FACTORS INFLUENCING PARTICIPATION IN INFANT NUTRITION CLASSES SPONSORED BY MANITOBA HEALTH

BY ARLENE G. REID

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ABSTRACT

The objectives of this study were to determine how parents who participate in the infant nutrition classes sponsored by Manitoba Health differ from those who do not participate; to assess the infant nutrition information needs of parents; and to examine the design and delivery of the classes.

A telephone survey method, following social marketing principles, was used to obtain a profile of parents of infants in the Winnipeg Health Region. Pilot interviews were done to help with the design of the questionnaire. The survey was conducted with a population of participants (n=55) and a systematic random sample of non-participants (n=122), between September and December, 1995.

It was previously known that the majority of participants are first time parents, and that the majority of non-participants have other children. This study provides a further comparison showing that non-participants are more likely to be of a lower socioeconomic status, in terms of education, employment and income; perceive fewer benefits to attending; and perceive a greater number of barriers to participation, such as time, effort and lack of babysitting. Very few (n=15) respondents cited attending a class as their preferred method for receiving information. Reading material was one of the most frequently cited preferences, some indicating that they would like to receive it in the mail, and other saying they would like this material in conjunction with a professional to call. This study also illustrates that the promotion of the classes is not comprehensive or consistent.

It is concluded that particular segments of the target population are not being reached, including those with other children, and those with a lower socioeconomic status. Attending a class was not frequently cited as a preferred method for receiving information, therefore, it is recommended to either change the format to address barriers to participation, or consider other approaches which will appeal to a larger proportion of the target population.

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ABBREVIATIONS

CPS	Canadian Pediatric Society
CDA	Canadian Dietetic Association
CHEA	Canadian Home Economics Association
INC	Infant Nutrition Class
KR20	Kuder Richardson Formula 20
PHEc	Professional Home Economist
PHN	Public Health Nurse
p	Participant
np	Non-participant

Part I Introduction and Background

Chapter 1

Introduction

1.1 Statement of the problem

The infant nutrition classes sponsored by Manitoba Health are taught monthly by four Home Economists in seven locations of the Winnipeg Health Region. After having a baby, parents are sent a letter from the health unit inviting their participation in an infant nutrition class in their geographic area, within the Winnipeg Health Region.

Nutrition plays a vital role in the growth and development of infants, and the infant nutrition classes sponsored by Manitoba Health provide parents with information regarding infant feeding and nutrition to help ensure appropriate feeding practices and healthy infants. The objectives of the classes are to teach aspects of breastfeeding, formula feeding, use of supplements, introduction of solid foods, and safe feeding practices (Appendix 1). The Home Economists who teach the classes are concerned with the low participation rates, since only a small proportion of parents attend the classes. Currently, only 10% to 20% of those invited attend the classes.

The literature indicates that those who participate in health programs are often not the ones with the most need but rather 'a self selected group of interested well' (Mavis, Stachnik, Gibson & Stoffelmayr, 1992). The Home Economists thought that there may be particular segments of the target population that are not attending the classes, especially younger and/or lower income parents. As a result of these

concerns, factors that can influence participation are identified, and several variables are examined to determine if the parents who attend the classes differ from those who do not attend. Parents preferences for how they receive infant feeding information are also a primary focus of this study. It is thought that gaining a better understanding of why people participate, and what their informational needs are can aid in the development of strategies to increase participation. Information regarding reasons for non-participation is also obtained, which may aid in developing methods to improve participation.

For this study, participants are defined as those who are registered to attend. The parents were surveyed prior to the classes occurring, therefore registration was used as an indicator of intention to attend.

This study consists of both experimental and descriptive components. For instance, expected differences between participants and non-participants are hypothesized and tested. This study also provides a descriptive analysis of the target audience in order to gain a better understanding of their characteristics and information needs. Social marketing provides the basis for this audience analysis. The target audience is segmented according to participants and non-participants in the infant nutrition classes, and then they are compared on a number of variables. The variables used to compare participants and non-participants include: 1) demographic and socio-economic characteristics; 2) parents' perceived infant nutrition information needs; 3) knowledge of infant feeding; 4) behavioural variables, including previous experience with attending classes; 5) parents' preferred methods for receiving infant

nutrition information; 6) belief variables, including expected outcomes of attending a class; 7) barriers and incentives to participation in the classes.

1.2 Significance

The infant nutrition classes sponsored by Manitoba Health provide parents with information regarding infant feeding and nutrition which is important for the ensuring appropriate feeding practices and healthy infants. The provision of programs and services for parents and infants helps to ensure that the nutritional needs of infants are being met.

Past research evidence suggests that there are several factors that may influence participation in health programs. There is a lack of conclusive data on these factors with regards to parents of infants. This study identifies the variables associated with participation of parents in community based infant nutrition classes providing valuable information to the decision makers who plan and organize the classes. The results will aid in improving the delivery of infant nutrition information to a larger and more representative proportion of new parents.

Chapter 2

Review of Literature

2.1 Factors influencing participation in health programs

Looking at the literature, the research evidence suggests that there are several factors that may influence participation in health programs. This study is specifically concerned with participation in the infant nutrition classes sponsored by Manitoba Health; however, the literature in this area is more broad. There has not been a lot of conclusive data on these factors specifically regarding parents of infants. Most of the research in the area of participation involves worksite health programs (Conrad, 1987; Lovato & Green, 1990), therefore this literature review includes studies involving both worksite programs and parent programs.

Factors that have been found to be associated with participation include: demographic variables; behavioural variables, including general health practices such as exercise, diet, self monitoring of health; and psychosocial variables, which include health locus of control, a term referring to the degree of control that one perceives as having over their health; self-efficacy, which refers to one's perceived ability usually with reference to changing behaviour; beliefs and perceptions about the behaviour; and self motivation (Conrad, 1987; Mavis et al., 1992; Tinsely & Holtgrave, 1989; Wilson, 1990). Several researchers have noted the importance of social support as a factor in infant feeding practices and information seeking behaviour (Bryant, 1982; Crockenberg, 1986; McLorg & Bryant, 1989; While, 1989; Zachariah, 1994).

Most studies examining participation focus on the characteristics of the target population. It is important to recognize that the design or promotion of the program itself can influence participation (Lovato & Green, 1990; Wilson, 1990). The impact of program delivery on participation is an important consideration, and following from that, how well the program is meeting parents perceived needs for information and preferred methods for receiving it. As Fleming (1987) stresses, program success depends on having the service available to consumers on their terms, with times and locations that they prefer, and in formats that suit their needs and interests.

2.2 Demographics

The demographic variables that are most consistently shown to be positively associated with participation are income and educational levels (Wilson, 1990). Nice and Woodruff (1990) investigated factors associated with voluntary response to a health risk appraisal, involving United States Navy personnel. They found that individuals who did not respond to the appraisal were younger, less educated, and engaged in more high risk health behaviours like smoking, and alcohol consumption. Wilson (1989) studied participation in a workplace health program and found significant differences between participants and non-participants for the variables of occupational status, education, and income. Atkins et al. (1990) investigated predictors of attendance at a family cardiovascular health program, and found that demographic variables, other than socioeconomic status, are not strong predictors of attendance; however, they did find that low income families attend less often.

McCaw-Binns, La Grenade and Ashley (1995) conducted a study looking at mothers' use of an antenatal care program in Jamaica. They found that non-attenders were more likely to be younger, unmarried, smoke, and feel like they had little social support. Early attenders of the program were more likely to be older, married and with a higher socio-economic status. These studies illustrate that people who are older, married, with higher education and income levels are more likely to participate in health programs.

2.3 Behaviour

Looking at the behavioural variables, it has been consistently found that participants in worksite health programs tend to be nonsmokers, more concerned with health matters, and perceive themselves to be in better health (Conrad, 1987). Information concerning general health practices, like exercise and diet has been more inconsistent. For example, the study by Mavis et al. (1992) on worksite health promotion looked at the predictors of participation, and one of their objectives was to identify behavioural differences between participants and non-participants. These researchers found that participants tend to practice healthier lifestyles (including: better eating habits, seeking health information, using stress management practices, and not smoking) than those who do not participate.

Atkins et al.(1990) found that attendance at the cardiovascular health program was not strongly predicted by health habits variables. These authors found that the strongest predictor was the behavioural variable of having completed a food

frequency record, and they conclude that behaviour is therefore best predicted by previous performance of a similar behaviour. Stange et al. (1991a) examined a worksite health program and also found that health habits did not have a statistically significant association with participation, but they did find that healthy habits were consistently related to greater participation. In summary, past research is confirming that those who attend health programs tend to have better health practices than those who do not.

2.4 Psychological factors

Studies looking at psychological variables have found that the contribution of these variables to explaining participation is very small. The psycho-social concepts of locus of control, self-efficacy and self-motivation come from social learning theory which is concerned with personality constructs and their relation to behaviour change.

Tinsley and Holtgrave (1989) looked at social-psychological variables affecting mothers' utilization of childhood preventive health services. Initially, they found that an internal locus of control was positively associated with utilization. The authors do point out that the amount of variance in utilization of childhood preventive health services accounted for by the parental health locus of control beliefs, although significant, was small; and therefore may be just one of many factors that contribute to individual differences in utilization.

Other studies investigating these psychological variables have also found that they are not significantly related to participation. For instance, Mavis et al. (1992) included self-efficacy in their investigation of worksite programs found that self-efficacy was not a significant variable. A study by Stange et al. (1991b) which investigated psycho-social predictors of participation in a work site health program also found that there was no significant relationship between self-efficacy and participation. Self-efficacy was conceptualized as being a person's perception that they are able to make specific behaviour change, in terms of fitness, nutrition, smoking cessation, etc. (Stange et al., 1991b). Wilson (1989) studied the relationship between locus of control and participation in a workplace health program, and he concluded that psycho-social variables, particularly locus of control and self-motivation are less powerful than other variables (such as socio-economic status) in explaining the variance of participation. The health program participants were more likely to be white-collar workers with high levels of income and education.

Parents of infants must deal with the issue of infant feeding, and therefore a more appropriate consideration may be their confidence in their infant feeding ability. Confidence, although related to self-efficacy, is perhaps associated more with a person's perception of their degree of ability rather than a judgment of their capability. Martens (1994) found that how confident women feel about breastfeeding has a strong effect on the decisions made regarding infant feeding choices. The confidence that parents have in various aspects of infant feeding is one aspect explored in this study.

Another psychological variable is the beliefs that people have about the behaviour, usually referred to as outcome expectancy beliefs. The theoretical perspective which is most concerned with outcome expectancy beliefs and outcome values are the Value expectancy theories. This is a theoretical perspective that proposes that people choose behaviours that maximize positive outcomes and minimize negative outcomes (Carter, 1990). For example, parents may associate several outcomes with attending the infant nutrition classes, such as gaining new knowledge on infant feeding, improving the health of their infant, networking with other parents, etc.. Outcome value refers to the evaluation of the expected outcomes (Carter, 1990). Parents may associate several outcomes with attending an infant nutrition class, although they may not find all these expected outcomes equally beneficial or valuable. A study by Contento and Murphy (1990), looked at the differences between those who make desirable changes in their diets and those who do not and found that outcome expectations provided a large part of the explanation as to why some people made dietary changes and why others did not. Alexy (1991) also confirms that participants are more likely to perceive greater benefits and fewer barriers. For this study, what parents believe will occur as a result of attending an infant nutrition class, and their evaluation of these outcomes may influence their decision to attend.

2.5 Program design and delivery

Besides personal factors that influence participation, other variables that need to be considered involve how well the program design and delivery are meeting parents perceived information needs and preferences for how they receive this information. For example, Saylor, Elksnin, Farah and Pope (1990) investigated program attributes that are related to participation rates in early intervention programs. They looked at various program characteristics to determine which ones would make parents more likely to participate. Their study involved interviewing both professionals who worked in early intervention programs, and mothers of children enrolled in an intervention program. Their results showed that logistical support in the form of transportation, babysitting and meals was considered to be important by both groups of respondents for improving participation. The mothers endorsed the use of tangible reinforcers, such as rewards or prizes, to increase participation more than the professionals did. Sciacca, Dube, Phipps and Ratliff (1995) in a study of a breastfeeding education program, also found that the use of incentives can be used to improve attendance.

McKim (1987) looked at the resources used by parents with infants, and the problems that they encounter during the first year. They found that the most frequently cited concern was with infant illness. The second most frequently cited concern was with infant nutrition. The parents' heaviest reliance was on reading material during the first three months after birth, however parents reported not being satisfied with reading material alone, because it did not always adequately address

the specific problems that they were experiencing. A majority of the sample said that they had never taken any courses or workshops on child development or parenting. The author suggests that services for new parents should be clearly described so that young families would be less inhibited about seeking help. The author also argues that group sessions for parents are most effective "when the infants participate in a concurrent but separate program." (McKim, 1987, p.25). It was also suggested that television programs for parents of infants may be an effective complement to existing services.

Wickline, Ryberg and Merrifield (1984) investigated the information needs of parents utilizing a child health clinic in the United States. They used a self administered questionnaire to identify health care and educational needs from the parents perspective. They discovered that the most preferred services are those that can be utilized by the parents at their convenience and discretion, in contrast to parent groups that would required attendance within a given time frame; however the parents do prefer information services in which they can participate. The method most preferred by this sample of parents is telephone resources that parents can call.

Tanaka, Yeung & Anderson (1989) conducted a survey in Toronto which investigated mothers' preferences for how they receive infant nutrition information, and to assess the roles of health professionals in providing this information. These researchers found that the information provided is not always comprehensive, or provided in the most acceptable format. When the mothers were asked how they prefer to have information presented to them, the majority wanted written

information in conjunction with consultation. These authors suggest that a community based program that provides mothers with access to consult with health professionals on a regular basis supplemented with written materials should be considered. Looking at Canadians in general, Canada's Health Promotion Survey (Health & Welfare Canada, 1988) found that the government is considered to be the most credible provider of nutrition information.

