health. You have been invited because you expressed interest in participating as a parent/grandparent or soon to be parent/grandparent.

This Participant Information Sheet/Consent Form tells you about the research project. It explains the processes involved with taking part. Knowing what is involved will help you decide if you want to take part in the research.

Please read this information carefully. Ask questions about anything that you don’t understand or want to know more about. Before deciding whether or not to take part, you might want to talk about it with a relative or friend.

Participation in this research is voluntary. If you don’t wish to take part, you don’t have to.

If you decide you want to take part in the research project, you will be asked to sign the consent section if taking the survey on paper. If you are completing the survey online please indicate your consent when prompted by the question. By signing/choosing the consent option you are telling us that you:
• Understand what you have read
• Consent to take part in the research project
• Consent to be involved in the research described
• Consent to the use of your personal and health information as described.

You may retain this Participant Information for future reference.
2 What is the purpose of this research?

This project aims to explore parents’ and grandparents’ health beliefs and attitudes in relation to child nutrition and vaccinations.

This research is significant because it is the first study of its kind to be carried out in Western Australia aimed at understanding the role parents’ and grandparents’ health beliefs play in the lives of new families. The findings will help make parents/grandparents information sessions such as hospitals more suited to the needs of families with young children and to ensure that we are working together to provide the best possible environment for children to grow and develop.

This research has been initiated by PhD student Shantha Karthigesu under the supervision of Dr David Coall and Prof. James Chisholm. It has been approved by the ECU Human Research Ethics Committee.

3 What does participation in this research involve?

Participation in this research involves completing a detailed questionnaire aimed to understand your experiences as a parent or grandparent involved in the health of your children and grandchildren. The survey should take no more than 20 minutes to complete and is best completed in one sitting without consulting responses with anyone else. Please answer all the questions to the best of your ability and as accurately as you can especially where dates are concerned.

4 Do I have to take part in this research project?

Participation in any research project is voluntary. If you do not wish to take part, you do not have to. If you decide to take part and later change your mind, you are free to stop responding to the questions.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your routine care, your relationship with professional staff or your relationship with Edith Cowan University.

5 What are the possible benefits of taking part?

There will be no clear benefit to the participant from their participation in this research. However participants may feel satisfied in the knowledge that their participation will help generate information that can be used to improve child health.

6 What are the possible risks and disadvantages of taking part?

You may feel that some of the questions we ask are a little stressful or upsetting. If you do not wish to answer a question, you may skip it and go to the next question, or you may stop immediately. If you become upset or distressed as a result of your participation in the research project please inform the principal investigator, Shantha Karthigesu or her supervisor Dr David Coall on the email or numbers provided and they will provide a list of free counselling services you can access. Any counselling or support will be provided by qualified staff who are not members of the research team.

7 What if I withdraw from this research project?

If you do consent to participate, you may withdraw at any time. If you decide to withdraw from the project, please notify a member of the research team before you withdraw. A member of the research team will inform you if there are any special requirements linked to withdrawing.
If you do withdraw, you will be asked to complete and sign a ‘Withdrawal of Consent’ form; this will be provided to you by the research team.

If you decide to leave the research project, the researchers will not collect additional personal information from you, although personal information already collected will be retained to ensure that the results of the research project can be measured properly and to comply with law. You should be aware that data collected up to the time you withdraw will form part of the research project results. If you do not want your data to be included, you must inform the researchers when you withdraw from the research project.

8 What happens when the research project ends?

Participants will be provided with a summary of the results when the research project is completed. This summary will be mailed to interested participants. You will be able to indicate on the questionnaire if you would like to receive a project summary.

Part 2 How is the research project being conducted?

9 What will happen to information about me?

By signing the consent form you consent to the research team collecting and using personal information about you for the research project. Any information obtained in connection with this research project that can identify you will remain confidential. Information collected will be de-identified and stored in a locked cabinet at Edith Cowan University. Only the research student Shantha Karthigesu and supervisor Dr David Coall will have access to this cabinet. Your information will only be used for the purpose of this research project and any future research projects that seek to explore similar questions, and it will only be disclosed with your permission, except as required by law. The personal information that the research team collect and use is de-identified questionnaire answers and a de-identifiable qualitative interview.

It is anticipated that the results of this research project will be published and/or presented in a variety of forums. In any publication and/or presentation, information will be provided in such a way that you cannot be identified.

Any information obtained for the purpose of this research project that can identify you will be treated as confidential and securely stored. It will be disclosed only with your permission.

10 Who is organising and funding the research?

This research project is being conducted by research student Shantha Karthigesu and Dr David Coall and it is supported by Edith Cowan University.

11 Who has reviewed the research project?

All research in Australia involving humans is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this research project have been approved by the HREC of Edith Cowan University.

This project will be carried out according to the National Statement on Ethical Conduct in Human Research (2007). This statement has been developed to protect the interests of people who agree to participate in human research studies.
12 Further information and who to contact

The person you may need to contact will depend on the nature of your query. If you want any further information concerning this project or if you have any problems which may be related to your involvement in the project, you can contact the following people:

<table>
<thead>
<tr>
<th>Research contact person</th>
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</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Position</td>
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<tr>
<td>Telephone</td>
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<td>Email</td>
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<table>
<thead>
<tr>
<th>Name</th>
<th>Dr David Coall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Chief Investigator</td>
</tr>
<tr>
<td>Telephone</td>
<td>+61 8 6304 2118</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:d.coall@ecu.edu.au">d.coall@ecu.edu.au</a></td>
</tr>
</tbody>
</table>

If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact:

Research Ethics Officer
Edith Cowan University
270 Joondalup Drive
JOONDALUP WA 6027
Phone: (08) 6304 2170
Email: research.ethics@ecu.edu.au
APPENDIX O

QUESTIONNAIRE RECRUITMENT POSTER
Do grandparents influence the health of children in young families?

The goal of our study is to gain a better understanding of whether grandparents influence the health of grandchildren. Specifically, we are interested in whether grandparents influence parents’ decisions regarding their children’s nutrition, health and general wellbeing.

If you are a parent or grandparent, you can help answer this question!

If you are a parent or grandparent you can help us by completing a 25 minute questionnaire. The questionnaire can be completed in an electronic or paper form. We are seeking participants from all types of families including those that may not have regular contact with their grandparents. Your valuable participation will help us reach a better understanding of the perceived and real influences grandparents have on child health.

Thank you for considering this study.

If you are interested in participating in this study please contact Shantha Karthigesu on s.karthigesu@ecu.edu.au / 08 6304 2423
Appendices P, Q, R & S are not included in this version of the thesis