Pridham (1990) examines parents use and preferences of information sources specifically relating to infant feeding behaviour. It is noted that mothers' information seeking style may influence decisions regarding infant feeding practices, indicating that those who seek information from a wider variety of sources are more likely to introduce solids after four months. Pridham provides an in depth examination of infant feeding skills and how they relate with the progression to a weaning diet. She stresses that parents need information about infant feeding behaviour, development, weaning, and that this information needs to acknowledge parental goals, concerns and needs.

Crockenberg (1986) studied the information needs of adolescent mothers of two year old children in the United States. She found that mothers relied most heavily on informal sources for information about parenting, including friends, relatives, magazines, and books. These mothers indicated that they would like more advice on parenting, and the most popular alternative was parent education classes, with 52% citing it as the preferred method. Eighty per cent of these mothers stated that their support persons should be included in their contacts with professionals.

This author states that although parent education classes may work for some parents, others will require professionals to do more active outreaching, while others do not desire or need additional contact with professionals.

Crockett, Perry and Pirie (1989) investigated the nutrition intervention strategies preferred by parents of school aged children using social marketing concepts. They found that the greatest number of parents preferred information sheets, and that the least preferred method for receiving information was evening meetings. These authors conclude that parent group meetings are not always an effective strategy for reaching a large number of parents. In a summary article, Crocket, Mullis and Perry (1988) state that parents who have the most need for nutrition education may be the least likely to attend classes. These researchers suggested that more research is needed on how to motivate parental involvement.

Seidel, Dodge, Rossiter and Thistlewaite (1993) studied low income women in relation to breastfeeding promotion, and found that other factors such as medical, social, and psychological problems took priority over infant feeding issues. In other words, these problem areas had to be addressed before infant feeding issues had priority, and program providers must recognize the importance of these other issues.

2.6 Social network influences

Studies have looked at parents' preferred sources of infant nutrition information, and the impact that professionals have on parents. It has been found that lay sources, such as family and friends often have more influence than professionals.

For example, McLorg and Bryant (1989) looked at the influence of health professionals on the infant feeding practices of economically disadvantaged mothers. They found that in comparison to the influence of social networks, the influence of the health professionals on infant feeding practices is weak. These authors argue that conflicting advice about infant feeding practices from pediatricians, nurses and nutritionists has often served to discredit professional advice.

Solem, Norr and Gallo (1992) also looked at the infant feeding practices of low income mothers, and found that the teaching of infant nutrition by a nurse had little impact on actual feeding practices. These researchers found that families and peers had stronger influences on feeding practices. These results support the argument that more effective teaching strategies need to be developed. Both Crockenberg (1986) and Zachariah (1994) discuss the importance of including social network members in the parenting programs, since these people are already advising the parents; with Zachariah also stressing the importance of the mother's mother as an advisor on infant care practices.

Bryant (1982) studied the impact of kin, friend and neighbour networks on infant feeding practices, by looking at Cuban, Puerto Rican and Anglo women. The results relating to the Anglo women showed that they did not consider their mothers to be a primary source of advice on infant care, and consider their mothers' information to be outdated. On the other hand, over half of the Anglo women in the study viewed their friends as important sources of information on infant feeding. One third of the Anglo women had a more significant reliance on network members than

on health care professionals. For all three ethnic groups, it was found that the location of influential network members is significantly related to the impact that health care professionals have on infant feeding. Those mothers who did not have easy access to influential relatives, friends and neighbors were influenced the most by the advice of health care professionals.

As the literature demonstrates, social support and network influences have an important impact on parents infant feeding decisions, and it is therefore an issue that is explored in this study.

2.7 Reasons for non-participation

Some studies investigating participation have also looked at the reasons given for non-participation. For example, the study by Mavis et al. (1992) involving participation in worksite programs found that the most frequently reported reasons for not participating were that they were too busy, were not interested, and that they did not need the program. The study by Tanaka et al. (1989) that looked at mothers information needs and preferences found that only nine per cent of their sample attended post-natal classes. The main reasons given for not attending were the view that the classes were unnecessary, that they were not known to be available, and time pressures. The reasons given by the parents in this study for non-participation are explored to reveal barriers that can be dealt with in the design, delivery and marketing of the classes.

2.8 Application of social marketing principles

Social marketing can be defined as a method for increasing the acceptability of ideas or practices in a target group (Lefebvre & Flora, 1988). This provides an ideal approach for adapting programs to the needs and preferences of the target audience. Social marketing also provides a method of quality assessment of health programs (Bonaguro & Bonaguro, 1985). A benefit of this approach is that it allows the incorporation of a variety of variables that can indicate the differences between participants and non-participants. Hughes and Murphy (1995) discuss the value of the social marketing perspective as a unifying framework when a large number of issues must be considered. This type of audience analysis will also identify any barriers that the parents perceive as influencing participation, and what incentives, if any could encourage participation. Another benefit of social marketing is that it combines both personal and program variables. As a result of these benefits the principles of social marketing are becoming more commonly used for the delivery of health education programs (Novelli, 1990).

The basis of marketing philosophy is exchange theory, according to which people exchange resources for perceived benefits. People have a variety of resources that can be exchanged such as money, time, physical and mental effort, social contacts, etc.. With the focus being on the consumer, the need for health programs to be responsive to the needs of the target audience is emphasized (Lefebvre, 1992).

Marketing has traditionally been concerned with four elements: products, prices, places and promotion. These are referred to as the marketing mix. These elements can also be applied to the social marketing of health programs (Lefebvre & Flora, 1988).

Products in health promotion are usually intangible, and it is important to make these intangibles, such as a healthier life, tangible in an appealing way (Lefebvre & Flora, 1988). For example, printed materials that are used can be considered as products to which the audience, or consumer can respond. The product for the infant nutrition classes would comprise the topics that are covered in the classes, any educational material that is provided to the parents, as well as the potential for new knowledge and skills. The concern is with how well the information being presented is meeting the parents' perceived needs for infant feeding information.

Place refers to how the classes are made available to the target audience (Lefebvre & Flora, 1988). Currently the infant nutrition classes are taught in seven different areas of the Winnipeg Health Region, and the parents are invited to the class nearest to their home. The classes are offered in various centres, such as government health offices, churches, and libraries. All the classes are offered in the afternoon, with only one Home Economist offering an evening class in one area (St.Boniface/St.Vital). An important issue for the infant nutrition classes is the convenience of the locations for the parents.

Promotion is conceptualized as the publicity and advertising that is utilized to make the target audience aware of the program, and to increase participation by the target audience (Lefebvre & Flora, 1988). Publicity for the infant nutrition classes involves a letter that is sent to the parents approximately two weeks prior to the class which invites their attendance. There is also some promotion by the Public Health Nurses. The promotional aspects that need to be addressed are the timing of the letters arrival to the parents, how the letter is presented, the parents reactions to the letter, and the consistency of the promotion by the Public Health Nurses.

The concept of price can be considered as involving more than economics, and can include social, behavioural, temporal, structural, or physical reasons for entering or not entering the exchange process (Lefebvre, 1992). Price can be seen as the barriers or incentives to participation. The challenge, therefore, is to decrease the barriers while increasing incentives to increase participation. All of the elements previously mentioned, including product, place and promotion can have price implications. Identifying any barriers that may impede parents participation in the infant nutrition classes will assess the price implications of how the class is currently organized and presented.

Programs utilizing market research usually survey the target audience to assess their needs and conduct market segmentation in order to design the health program to suit the consumers' needs (Alexander & McCullough, 1981; Novelli, 1984). Market segmentation is part of an audience analysis that identifies homogeneous groups within the target audience based on a variety of characteristics

(Fleming & Brown, 1981). The information obtained through this type of audience analysis is applied to the design, implementation, and control of programs. This application involves several issues including: determining what products are most acceptable to the target audience, what incentives should be used, which distribution channels would be best, and what type of communication would be most effective (Kotler, 1984). These principles are applied to this study which aims to identify the characteristics of those who do and do not participate in the classes. This analysis is used to help to identify any barriers that the parents may perceive as influencing participation, and what incentives, if any, could encourage participation.

In addition to the benefits of using social marketing concepts, there are also some limitations to the approach that are important to be aware of (Novelli, 1990). For instance, when conducting an audience analysis to determine characteristics there is always the risk of obtaining socially desirable answers to survey questions. The other drawbacks relate to the difficulties encountered by those promoting a social program as opposed to a commercial product, such as hair spray. For example, just because key segments in the population have been identified does not mean that it is any easier to overcome the obstacles to targeting to those who are not reached by the program. The marketers of social programs can not always easily change their programs to meet the audience needs because they are often faced with constraints, such as financial or time constraints. Those who provide social programs are also usually limited in their promotional abilities, and may find incorporating a systematic marketing plan difficult.

Despite these limitations, social marketing remains a beneficial method for analyzing health programs. It allows program providers to know who they are and are not reaching, and provides information on how they may be able to reach a wider audience and/or provide a better program that is more suited to the needs of their audience.

2.8 Summary and conclusions

To summarize what has been found in the literature, the factors that have been found to have the most significant influence on participation, are demographic and socio-economic variables, behavioural variables such as health practices and previous performance of a similar behaviour, and belief variables such as the outcomes that are expected to result from attending an infant nutrition class and the value placed on these expected outcomes. Looking at the program attributes, it has been found that participation may be influenced by the design, delivery and marketing of the program, and that the information needs and preferences of the target audience need to be addressed. Research has also shown that psychological variables such as locus of control and self-efficacy have not been found to be strongly associated with participation, although confidence in one's ability can be associated with infant feeding decisions. Research has also demonstrated the importance of social support and network influences for parents of infants.

Several factors point to the need for research on parents of infants and program elements most likely to increase participation, and on how to better meet parents' information needs. For instance, a few flaws exist in some past research, including lack of appropriate control groups, use of retrospective designs, convenience sampling, and over-reliance on self-reported data. Another drawback is the difficulty in controlling for confounding variables. Another impediment is that there is a lack of documentation of innovative strategies (Wilson, 1990). When programs implement innovative strategies to improve participation it should be documented so that the effectiveness can be evaluated and recorded.

Something else that is lacking in current research is a unifying framework to help put the variables influencing participation together. A conceptual approach that does this well, and which is now becoming more popular in health research is Social Marketing. The approach used in this study reflects the audience analysis type of technique encompassed by Social Marketing.

Part II Research Design and Methods

Chapter 3

Research Design

3.1 Description of the research design

This study involves two parts. The first part consists of exploratory, telephone interviews with a small sample of mothers. The information from these interviews was used to help determine the content of the questionnaire for the quantitative survey, which is the second part of the study. The quantitative, cross-sectional survey has been conducted with both participants and non-participants in the infant nutrition classes. A telephone survey method was chosen for the study because of its high response rate, suitability for the information desired, ability to contact a large number of people in a short period of time, and is less invasive than other methods (Singleton, Straits & Straits, 1993, pp.262-263). An important factor in choosing this method is that for the quantitative survey the parents were to be interviewed in the period after they received the letter but before the class they were invited to occurred. Approval for conducting a study with human subjects was granted by the Human Ecology Ethics Review Committee (Appendix 2).

3.2 Objectives and hypotheses

Objectives:

The main objectives of this research were to determine factors related to participation in the infant nutrition classes sponsored by Manitoba Health, and to determine the infant nutrition information needs of parents in the Winnipeg Health Region.

The specific objectives of this study are:

1) to determine if parents who participate in the infant nutrition classes differ from those who do not participate on a number of socio-demographic, behavioural and belief variables. These variables include social and economic factors, previous attendance at classes, infant feeding knowledge, parents' outcome expectations, and perceived health, confidence, and support;

2) to determine the perceived infant nutrition information needs of the parents, including what kind of information parents want, and how they prefer to receive infant nutrition information;

3) to determine reasons for non-participation as perceived by the parents themselves;

Rationale:

Several factors have been explored because of their expected influence on participation in the infant nutrition classes. For example, demographic and socio-

economic variables will be assessed because the parents who participate are expected to have different characteristics than those who do not. For instance, mothers who choose to attend the classes are expected to be older, first time mothers from two parent households, who have a higher socio-economic status. Parents who have other children may be less likely to attend, either because having other children makes it more difficult to do so, or they may feel that they already know what they need about infant feeding. Participants are also expected to have more knowledge on infant feeding, because, although they are expected to be first time parents who may not have much previous experience with infant feeding, they are expected to be seekers of health information. With regards to behavioural variables, participants are expected to have had more previous experience with attending classes in general for obtaining information, and have a preference for this method. Determining parents preferred methods for receiving infant feeding information would also indicate other competing sources of this information. What parents expect to get out of an infant nutrition class if they attended, referred to as outcome expectancy beliefs, and the value placed on these beliefs will also be explored. It is expected that the participants will have positive outcome beliefs that are highly valued, and will perceive or encounter few if any barriers to participation. Other variables and their relation to participation are explored including the babies ages at the time of the classes, current feeding practice, means of transportation, perceived necessity of the class, and the number and ages of the older children for those that are not first time parents.

Hypotheses:

Based on the review of literature and pilot interviews it is hypothesized that parents who participate in the infant nutrition classes are more likely to be:

1) be older, first time mothers from two parent households, with a higher socioeconomic status (defined in terms of income, employment status, and educational attainment);
2) perceive themselves and their infants as being healthy;
3) non-smokers;
4) have more knowledge of infant nutrition than the non-participants;
5) to have had previous experience with attending classes in general for obtaining information, and with attending prenatal classes;
6) prefer attending classes as a method for receiving infant nutrition information;
7) expect more positive outcomes from attending, and will place a higher degree of value on expected outcomes;
8) perceive or encounter fewer barriers to attending than the non-participants, with regards to product, place, promotion, price.

Chapter 4

Conceptualization and Operationalization of the Variables

4.1 Variables included in the hypotheses

The study variables determine if parents who participate in the infant nutrition classes differ from those who do not participate on socio-demographic characteristics, knowledge, behavioural variables, belief variables, and preferences for how they receive this information. Each variable is defined and an explanation for how it is measured is given below, along with the corresponding questionnaire item (Appendix 5) and level of measurement shown in brackets.

1) **Socio-demographic characteristics:**

The socio-demographic characteristics included in this study are:

a) mother's age measured in 6 age categories, of 5 year intervals (question #72, ordinal);

b) family type, measured categorically, to indicate a one parent or two parent family status. Single parent status includes: never married, divorced, and widowed; two parent status includes: married, and common law (question #74, nominal);

c) employment status of mother measured by having the respondent indicate if she is employed part time (less than 35 hours a week), full time (35 hours or more a week), a student, or unemployed (question #78, nominal);

d) occupation of the mother, if applicable, indicated by an open-ended response, categorized using the revised Pineo-Porter-McRoberts Socio-economic Classification of Occupation (Pineo, 1985). Pineo (1985, p.10) explains that collapsed categories are more appropriate for smaller samples. The occupation categories defined by Pineo (1985) are collapsed to create the categories of professional, skilled and semi-skilled as follows:

Professional: self-employed professionals, employed professionals, high level management, semi-professionals

Skilled: middle management, supervisors, foremen and women, skilled clerical sales and service, skilled crafts and trades, skilled manual

Semi-skilled: semi-skilled clerical sales and service, semi-skilled manual (question #79, ordinal);

e) employment status of the partner/husband measured categorically, by having the respondent indicate if he is employed part time (less than 35 hours a week), full time (35 hours or more a week), a student, or unemployed (question #75, nominal);

f) occupation of the father, if applicable, indicated by an open-ended response, categorized as professional, skilled or semi-skilled using the revised Pineo-Porter-McRoberts Classification of Occupation (1985) as explained above for mother's occupation (question #76, ordinal);

g) total family income level from all sources, before taxes, selected from 12 equal income categories (question #81, ordinal);

h) education level of mother, indicated by selecting the highest level of education completed from seven education categories (question #80, ordinal);

i) education level of the father, indicated by selecting the highest level of education completed from seven education categories (question #77, ordinal);

j) parent status indicated by yes/no response to the question of whether they are first time parents (question #62, nominal);

k) perceived health status of the mother, indicated by selecting from four response categories ranging from 1-excellent to 4-poor on a likert scale (question #71, interval);

l) perceived health status of the infant, indicated by selecting from four response categories ranging from 1-excellent to 4-poor on a likert scale (question #70, interval);

n) smoker/non-smoker, indicated by yes/no answer categories (question #81, nominal);

2) **The mothers' knowledge of infant nutrition:**

Mothers' knowledge is conceptualized as the mothers' understanding of and familiarity with the infant feeding information that is covered in the infant nutrition classes. Several infant feeding issues are assessed, including: breastfeeding, formula feeding, common misconceptions regarding infant feeding (i.e.: solids help infants to

sleep through the night), safe introduction of cow's milk, appropriate methods and timing for introducing solid food, the need for juice and water, and safety issues pertaining to choking and dental caries.

Mothers' knowledge is measured with a set of 12 questions covering various topics that are discussed in the infant nutrition classes, that are answered as 'yes', 'no', or 'don't know'. The answers are coded as 1 being correct and 2 being incorrect. The questions are based on the objectives for the infant nutrition classes, and have been developed with the aid of the Home Economists who teach the classes. Parents' knowledge of infant nutrition is measured with questions #46 to #59, with there being two separate questions for those who are breastfeeding and those who are formula feeding. Knowledge is represented by an overall total score (out of 12) for each respondent (ratio).

3) **Behavioural variables**:

The behavioural variables investigated are all nominal measures and include:

a) Previous experience with attending classes, indicated by asking if they have attended classes in the past to receive information on health related issues (question #60);

b) previous attendance at prenatal classes, indicated by yes/no answer categories (when pregnant with this baby - question #61, or with a previous pregnancy - question #64);

c) previous attendance at infant nutrition classes, indicated by yes/no answer categories (question #65);

4) **Information Preferences:**

Information preferences are conceptualized as the mothers' preferred, or most desired methods for receiving infant nutrition information. To determine the preferred way to receive infant nutrition information the respondents are asked to choose from a ten item list the one method that they most prefer (question #3, nominal).

5) **Beliefs:**

The belief variables focus on what the respondents expect as outcomes of attending the infant nutrition classes and include:

a) Outcome expectancy beliefs:

Outcome expectancy beliefs are conceptualized as what the mothers expect to result as a consequence of attending an infant nutrition class. This variable has been taken from the Value Expectancy Theories which states that people will choose behaviours that maximize positive outcomes and minimize negative outcomes (Carter, 1990). Outcome expectancy beliefs are measured with six questions that are adapted from Ajzen and Fishbein's (1980, p. 261-274) recommendations for constructing a questionnaire. The respondent indicates how likely they think it is that a variety of different outcomes will occur. The response categories consist of a 5-

item likert type scale, ranging from 5-very likely to 1-very unlikely (questions #31 to #36, ordinal).

b) Outcome value:

Outcome value is conceptualized as the value that the parents place on the outcomes that are expected to occur as a result of attending an infant nutrition class. This variable, which is included to better predict how much the various outcome expectancy beliefs contribute to the decision to participate or not participate, is also from the Value Expectancy Theories (Carter, 1990). The respondents choose on a 5 - item scale how much they value each of the expected outcomes, with 5 being a very high value and 1 being a very low value (questions #38 to #43, ordinal).

c) Outcome index:

An outcome index is produced by multiplying the respondents expectancy rating by the value rating for each possible outcome, and then adding these products together to produce an overall measure for outcome beliefs (i.e.: (outcome 1 x value 1) + (outcome 2 x value 2) + ...). The values for the index have a possible range between 6 and 150, with higher values indicating more positive outcome beliefs (based on questions #31 to #43, ordinal).

6) **Barriers and incentives:**

Barriers and incentives are conceptualized as the factors that may prevent or encourage parents to attend the infant nutrition classes. These factors are identified to aid in assessing how the classes are currently organized and presented.

a) Barrier and incentives:

Barriers and incentives can be related to the four elements of product, place, promotion and price, which are social marketing concepts:

i) Promotion - this refers to how the target audience is made aware of the classes, and how their attendance is encouraged, with regards to the promotional letter and the promotion by the public health nurses. Promotion is measured with three questions, two having yes/no responses to the questions asking if the letter thought to provide enough information about the classes, if the public health nurse promoted the class, and then another question asking the respondent to indicate the type of contact they had with the public health nurse (questions #13 to #15, nominal).

ii) Product - this refers to the topics and information made available at the classes. This issue is investigated by asking parents what topics they think are important, with an open ended question having pre-coded answer categories (question #4, nominal).

iii) Place - this refers to the convenience of the class timing and location. Respondents are asked about the convenience of timing and location as part of a series of questions pertaining to possible barriers to participation described next under 'price'. Respondents are asked to rate the degree to which they agree or disagree that these two issues are possible barriers using a five point scale. The five item scale ranges from 5 - strongly agree to 1 - strongly disagree (questions #16 & 18). If timing and convenience were not

considered convenient respondents were asked to give their preferences for alternatives using pre-coded open-ended questions (questions #17 & #19).

iv) Price - this refers to additional barriers to participating, such as lack of transportation, baby-sitting or time. For these barrier questions respondents are asked to state how much they agree or disagree with the possible barriers and incentives. The five item scale ranges from 5 - strongly agree to 1 - strongly disagree (questions #20 to #25, ordinal).

b) Barrier score:

A barrier score is produced by taking the average value for the respondent's rating of eight barrier questions, that are measured on the five item agree/disagree scale described above. The values for this score range between 1 and 5 with values closer to one indicating that more barriers are experienced. This scale provides an overall measure for the degree that barriers to participation are perceived (questions #16,#18, #20 to #25, ordinal).

4.2 Additional variables explored as factors related to participation:

Several variables are included in this study in order to explore their relationship to participation:

1) Current feeding practice - this involves two questions: one asking if the mother is breastfeeding and/or formula feeding her baby, and the second asking if solids have been introduced yet. These questions are asked to determine if there are differences between participants non-participants in their feeding practice (questions #44 and #45, nominal)

2) Baby's age - indicated by asking for the baby's date of birth, and from this age in days at the time of the class is calculated, to determine if the average ages of the babies differ between those who participate and those who do not (question #69, ratio);

3) Number of other children - indicated by open ended response, to determine if the rank of the baby (i.e.: second, third child, etc.) is related to the participation of those with other children (question #63, ratio);

4) Age of other children - indicated by reporting actual age, to determine the time gap between last child and the new baby. This is asked to determine if this time gap is a factor related to participation of those with other children (question #63, ratio);

5) Sources of infant nutrition information used - indicated by an open ended response. The relationship between sources of information used and participation is explored with this question (question #1, nominal);

6) Most useful source - indicated the source of information that they have found to be most useful with an open ended response, in order to determine if those who participate differ in their opinion of useful sources of information from those who do not participate (question #2, nominal);

7) Preferred timing for receiving infant nutrition information:
The respondents are asked what types of information they perceive as necessary at different times or stages of their child's life, and how they prefer to receive this information at these different times, using open-ended questions Those who participate in the infant nutrition classes may differ in their preferred timing for information from those who do not participate (question #5, nominal).

8) Perceived necessity of an infant nutrition class - determined by asking the respondents if they feel a class is necessary with yes/no answer categories, and explore how this variable relates to participation (question #27);

9) Perceived adequacy of knowledge - an open ended question is used to determine if a respondent feels that their knowledge of infant feeding is adequate, and how this opinion relates to participation (question #6, nominal).

10) Type of transportation available - indicated with an open ended response to explore if those who participate have access to different types of transportation that those who do not participate (question #67, nominal).

11) Number of people in household - indicated with an open ended response to confirm family type, and indicate social support. (ordinal - question 64).

12) Perceived difficulty with attending because of other children - an open ended question is used to determine if parents find that having other children makes it difficult to attend a class in the community (question #66, nominal).

13) Opinion on who should sponsor the infant nutrition classes - indicated with an open ended response, to determine if this is a factor related to participation (question #29, nominal).

14) Opinion on who should teach the infant nutrition classes - indicated with an open ended response (question #30, nominal).

15) Preferred length for a class - respondents were asked to indicate an appropriate length of time for an infant nutrition class with an open ended response (question #28, nominal).

16) Social support - respondents are asked to indicate who they perceive as giving them the most help and support with their baby with an open ended response, which will indicate if lay or professional support is more predominant, and if this is a factor related to participation (question #68, nominal).

17) Confidence with infant feeding - respondents rate their confidence on six infant feeding issues with a five point scale ranging from 1- very high confidence to 5 - very low confidence. A scale is produced by taking the average value of the ratings for the six confidence questions to give an overall measure of confidence with infant feeding that can range between 1 and 5 (questions #7 to #12, ordinal).

18) Reassurance - an open ended question is used to obtain respondents comments regarding the types of reassurance that parents of infants may be looking for (question #37, qualitative)

19) Reasons for not attending - an open ended question is used to obtain respondents comments on why people may not attend an infant nutrition class, to determine if there are any barriers other than those covered with the structured barrier questions (question #26, qualitative).

Chapter 5

Phase 1: Preliminary Exploratory Interviews

5.1 Objectives of the exploratory interviews

The objectives for these interviews were as follows:

i) to ask broad questions that will encourage parents to share their thoughts regarding important factors influencing participation, i.e.: what parents think the possible outcomes of attending are, their preferred methods for receiving infant feeding information, their perceived need for this information, and possible barriers to attending, etc.;

ii) to ensure that the answer categories on the questionnaire are as complete as possible;

iii) to confirm that irrelevant information will not be included in the survey;

iv) to see if the parents can provide any new information that has not yet been considered.

v) to see if there any special language or terminology to be considered.

5.2 Sampling procedure

The desired sample size for the exploratory interviews was approximately 40. A sample was selected in proportion to the attendance in each geographic area. The number of interviews required from each area to obtain the desired sample size was calculated as follows:

$$n = \frac{niNi}{N}$$

n = calculated proportional sample size
ni = desired sample size
Ni = number of parents in each area in the sampling frame
N = total number of parents in the sampling frame

For example, in Charleswood a total of 66 invitational letters were mailed out. The desired sample size was 40, and the total number of letters mailed for the Winnipeg Health Region was 444. The sample size for Charleswood would therefore be six:

$$\frac{(40)\,(66)}{444} = 6$$

5.3 Qualitative interview methods

Qualitative research is based on a phenomenological perspective, the aim of which is "understanding social phenomena from the actor's own perspective" (Taylor & Bogdan, 1984 p.2). In other words, to understand people's perceptions of reality. The focus of qualitative research is on concepts, and usually utilizes unstructured, analytic methods (Corbin & Strauss, 1990; Taylor & Bogdan, 1984). Qualitative and quantitative methods can be used together, as in this study where qualitative exploratory interviews are used to develop quantitative measures (Bauman & Greenberg, 1992; Steckler et al., 1992).

Interviews with parents were conducted throughout the Winnipeg Health Region, prior to the quantitative survey. These interviews have been conducted by telephone due to the constraints of time and money, and because of the advantages of this method as previously described. A systematic random sample of 47 parents was contacted for the qualitative interviews, using the same sampling frame as for the quantitative survey: parents who are invited to the infant nutrition classes in the Winnipeg Health Region. The number of participants and non-participants in the sample were selected in proportion to the number of participants and non-participants from each class in one month. The subjects were called repeatedly at different times of the day, and on different days of the week before being declared a `no contact'. The number contacted is larger than the number originally desired because time and the sampling frame allowed for more interviews to be conducted.

These exploratory interviews were conducted with the parents after the infant nutrition classes they were invited to were over. The responses of the interviewees were audio-taped. An interview guide, which lists the general areas that were covered with the respondents can be found in Appendix 3. The questions are structured with an open-ended response format, although not all the parents were asked the same questions.

5.4 Data analysis

Analysis of the interviews involved preparing a short resume (summary notes) of each interview from the audio tape, highlighting the key concepts and issues

discussed. Then patterns and similarities in the concepts amongst the interviews were looked for. This data was then used to revise the questions and the answer categories for the questionnaire, and to assess the relevance of the various question areas, and to ensure that all relevant factors related to participation would be considered. This procedure follows that recommended by Oppenheim (1992, pp.65-80), for exploratory interviewing.

5.5 Results and discussion

Forty two interviews were completed out of 47 contacts, with a systematic random sample of 23 participants and 24 non-participants of the infant nutrition classes, during October, 1994. There were five who refused the interview, resulting in a refusal rate of 10.6%. These interviews were conducted with the mothers specifically.

Several aspects regarding parents' information needs and expectations were made apparent by these pilot interviews that had not been previously considered. For instance, when the respondents were asked what topics they felt were most important to receive information on with regards to infant feeding, there was a variety of different responses. Two respondents said that they feel that parents need to get information on monitoring their baby's growth and development. Other responses in reference to the topics that parents want information on included allergies, and the use of juices. As a result these topic areas which had not been previously considered

were added to the list on the questionnaire for respondents to choose from to indicate what they feel the most important things are for parents to receive information on.

These interviews also provided new information on the sources of infant nutrition information that has been used. For instance, nine respondents specifically mentioned the hospital as a source of information, and seven stated that they have used information received from baby food companies. These sources of information were then added to the list of choices that appear on the questionnaire.

New information was obtained with regards to what parents expect to get out of an infant nutrition class. Twelve of the respondents said that they would expect reassurance, in terms of reaffirming that they have been doing the right things as parents, and to know that their child is developing properly. Four respondents said that they would expect to get information on behaviour, growth and development from the classes. Three respondents also specifically mentioned being able to consult with a professional as an expectation. These are all new expectations that had not been previously considered and which were added to the questionnaire. Several respondents also discussed the issue of sorting out conflicting information, confirming that this is an important outcome of the classes.

These interviews also presented a strong theme from mothers that had not been anticipated. This theme involves how parents' need for information changes as their children grow older, and how important the timing is for receiving different types of information. For instance, several of the mothers said that the information on breastfeeding and bottle-feeding should be offered earlier, and then a separate

class be held on introducing solids at the 3-4 month stage. Four of the respondents, who have other children, specifically said that classes should be offered for feeding older children (toddlers). For example, one mother said that she has a two year old and that children are very picky and fussy at this age, she stated that:

> "...it is so frustrating for a first time parent because you don't know if they are eating properly and it would help if there was a course on that when children are between one and three years of age."

It is important, therefore, to consider the timing and the changing informational needs of parents when promoting an infant nutrition class. This issue was then further explored in the survey by asking the respondents if they feel the timing of the infant nutrition class is appropriate, and also by specifically asking about what information is most appropriate at different times.

The information from these interviews also suggests that the promotion of the classes by the Public Health Nurses has been inconsistent, and therefore this issue received further exploration in the survey. Inconsistent promotion is made evident by the number of first time mothers in the sample who indicated that the Public Health Nurse did not encourage them to attend. As a result, a section of the survey pertains to promotion, with questions that ask if the Public Health Nurse mentioned the classes to the mothers, or if the nurse encouraged them to attend.

These interviews confirm that those who attend the infant nutrition classes are mostly first time parents; however, there were several respondents who were first time parents that did not attend. This fact indicates that the classes require better

promotion and marketing, and as a result more detailed questions on how well the classes are promoted were included in the questionnaire. These interviews also confirmed that first time mothers have different concerns and questions than those who are not first time mothers, and therefore separate questions were developed for these different types of parents on some issues. For example, having other children can present more barriers to attending a class, and therefore those with other children were asked different questions concerning barriers to attending in the quantitative survey.

Many of the respondents provided comments and suggestions pertaining to the timing, format, and publicity of the classes that need to be considered for improving the marketing of the infant nutrition classes. For instance several of the mothers suggested that the classes could be divided into different sections, one on breastfeeding and formula feeding that is offered sooner, and one later on for introducing solids. Other respondents emphasized a need to have the classes offered more often than just once a month so that there are more options for when they can attend. Others suggested that the publicity for the classes could be improved by promoting them at doctors' offices, prenatal classes, and in the hospitals.

Chapter 6

Phase 2: Quantitative Survey

6.1 Subjects and sampling

The population: All births in the Winnipeg Health Region are recorded on post partum referral forms in the hospital, which are then sent to the public health offices. Information from these forms is recorded in log books at the public health office closest to the parents' homes. Parents of newborns in the Winnipeg Health Region who are registered in the log books by the Public Health Nurses at the public health offices comprise the population. The Home Economists send letters to the parents registered in these log books to invite them to the infant nutrition class. The study was conducted with mothers attending one class in the fall season, between September and December, 1996.

A small number of parents who are registered in the log books are not sent the invitational letters. Reasons why parents would not receive a letter include: adoption, apprehension or death of the baby; illness of the mother or baby; the family moving out of the area; or because the family does not speak or comprehend English. For example, a family was not sent a letter because the baby was born prematurely and the nurse wanted to wait to ensure that the baby will survive. In another case, a family was not sent a letter because the mother had breast cancer.

The sampling frame: Those names recorded in the log book that are indicated as having been sent a letter comprise the sampling frame. Access to the names and telephone numbers of the parents for the purpose of this study was approved by Manitoba Health. A telephone list was created from the sampling frame so that the parents could be contacted for the survey.

Sampling procedure: There are seven classes held in different geographical areas within the Winnipeg Health Region, and each was sampled separately. A systematic random sample of parents was selected in proportion to their occurrence in each geographic area, from the list of parents who were sent invitational letters. A concern that this method may not allow enough participants to be surveyed resulted in all the participants being included in the survey. In other words, when the sample was selected some mothers from this sample became participants and others non-participants, and others who registered for the classes were included in the survey to yield the total population of participants. This means the survey was conducted with the census of participants, and a systematic random sample of non-participants. The survey was conducted after the parents received the invitational letter but before the classes occurred, therefore the names of those who registered for each class were collected so that all the participants could be included in the survey.

Sample size: The number of subjects required was finalized after a pre-test which helped to establish the rate of refusal to complete the questionnaire. The desired sample size was approximately 200-250, to ensure 80% power at 5% significance level (the population size usually ranges between 400-500 parents invited

to a class per month). A record of the number of participants and non-participants by geographic area was kept for a year (1994), which also helped to establish the final sample size.

The sample size was determined using the same method previously described for the qualitative interviews. To review, the calculation is as follows:

$$n = \frac{ni\ Ni}{N}$$

n = calculated proportional sample size
ni = the desired sample size
Ni = the number of parents in one area
N = the total number of parents for all seven areas

6.2 Instrument design and development

Telephone survey questionnaire: A telephone survey method was chosen for the study because it is suitable for the information desired, and it allows for a large number of subjects to be contacted in a short time (Singleton, Straits & Straits, 1993). A telephone survey is also well suited for specialized target groups, such as the parents who are the target group for this study, and assists in reaching those who choose not to participate in the classes (Singleton, Straits & Straits, 1993).

The questionnaire was designed following the procedures of Dillman (1978) and Oppenheim (1992). Using these procedures, methods for increasing the response rate were used, including sending a preliminary letter explaining the study, conducting initial exploratory interviews to ensure that the questions asked are appropriate, and pre-testing the survey.

The questionnaire used in the interviews was developed for the study, with the question items based on:

i) the knowledge of the Home Economists who teach the infant nutrition classes, regarding factors that they believe affect participation in the classes;

ii) a literature review;

iii) qualitative interviews with participants and non-participants, which have been described previously as Phase I (Chapter 5);

iv) a pre-test of the survey methods and questionnaire.

6.3 Survey implementation

Parents of all new births are routinely sent a letter when their infants are approximately between two and four months old inviting them to attend an infant nutrition class. The letter outlines the topics to be covered, and is usually sent about two weeks prior to the class. Parents are requested to register for the class by telephoning the health office. For this study a second letter was included with the invitational letter to inform the parents that they may be contacted and asked to participate in a telephone survey (Appendix 4).

One week after the letters were sent out for each class, a systematic random sample mothers was telephoned for the survey. The telephone survey was conducted with the mothers before the class they were invited to was held. Informed verbal consent was obtained from the mothers at the start of the telephone interview (Appendix 5). The names and numbers of those who registered for the classes were collected so that they could be included in the survey. This allowed one week for the survey to be completed before each class. Those who refused participate in the survey were asked to answer a five-item socio-demographic questionnaire (i.e. age, income, education, employment status, occupation), in order to determine if those who answered the questionnaire differed from those who did not (Appendix 6). This was done to determine the ability to generalize study results to the total population. The subjects were called repeatedly at different times of the day, and on different days of the week before being declared a 'no contact.'

6.4 The pre-test

To pre-test the telephone survey methods and procedures 59 parents were contacted of which 56 completed the survey. These 56 respondents included 33 participants (an evening class of participants from St. Vital was not included in the pre-test due to the large numbers), and a systematic random sample of 23 non-participants. It was not possible to interview the total population of participants for the pre-test, as this would have resulted in a large number of interviews. The desired number of interviews for the pre-test was 40, as a result 12 participants from the St.

Vital evening class were not contacted, although the afternoon class was included. The pre-test results provided information regarding the suitability of the sampling scheme, the refusal rate, the wording of the questionnaires, the parents' ease with the questionnaires, the time required to complete each questionnaire, and data analysis.

The records indicate that approximately 10-20% of those invited to the classes choose to attend. Prior to the survey there was a concern that the act of surveying those invited to the classes before the class occurs could influence these rates, and result in more people choosing to attend. The pre-test indicated that this influence did not occur, because the participation rates in the classes did not increase, and the Home Economists teaching the classes asked the mothers attending if being contacted for the survey influenced their decision to attend.

One issue that was made apparent with the pre-test was the difficulty for one person to conduct a large number of interviews in a short period of time. As a result, two interviewers were hired to assist with the larger survey.

6.5 Interviewer training

Two interviewers, one a student with the department of Foods and Nutrition (U.of M.) and one having a degree in nutrition, were hired and trained. Each interviewer participated in two training sessions, in order to standardize the interview procedures. A training manual was developed and provided to each interviewer. This manual consisted of information on the purpose and methods of the study, the

interviewing procedures, ethics, an explanation of possible interview situations and an agenda for the survey. Infant nutrition information was also included with the training material to provide a review of relevant issues.

Training involved role playing to practice the interview procedures. One session consisted of tape recording the role playing, and the second involved actual practice sessions over the telephone. The interviewers were provided with all necessary supplies, including pencils, paper, and the questionnaires. The interviewers were able to conduct the interviews from their own homes or they were also able to use the community nutrition office in the department of foods and nutrition, University of Manitoba. The researcher maintained daily contact with the interviewers to monitor the interviewing process, and discuss any questions that arose.

6.6 Data analysis

Reliability of the knowledge test:

Kuder Richardson 20 (KR20) formula was used to determine internal consistency reliability, a measure designed for dichotomously scored items (Carmines & Zeller, 1979, p.48). Internal consistency reliability provides an examination of the relationships among all the items simultaneously, to indicate the extent to which they measure the same concept (Singleton, Straits & Straits, 1993). For example, the KR20 formula provides an intercorrelation measure by correlating each item in the

scale against every other item (Carmines & Zeller, 1979). The KR20 measure varies between zero and one with values closer to one indicating greater internal consistency reliability. The KR20 coefficient was 0.43. A total of 12 questions were selected and revised for the actual survey. The KR20 coefficient for the questions selected for the survey was 0.65.

Item analysis of knowledge test:

Item analysis was used to determine question difficulty and discrimination ability of the set of knowledge questions. Item analysis uses item discrimination and difficulty to evaluate items in terms of their contribution to the total score (Dignan, 1989). Discrimination refers to how well the item discriminates between those with high scores and those with low scores. Item difficulty refers to the total number who answered the item correctly.

A total of 30 question items were analyzed for the pre-test of the knowledge questions. The pretest results showed that the items had poor discrimination ability, not distinguishing between those with high scores and those with low scores (Dignan, 1989, pp. 65-67). Most questions were also shown to be easy. Easy questions are defined as those that were answered correctly by more than 70 % of the respondents.. The item analysis showed a improvement in the questions used for the survey. Eleven out of the 12 questions showed good discrimination and one fair; however, the questions were still being measured as easy, with only three showing moderate difficulty.

Content validity of knowledge questions:

Content validity was assessed by having an expert panel, consisting of the researcher's advisory committee, the Home Economists who teach the classes, and graduate students in nutrition, review the questions items. This panel assessed the questions for appropriateness, comprehensibility, and readability. Content validity was also assessed by a group of parents from the target population who considered the questions for the same features.

Analysis of survey data:

Frequency distributions were examined in order to determine the extent of variation in the variables. Means and standard deviations were calculated for continuous data. Contingency table analysis with Chi square tests were conducted to measure the association between participation and the other variables investigated, and to test the hypotheses. The total numbers of participants and non-participants are different, and as a result the percentage distributions were used for the contingency tables. The z test for large sample data was used to measure the difference between the means for continuous data. When a study sample is large, as in this study, the variance estimate is assumed to closely reflect the actual population variance, and the z test is used rather than the t-test for small samples (Mendenhall & Beaver, 1991, pp.281-324). Three way contingency tables have also been used to control for variables suspected to influence the relationship between another variable and participation. Alpha levels below 0.05 are considered significant.

A result of the total population being divided among seven areas is that the differences between participants and non-participants are not similar in all areas, a situation that is termed Simpson's Paradox (Stewart, 1993). To test the hypotheses the differences between participants and non-participants have been broken down by each area of the Winnipeg Health Region. Each area was weighted according to its proportion of non-participants to the total sample of non-participants in order to give more precision when determining the differences (as recommended by the Statistical Advisory Service of the University of Manitoba, 1996). This calculation consists of the proportion of non-participants for each area multiplied by the percentage differences between the participants and non-participants in the same area. The product obtained for each area is then added to obtain the overall difference between participants and non-participants. The overall differences between the proportions of participants and non-participants were then measured with the z-test statistic (Mendenhall & Beaver, 1991, p.305). A finite population correction factor was used to reduce the amount of variation, due to the fact that the non-participants were not sampled from an infinite population. The correction factor is based on the proportion of the population that is not surveyed and equals 0.72 (28% of non-participants sampled, therefore 1-.28 = .72). This factor is multiplied by the variance of the weighted difference between the participants and non-participants. There is no measure of variability used for the participants, since they represent a census, with no uncertainty existing in the measures pertaining to them.

Part III Results, Discussion and Conclusions

Chapter 7

Survey Results

7.1 Response Rate

The survey was conducted for each of the seven areas in the Winnipeg Health Region between September and December 1995. The sampling frame consisted of a total of 491 parents invited to the infant nutrition classes during the study period. The total population of participants and a systematic random sample of non-participants were surveyed. Figure 7.1 illustrates the process for survey completion.

The total number of completed surveys is 177, which includes 55 participants and 122 non-participants. There were 39 surveys not completed because of inability to contact, wrong numbers, telephones not in service; and there were 35 people contacted who refused. Of those who did not complete the survey there were 6 participants and 68 non-participants. The overall response rate is 83.5%, based on number completed out of those contacted (177/212).

The survey occurred after the parents received the letters and registered for the classes, but before the class itself occurred; therefore, participants are defined as those who register for the classes. Of the 55 participants who completed the survey there were 13 who registered and then did not attend. These 13 are considered to be participants because they registered for the classes with the intention to attend, and it was determined that they do not differ from those who did actually attend on several key variables (Appendix 7). There were also two participants who attended the classes without registering, with only one of them completing the survey.

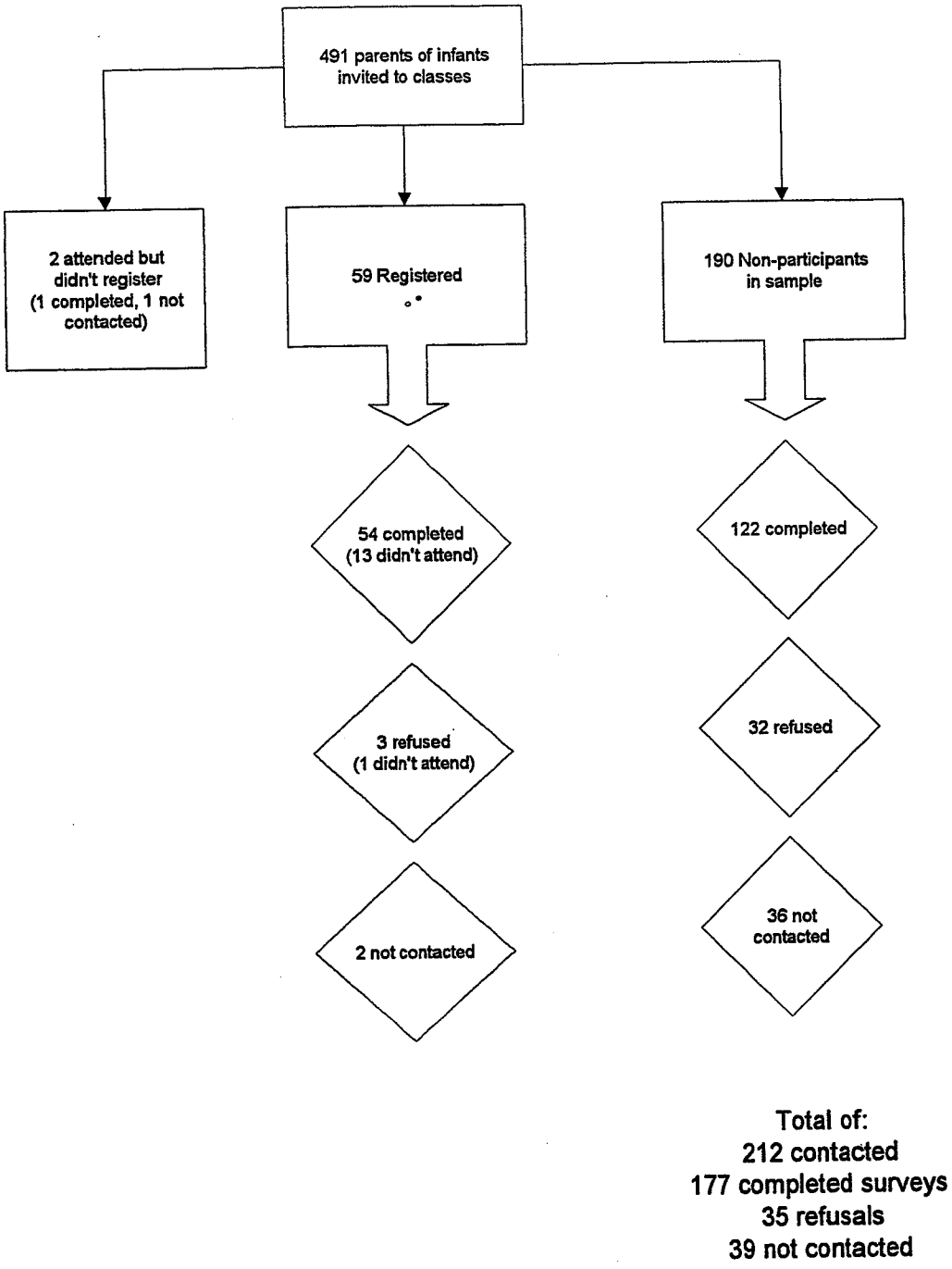


Figure 1: Flowchart of survey completion

A critical question is whether those who refuse to be surveyed differ from those who complete the survey. Those who complete the survey are compared to those who refuse in order to determine if those who were interviewed are representative of the total population of parents with infants in the Winnipeg Health Region. A non-responder questionnaire was completed by 25 of those who refused to complete the survey (n=35),providing information on the mother's age, employment status, occupational status, education and family income. While the survey was being conducted it appeared that a large majority of those refusing to complete the surveys were not first time parents; therefore, a question was included for 14 non-responder questionnaires on whether or not the person refusing is a first time parent. The information collected is provided in Table 7.1 below as a comparison to those who completed the survey.

Table 7.1: Comparison of those who completed and those who refused

Variable	Completed survey % (n=177)	Refused survey% (n=25)
Mom's age: < 20	4.52	8.00
20 - 24	9.04	8.00
25 - 29	30.51	28.00
30 - 34	40.68	36.00
35 - 39	12.43	16.00
≥ 40	2.26	4.00
no response	0.56	0.00
Chi square: 1.35 p=0.969		
Mom's employment: full time	40.11	24.00
part time	25.42	36.00
student	2.26	4.00
not employed	29.38	32.00
other	1.69	4.00
no response	1.13	0.00
Chi square: 3.60 p=0.609		

Table 7.1 continued:

Variable	completed survey % n = 177	refused survey % n = 25
Mom's occup'l status:		
not employed	32.20	40.00
semi-skilled	18.64	16.00
skilled	26.55	28.00
professional	21.47	16.00
no response	1.13	0.00
Chi square: 1.10 p=0.894		
Mom's education: < gr.12	13.10	32.00
grade 12	29.50	44.00
trade school/some univ'ty	26.70	16.00
university degree	30.70	8.00
Chi square: 11.58 p=0.009		
Income: < 20 000	8.47	8.00
< 30 000	5.08	16.00
< 40 000	15.25	12.00
< 50 000	15.82	12.00
< 60 000	15.25	8.00
< 70 000	9.04	4.00
≥ 70 000	17.51	0.00
don't know	5.65	16.00
no response	7.91	24.00
Chi square: 19.38 p=0.013		
Income (collapsed): < 40 000	28.80	36.00
≥ 40 000	57.60	24.00
don't know/no response	13.60	40.00
Chi square: 14.11 p=0.001		
Marital: married/commonlaw	92.70	80.00
single	7.30	20.00
Chi square: 4.32 p=0.038		
Parent: first time	41.24	35.70
other children	58.76	64.30
Chi square: 0.16 p=0.685		(n = 14)

According to these results, those who refused the survey are significantly ($p < 0.05$) more likely to be single, with lower total family income and lower education levels. These differences may indicate that the study sample is not completely representative of all parents invited to the infant nutrition classes; however, a response rate of 83.5% means the proportion of non-response bias is relatively small.

7.2 Description of the survey respondents by geographic area and income

A brief description of the survey respondents as a whole is provided by looking at the distribution of participants and non-participants in each area of the Winnipeg Health Region, and by looking at income distribution. This information can be of value to those who provide the infant nutrition classes by giving them a better understanding of the population of parents that they are servicing in the Winnipeg Health Region.

The distribution of respondents over the seven areas of this region is shown in Table 7.2. Sampling was proportional to the number who are invited to the classes in each area. This proportional sampling resulted in the most respondents being from St. Boniface/St. Vital and the lowest number from Fort Garry. The number in Fort Garry is lower than it would normally be due to a number of parents, scheduled to be invited to the class that was part of the study, being prematurely invited to a class in the previous month. Records indicate that Transcona usually has the lowest overall average for number of parents being invited.

The income distribution of the respondents varies by area. Table 7.3 shows that the largest discrepancy occurs between Charleswood (having the largest proportion of families with incomes greater than $60 000) and Transcona (having the largest proportion of families with incomes below $60 000). Table 7.4 also indicates that the income levels reflect the 1991 census data for the Winnipeg Health Region (Manitoba Bureau of Statistics, 1994). The Winnipeg Health Region of Manitoba Health does not include the core area of Winnipeg city.

It can be seen from Table 7.4 that except for incomes below $30 000 and the no response rate, the study data closly reflects that of the census data for all census families. The income levels of the Winnipeg Health Region. are high relative to the core area of Winnipeg. For instance, nearly 42% of survey respondents have an income over $50 000. In comparison, Point Douglas in the core area of Winnipeg only has 6.8 % of families with an income over $50 000 (Manitoba Bureau of Statistics, 1994), therefore income levels of respondents in the Winnipeg Health Region appear high compared to the core area of the city.

Table 7.2 Distribution of survey respondents among the seven areas of the Winnipeg Health Region

Area	# of respondents	# of participants
Charleswood	22	7
East Kildonan/North Kildonan	26	5
Fort Garry	9	4
St. Boniface/St. Vital	44	15
St. James	25	9
Transcona	22	8
West Kildonan	29	7

Table 7.3 Income distribution of respondents by area

Area	% families with income >$60 000 (n)
Charleswood	59 (22)
East Kildonan/North Kildonan	23 (26)
Fort Garry	22 (9)
St. Vital/St. Boniface	23 (44)
St. James	32 (25)
Transcona	9 (22)
West Kildonan	21 (29)

Table 7.4 Comparison of study data to census data for income distribution in the Winnipeg Health Region

Income	Study data (%) (n=177)	*1991 census data (%) (n=136565)
≥ $70 000	17.50	18.92
$60 000-$69 999	9.00	9.55
$50 000-$59 999	15.25	13.91
$40 000-49 999	15.80	15.85
$30 000-$39 999	15.25	15.48
< $30 000	13.60	26.34
don't know/no response	13.60	N/A

*Manitoba Bureau of Statistics, 1994

7.3 Comparison of participants and non-participants

The total number of participants differs from the total number of non-participants, therefore comparisons are based on bivariate percentage distributions. Parents of infants are invited to the infant nutrition class occurring in their area of the Winnipeg Health Region, and for this study were surveyed in proportion to the number invited in each area. As a result, each area is weighted according to its proportion of non-participants to the total sample of non-participants (n=122) in order to give more precision when determining differences to test the hypotheses. The differences between the proportions of participants and non-participants for each area are then measured with the z-test statistic. As explained in the data analysis section, a finite population correction factor is also used in determining this statistic in order to reduce the amount of variation, due to the fact that the non-participants were not sampled from an infinite population. There is no measure of variability used for the participants who represent a census (n=55). The weighted results for the bivariate relationships hypothesized are shown in Table 7.5, where participants and non-participants are compared on one category of each variable. The distributions shown in Table 7.5 are based on the number of participants and non-participants in each area. A visual presentation of the differences between the areas in the Winnipeg Health Region for these variables is shown with bar charts in Figures 7.2 -7.19.

The analysis based on the weighted data in Table 7.5 are based on the small numbers of participants and non-participants in each area. The weighted data are also very sensitive at measuring differences that are statistically significant, although not always practically important. Due to these concerns with small total counts in each area and the senstivity of the weighted results, further analysis of the data was conducted by pooling across the areas using a Chi square statistic to measure the association between the variables and participation. The Chi square test statistic assumes that both participants and non-participants are sampled and have sampling error, and therefore is not as sensitive in finding significance as the weighting method. The z statistic for the difference between two means is used for continuous data, and the Aspin Welch statistic for unequal variances is also provided when the variances are unequal. The results for analysis on the pooled data for variables in the hypotheses is presented in Appendix 9.

A number of variables were included in the study to explore further differences between participants and non-participants, and to determine parents information needs and preferences. These variables and their association with participation are explored with Chi square analysis, and the results are presented in Tables 7.6 to 7.15. The variables are grouped into various categories: demographic, socio-economic, knowledge, behavioural and belief, along with variables associated with the promotion and structure of the classes. The variables which are part of the hypotheses are presented first, and these other variables follow.

Hypothesized bivariate relationships:

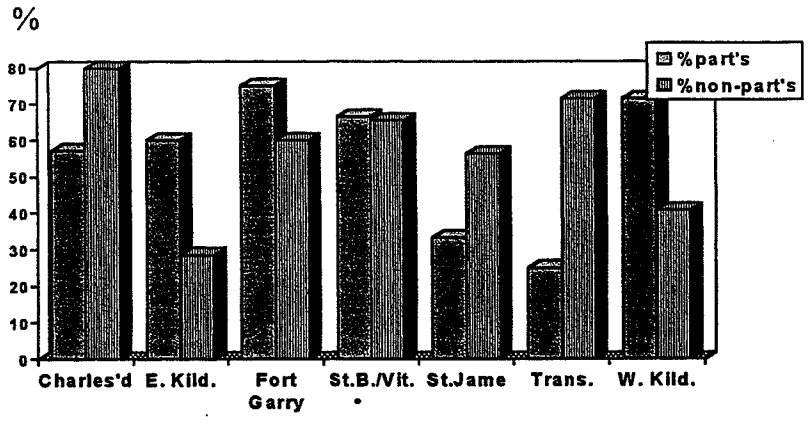
The analysis of the hypothesized relationships reveals that a consistent trend does not always exist across the areas; therefore, the differences between the areas are examined, and the association between the variables and participation are also examined by pooling across the areas. Each hypothesis will be restated, and then the results for the Chi square analysis with the pooled data are presented first, and then the weighted results are presented.

Hypothesis 1:

> Parents who participate are more likely to be older, first time mothers from two parent households, with a higher socio-economic status than those who do not participate.

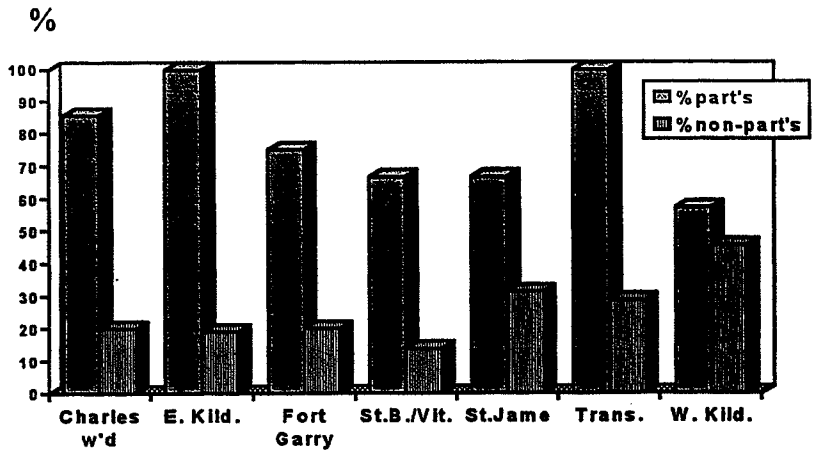
Analysis of the pooled data (Appendix 9) shows that overall there is a trend for more non-participants to be older than the participants, although the association is not significant. Comparing those 30 and older by looking at individual areas reveals that more non-participants in Charleswood, Transcona and West Kildonan are 30 or older than the participants; whereas the opposite is true in the other four areas (Table 7.5, Figure 7.2). The weighted differences across the areas are significant ($p < 0.001$); however, the differences are not consistent across the areas.

Figure 7.2 Mother's age - those ≥ 30 years by geographic area:



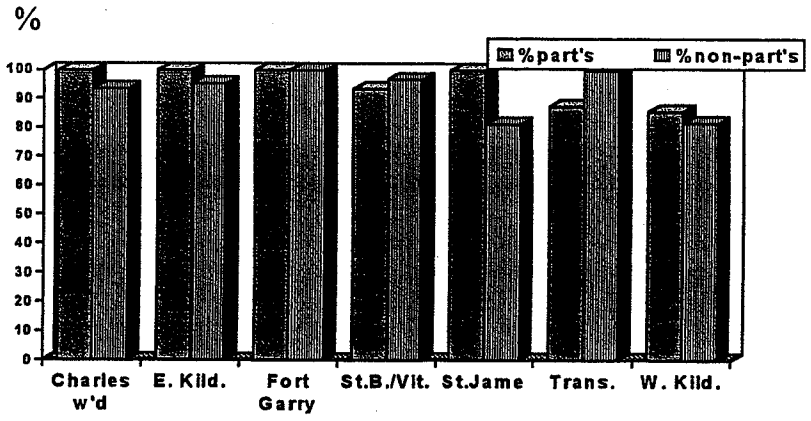
As hypothesized, there is a significant assocation ($p < 0.001$) between first time parent status and participation with the pooled data, with the participants consisting of more first time parents (Appendix 9). This association is consistent and significant ($p < 0.001$) across all areas, as seen in Table 7.5 and Figure 7.3..

Figure 7.3 Parent status - first time parents by geographic area:



The overall trend for marital status, as seen with the pooled data, is that more participants are married with more non-participants living common law or separated (Appendix 9), although this association is not significant for the pooled data. For the weighted data, those who are married and common law are grouped together, in order to compare on two parent household status. Looking across the areas (Table 7.5, Figure 7.4), the differences are not consistent for all areas, although the overall difference is significant ($p = 0.0003$).

Figure 7.4 Marital status - married/commonlaw by geographic area:



Looking at the pooled data (Appendix 9), the association with participation is significant for both mother's education ($p < 0.001$) and mother's employment status ($p = 0.009$), with a higher proportion of participants being employed and having more secondary education. These differences are consistent over all areas as seen in Table 7.5 and Figures 7.5 and 7.6, showing that a higher proportion of non-participants have less secondary education ($p < 0.001$), and are more likely to be unemployed ($p < 0.001$).

Of the mothers who are employed, a larger proportion of participants have professional positions when occupational status is examined, a difference that is not significant for the pooled data (Appendix 9), but is significant ($p < 0.001$) for the weighted data (Table 7.5, Figure 7.7). This trend for occupational status is consistent for most areas except Charleswood and Fort Garry.

Figure 7.5 Mother's education - those with ≤ grade 12 by geographic area:

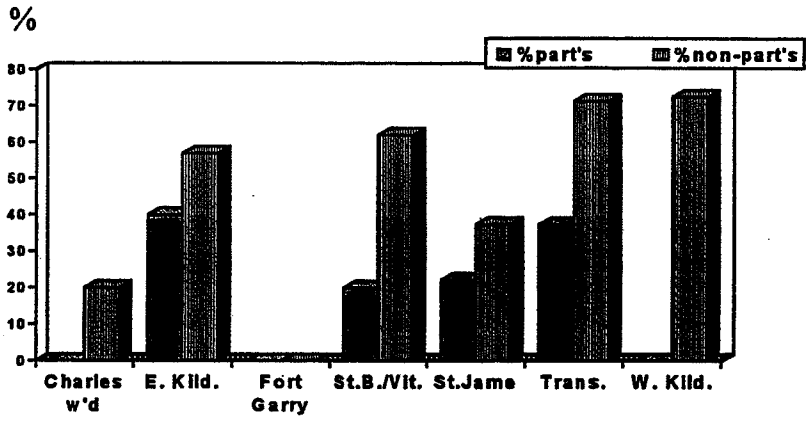


Figure 7.6 Mother's employment - those unemployed by geographic area:

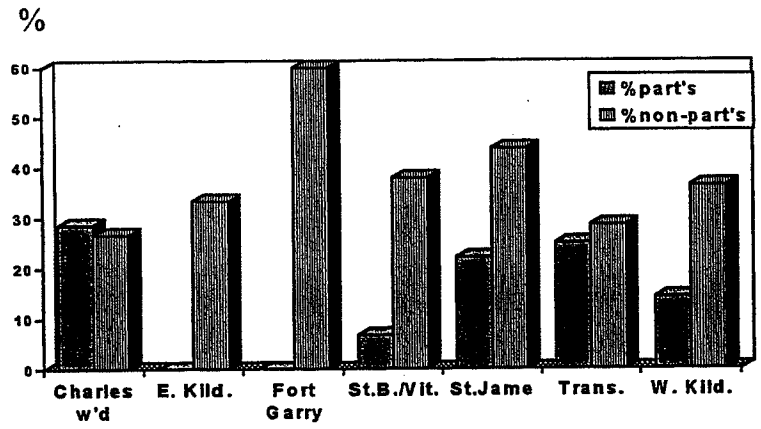


Figure 7.7 Mothers occupational status: professional by geographic area:

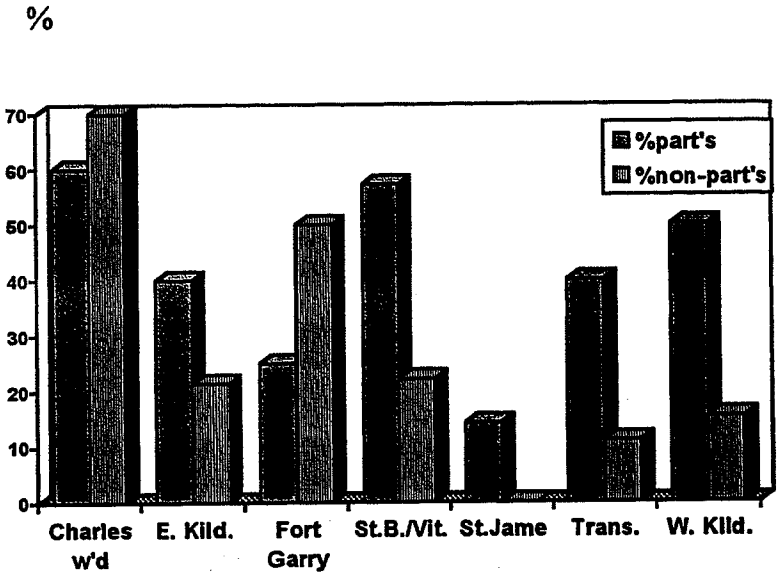


Table 7.5 Variables from the hypotheses

Variable	N part's	N non-part's	% participants	% nonparticipants
			Mother's Age:those ≥ 30:	
Charleswood	7	15	57.2	80.0
East Kildonan	5	21	60.0	28.5
Fort Garry	4	9	75.0	60.0
St. Vital/St. Boniface	15	29	66.6	65.5
St. James	9	16	33.3	56.3
Transcona	8	7	25.0	71.4
West Kildonan	7	22	71.5	40.8
Overall Difference: 22.98				
95% CI: 17.00 ≤ 22.98 ≤ 28.96				
Z = 7.53 p < 0.001				
			First Time Parent:	
Charleswood	7	15	85.7	20.0
East Kildonan	5	21	100	19.0
Fort Garry	4	9	75.0	20.0
St. Vital/St. Boniface	15	29	66.7	13.8
St. James	9	16	66.7	31.3
Transcona	8	7	100	28.6
West Kildonan	7	22	57.1	45.5
Overall Difference: 51.8				
95% CI: 45.10 ≤ 51.8 ≤ 58.50				
Z = 15.15 p < 0.001				
			Marital Status: married/common law:	
Charleswood	7	15	100	93.3
East Kildonan	5	21	100	95.2
Fort Garry	4	9	100	100
St. Vital/St. Boniface	15	29	93.3	96.6
St. James	9	16	100	81.3
Transcona	8	7	87.5	100
West Kildonan	7	22	85.7	81.8
Overall Difference: 7.02				
95% CI: 3.26 ≤ 7.02 ≤ 10.78				
Z = 3.65 p = 0.0003				
			Mother's Education: ≤ gr. 12:	
Charleswood	7	15	0.0	20.0
East Kildonan	5	21	40.0	57.1
Fort Garry	4	9	0.0	0.0
St. Vital/St. Boniface	15	29	20.0	62.1
St. James	9	16	22.2	37.5
Transcona	8	7	37.5	71.4
West Kildonan	7	22	0.0	72.7
Overall Difference: 34.42				
95% CI: 28.01 ≤ 34.42 ≤ 40.83				
Z = 10.53 p < 0.001				

Table 7.5 continued:

Variable	N part's	N non-part's	% participants	% nonparticipants
			Mother's Employment: unemployed:	
Charleswood	7	15	28.6	26.7
East Kildonan	5	21	0.0	33.3
Fort Garry	4	9	0.0	60.0
St. Vital/St. Boniface	15	29	6.7	37.9
St. James	9	16	22.2	43.8
Transcona	8	7	25.0	28.6
West Kildonan	7	22	14.3	36.4
Overall Difference: 20.29				
95% CI: 14.25 ≤ 20.29 ≤ 26.36				
Z = 6.57 p < 0.001				
			Mother's Occ'l Status: prof'l:	
Charleswood	5	11	60.0	70.0)
East Kildonan	5	14	40.0	21.4
Fort Garry	4	2	25.0	50.0
St. Vital/St. Boniface	14	16	57.2	22.2
St. James	7	8	14.3	0.0
Transcona	5	9	40.0	11.1
West Kildonan	6	13	50.0	15.4
Overall Difference: 25.21				
95% CI: 18.79 ≤ 25.21 ≤ 31.63				
Z = 7.71 p < 0.001				
			Father's Education: ≤ gr. 12:	
Charleswood	7	14	14.3	13.3
East Kildonan	5	20	0.0	55.0
Fort Garry	4	5	0.0	20.0
St. Vital/St. Boniface	14	28	28.5	42.8 (
St. James	9	13	44.4	46.2
Transcona	7	14	42.9	71.4
West Kildonan	6	18	16.7	38.9
Overall Difference: 21.32				
95% CI: 15.72 ≤ 21.32≤26.93				
Z = 7.50 p < 0.001				
			Father's Emp't: unemployed:	
Charleswood	7	14	0.0	0.0
East Kildonan	5	20	0.0	10.0
Fort Garry	4	5	0.0	0.0
St. Vital/St. Boniface	14	28	0.0	3.6
St. James	9	13	0.0	0.0
Transcona	7	14	0.0	0.0
West Kildonan	6	18	0.0	5.5
Overall Difference: 3.57				
95% CI: 0.81 ≤ 3.57 ≤ 6.13				
Z = 2.54 p = 0.011				

Table 7.5 continued:

Variable	N part's	N non-part's	% participants	% nonparticipants
			Father's Occup'l Status: professional	
Charleswood	7	14	57.0	78.6
East Kildonan	5	20	80.0	16.7
Fort Garry	4	5	50.0	40.0
St. Vital/St. Boniface	14	28	28.6	22.2
St. James	9	13	11.1	7.7
Transcona	7	14	14.3	7.7
West Kildonan	6	18	50.0	23.5
Overall Difference: 21.44				
95% CI: $16.08 \leq 21.44 \leq 26.80$				
$Z = 7.83$ $p < 0.001$				
			Total Family Income:< $40 000:	
Charleswood	7	15	0.0	6.7
East Kildonan	5	21	20.0	42.8
Fort Garry	4	9	0.0	40.0
St. Vital/St. Boniface	15	29	13.3	37.9
St. James	9	16	0.0	43.8
Transcona	8	14	0.0	57.1
West Kildonan	7	22	14.3	40.9
Overall Difference: 40.55				
95% CI: $33.98 \leq 40.55 \leq 47.12$				
$Z = 12.10$ $p < 0.001$				
			Mother's Health: excellent:	
Charleswood	7	15	57.1	86.7
East Kildonan	5	21	60.0	57.1
Fort Garry	4	9	100	40.0
St. Vital/St. Boniface	15	29	60.0	58.6
St. James	9	16	55.6	68.8
Transcona	8	14	37.5	64.3
West Kildonan	7	22	57.1	40.9
Overall Difference: 14.66				
95 % CI: $9.52 \leq 14.66 \leq 19.80$				
$Z = 5.60$ $p < 0.001$				
			Baby's Health: excellent:	
Charleswood	7	15	100	93.3
East Kildonan	5	21	100	81.0
Fort Garry	4	9	100	80.0
St. Vital/St. Boniface	15	29	93.3	89.7
St. James	9	16	66.7	87.5
Transcona	8	14	87.5	92.9
West Kildonan	7	22	100	86.4
Overall Difference: 11.56				
95% CI: $6.82 \leq 11.56 \leq 16.30$				
$Z = 4.78$ $p < 0.001$				

Table 7.5 continued:

Variable	N part's	N non-part's	% participants	% nonparticipants
			Smoke:	
Charleswood	7	15	0.0	6.7
East Kildonan	5	21	20.0	14.3
Fort Garry	4	9	50.0	0.0
St. Vital/St. Boniface	15	29	0.0	17.2
St. James	9	16	0.0	18.8
Transcona	8	14	25.0	14.3
West Kildonan	7	22	14.3	13.6
Overall Difference: 11.76				
95% CI: $7.11 \leq 11.76 \leq 16.41$				
$Z = 4.96$ $p < 0.001$				
			Knowledge Score: > 9/12:	
Charleswood	7	15	57.2	80.0
East Kildonan	5	21	40.0	76.2
Fort Garry	4	9	75.0	100
St. Vital/St. Boniface	15	29	66.7	75.9
St. James	9	16	77.8	81.3
Transcona	8	14	75.0	64.3
West Kildonan	7	22	85.7	59.1
Overall Difference: 18.73				
95% CI: $13.0 \leq 18.73 \leq 24.4$				
$Z = 6.45$ $p < 0.001$				
			Previous Classes: health information:	
Charleswood	7	15	14.3	20.0
East Kildonan	5	21	20.0	33.3
Fort Garry	4	9	25.0	60.0
St. Vital/St. Boniface	15	29	46.7	37.9
St. James	9	16	22.2	56.3
Transcona	8	14	37.5	35.7
West Kildonan	7	22	71.4	31.8
Overall Difference: 18.32				
95% CI: $12.82 \leq 18.32 \leq 23.82$				
$Z = 6.54$ $p < 0.001$				
			***Attend Prenatal Class:**	
Charleswood	6	3	100	100
East Kildonan	5	4	100	75.0
Fort Garry	3	1	100	100
St. Vital/St. Boniface	10	4	90.0	100
St. James	6	5	66.7	80.0
Transcona	8	4	75.0	100
West Kildonan	4	10	100	60.0
Overall Difference: 18.50				
95% CI: $10.18 \leq 18.50 \leq 26.82$				
$Z = 4.36$ $p < 0.001$ *(1st time parents only)				

Table 7.5 continued:

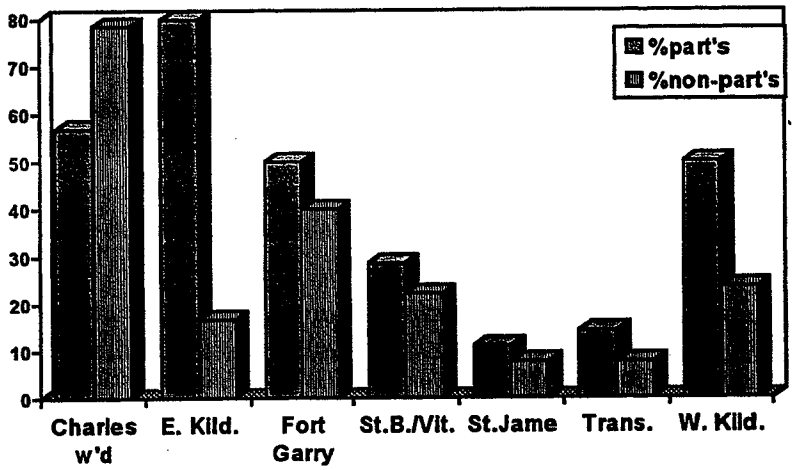
Variable	N part's	N non-part's	% participants	% nonparticipants
			Prefer Method: class:	
Charleswood	7	15	14.3	20.0
East Kildonan	5	21	0.0	0.0
Fort Garry	4	9	0.0	20.0
St. Vital/St. Boniface	15	29	26.7	6.9
St. James	9	16	11.1	0.0
Transcona	8	14	12.5	0.0
West Kildonan	7	22	0.0	9.1
Overall Difference: 10.76				
95% CI: $2.98 \leq 10.76 \leq 18.55$				
$Z = 2.71$ $p = 0.0034$				
			Outcome Index: high outcome >125:	
Charleswood	7	15	42.9	26.7
East Kildonan	5	21	40.0	33.3
Fort Garry	4	9	25.0	20.0
St. Vital/St. Boniface	15	29	33.3	20.7
St. James	9	16	33.3	6.3
Transcona	8	14	12.5	7.1
West Kildonan	7	22	14.3	27.3
Overall Difference: 12.85				
95% CI: $7.89 \leq 12.85 \leq 17.81$				
$Z = 5.08$ $p < 0.001$				
			Barrier Score: high barriers ≤ 3:	
Charleswood	7	15	0.0	40.0
East Kildonan	5	21	0.0	23.8
Fort Garry	4	9	0.0	20.0
St. Vital/St. Boniface	15	29	6.7	44.8
St. James	9	16	0.0	31.3
Transcona	8	14	0.0	21.4
West Kildonan	7	22	0.0	54.5
Overall Difference: 35.3				
95% CI: $28.28 \leq 35.3 \leq 42.32$				
$Z = 9.81$ $p < 0.001$				

A consistent trend also exists with the fathers' education, employment and occupational status. A large majority of the fathers in total are employed, with there being no significant association with participation in the pooled data (Appendix 9). There is a small number of non-participants' spouses/partners that are unemployed in three areas, a difference that is found to be statistically significant ($p = 0.011$) with the weighted data (Table 7.5) but not practically important due to the small total numbers.

There is a trend for more of the participants' partners to have a professional occupational status, again not a significant association with the pooled data (Appendix 9), unlike the statistical significance ($p < 0.001$) found with the weighting method (Table 7.5, Figure 7.8). More participants have partners with a professional position in all areas, except Charleswood.

Figure 7.8 Father's occupational status: professional by geographic area:

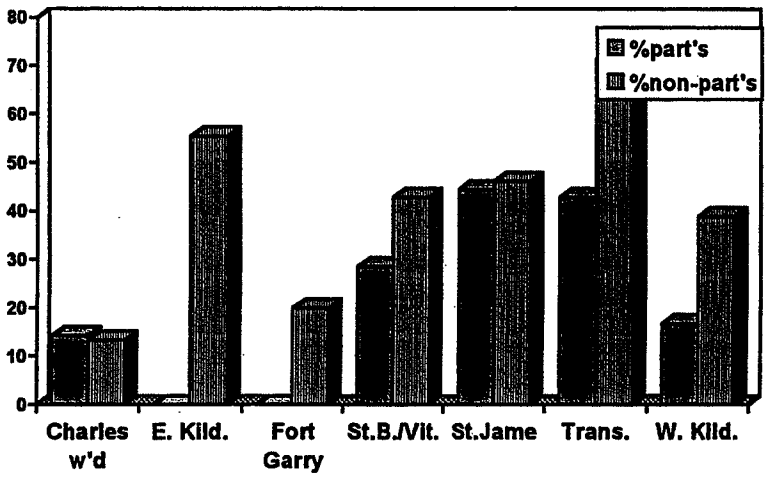
%



A higher proportion of participants' partners have more secondary education, a difference that is significant for both the pooled ($p = 0.032$) and the weighted ($p < 0.001$) data. The differences in education are consistent over all areas except Charleswood, where a larger proportion of the partners of the non-participants have an education of grade twelve or less (Table 7.5, Figure 7.9).

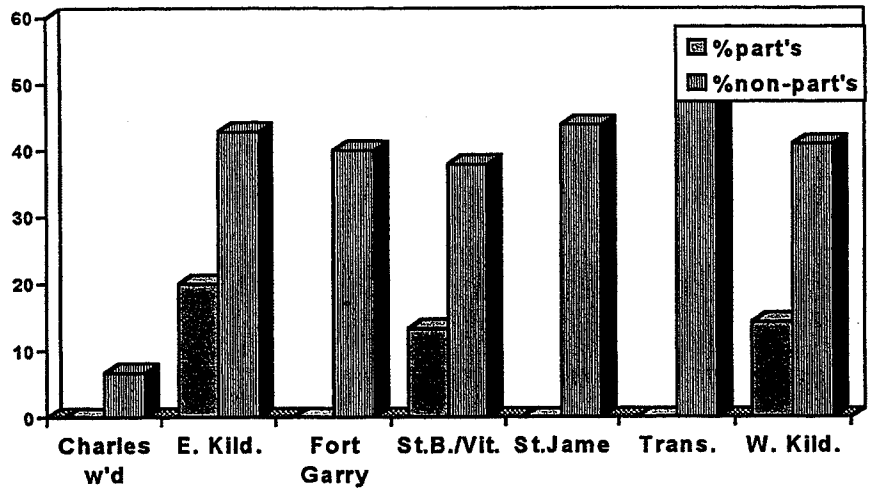
Figure 7.9 Father's education: ≤ grade 12 by geographic area:

%



A significant ($p = 0.014$) assocation with regards to total family income occurs with the Chi square analysis of the pooled data (Appendix 9), with a larger proportion of non-participants having a lower income levels. Differences in income <$40 000 are consistent across all the areas (Table 7.5, Figure 7.10). confirming that significantly ($p < 0.001$) more non-participants have incomes below $40 000.

Figure 7.10 Total family income: < $40 000 by geographic area:



The socio-economic data strongly supports the hypothesis that those who participate in the infant nutrition classes are of a higher socio-economic status. This is confirmed for employment, education and income variables.

Hypothesis 2:

Participants are more likely to consider themselves and their infants to be healthy.

The majority of all respondents rate both their own health and their baby's health as being excellent or good, therefore there was a lack of variation on these variables. No significant associations occurring for the pooled data (Appendix 9).

The differences between the areas with regards to mother's health are not consistent (Table 7.5, Figure 7.11), although they are significant ($p < 0.001$). In Charleswood, St. James and Transcona a larger proportion of non-participants rated their own health as excellent, and in the other four areas more participants rated their health as excellent. For most areas, with St. James and Transcona being the exception, a significantly ($p < 0.001$) larger proportion of participants rated their baby's health as being excellent (Table 7.5, Figure 7.12).

Figure 7.11 Mother's health: perceived as excellent by geographic area: %

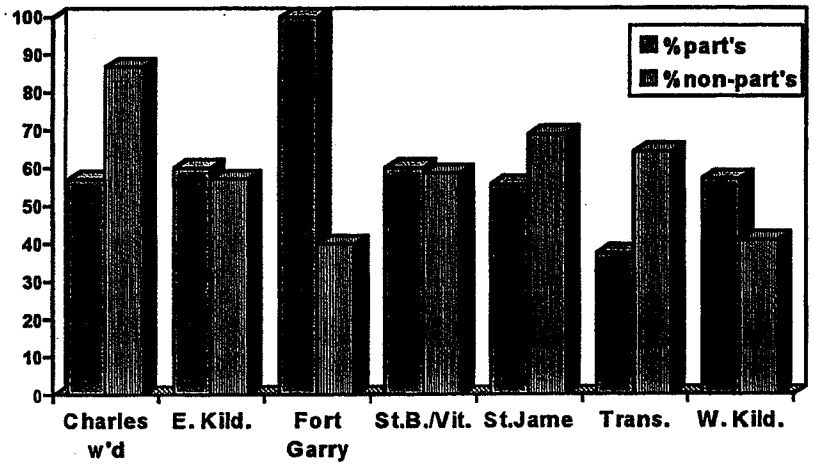
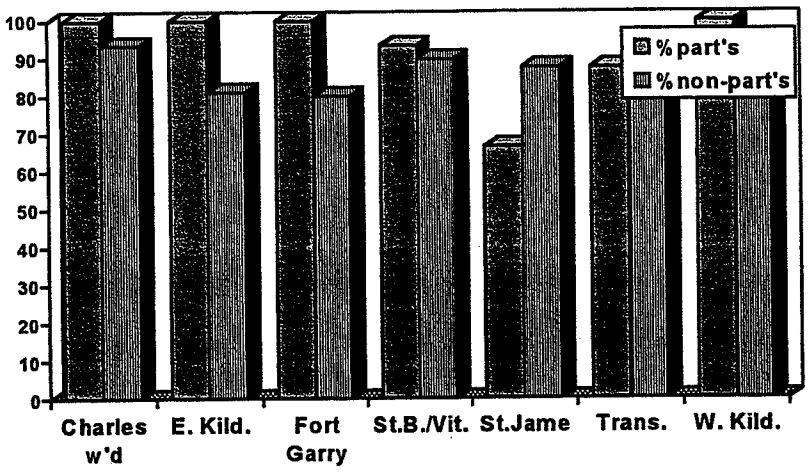


Figure 7.12 Baby's health: perceived as excellent by geographic area:

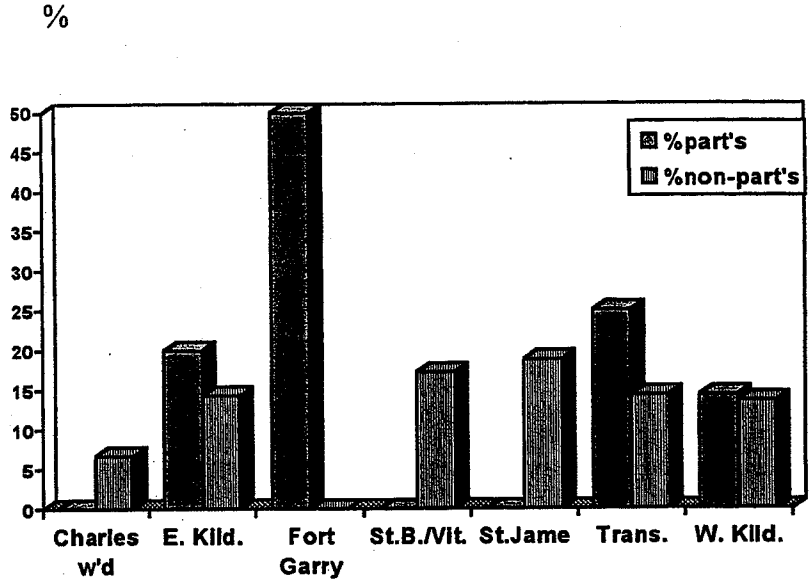


Hypothesis 3:

Participants are more likely to be non-smokers.

It was hypothesized that more non-participants would be smokers as compared to the participants. The analysis reveals that very few respondents in total said that they smoked on a daily basis, and therefore there was a lack of variation in this variable (Appendix 9). The differences in smoking are not consistent across the various areas (Table 7.5, Figure 7.13), and although they are statistically significant ($p < 0.001$) the differences are not practically important because of the small numbers involved.

Figure 7.13 Smoking on a daily basis by geographic area:

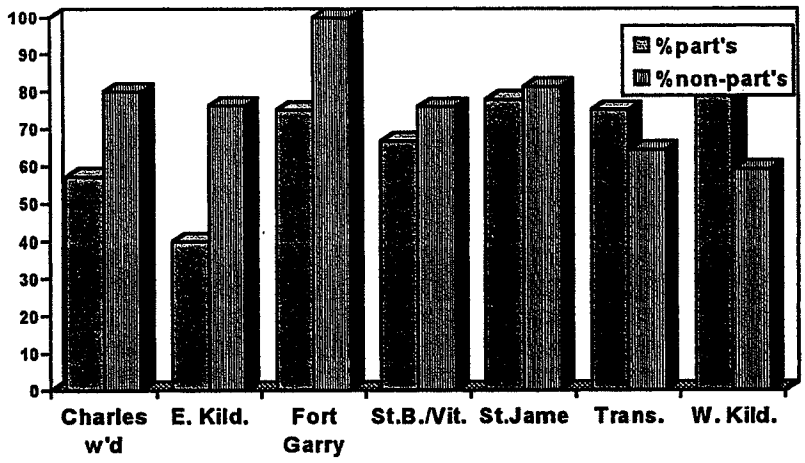


Hypothesis 4:

Participants will have more knowledge of infant nutrition than the non-participants.

The hypothesis that participants would have more knowledge of infant nutrition is not supported by the results. The overall mean scores for each group on the set of knowledge questions pertaining to infant feeding are not significantly different (Appendix 9). Differences in knowledge scores do vary across the areas, and although found to be significant ($p < 0.001$)with the weighting method (Table 7.5, Figure 7.14) are not practically important due to the low variation.

Figure 7.14 Knowledge score: >9/12 by geographic area



Hypothesis 5:

Participants are more likely to have previous experience with attending classes in general to obtain health informaiton, and with attending prenatal classes specifically.

Chi square analysis reveals no significant association between participation and previous attendance at classes for health information (Appendix 9). A limitation with this question is that it is not known what the respondents would consider previous attendance at classes for health information, with some possibly referring to prenatal classes and others not.

Looking at previous attendance at classes for health information reveals that the differences across the areas are not consistent (Table 7.5, Figure 7.15); however in four areas there is a larger proportion of non-participants with previous experience and the overall difference is significant ($p < 0.001$). Attendance at prenatal classes for this baby probably indicates a significant association ($p < 0.001$) for the pooled data because of the large number of first time parents who are participants compared to the large number of non-participants who have other children, a three way relationship that is considered in a later section that controls for first time parent status. A significant difference ($p < 0.001$) is shown in Table 7.5 when the individual areas are examined for first time parents only, where more non-participants in St. Vital/St. Boniface, St. James and Transcona attended prenatal classes in contrast to the other areas (Figure 7.16). It is seen that a majority of all parents attend prenatal classes, and that the differences in attendance are not consistent across the various areas of the Winnipeg Health Region.

Figure 7.15 Previous attendance at classes for health information by geographic area:

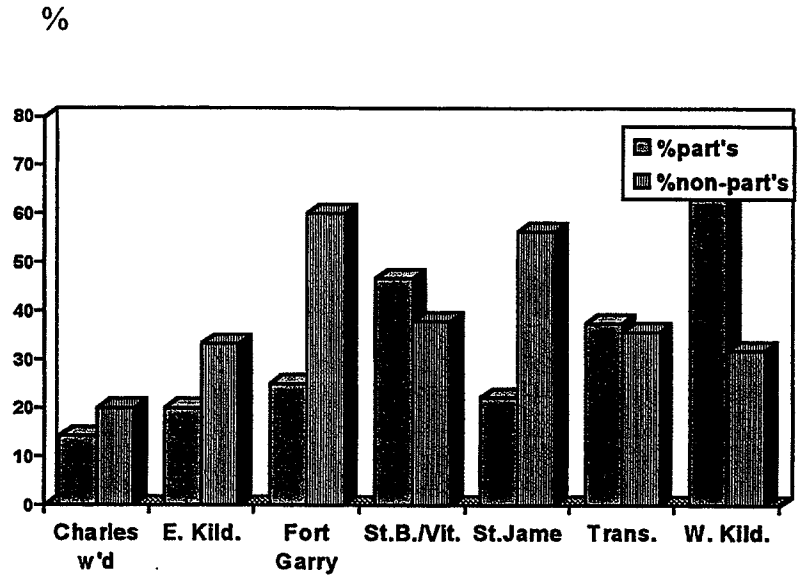
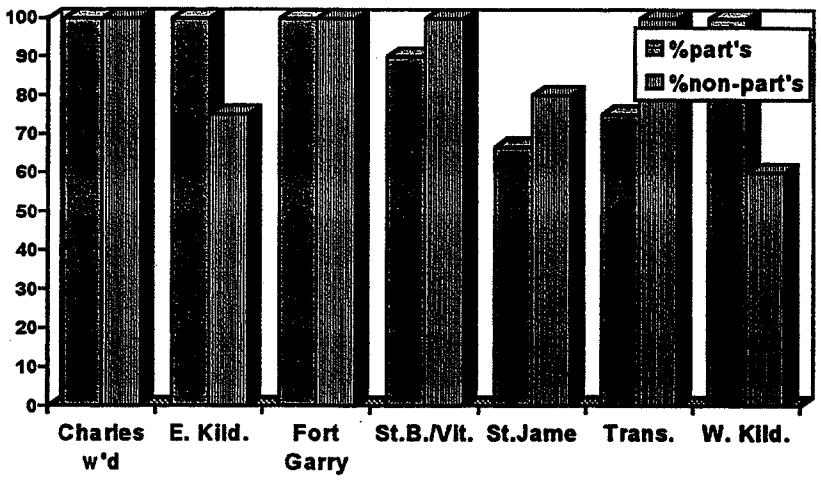


Figure 7.16 Attendance at prenatal classes by first time parents by geographic area:

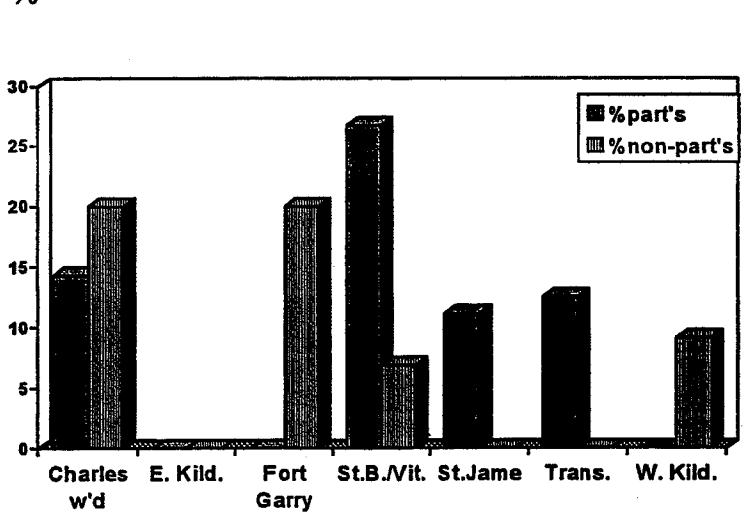


Hypothesis 6:

Participants are more likely to prefer attending classes as a method for receiving infant nutrition information.

Respondents were asked how they would prefer to receive infant nutrition information. A significant association ($p = 0.026$) was found with the pooled data where a higher proportion of participants preferred reading material, and a higher proportion of non-participants preferred to consult with a doctor and other methods such as watching a video or television program (Appendix 9). Only 15 respondents in total indicated that they would prefer a class, and there was no consistency across the areas in the differences between the two groups with respect to this preference (Table 7.5, Figure 7.17); therefore the differences are not considered to be practically important although they are shown to be statistically significant ($p = 0.0034$).

Figure 7.17 Preferred method: attending a class by geographic area:



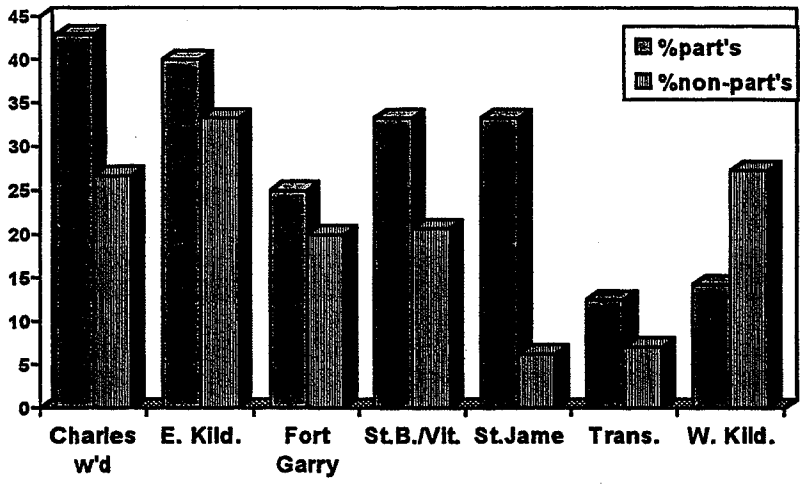
Hypothesis 7:

Participants will expect more positive outcomes from attending an infant nutrition class and place a higher degree of value on expected outcomes.

An outcome score was created by taking the rating for how likely an outcome is thought to occur and multiplying by the value the respondent places on that outcome, and then summing over the six possible outcomes. A set of values ranging between 47 and 150 was obtained for the respondents. A comparison of the mean outcome ratings in Appendix 9 confirms that a significantly ($p = 0.0006$) larger proportion of participants have higher outcome expectations with regards to the classes. The breakdown of the six possible outcomes illustrates that participants rate these outcomes as more likely to occur and place a higher value on them (Appendix 9). These differences are significant for either the expectation, the value placed on it, or both, for five of the six possible outcomes. In order to make a comparison on this variable across the areas (Table 7.5, Figure 7.18), only those with high outcome belief scores are considered. At the researcher's discretion, index values over 125 are considered to be high outcome beliefs. Based on this classification for the outcome index, a larger proportion of participants had high outcome expectations, except in West Kildonan, and these differences are significant ($p < 0.001$).

Figure 7.18 High outcome beliefs: index value >125 by geographic area:

%



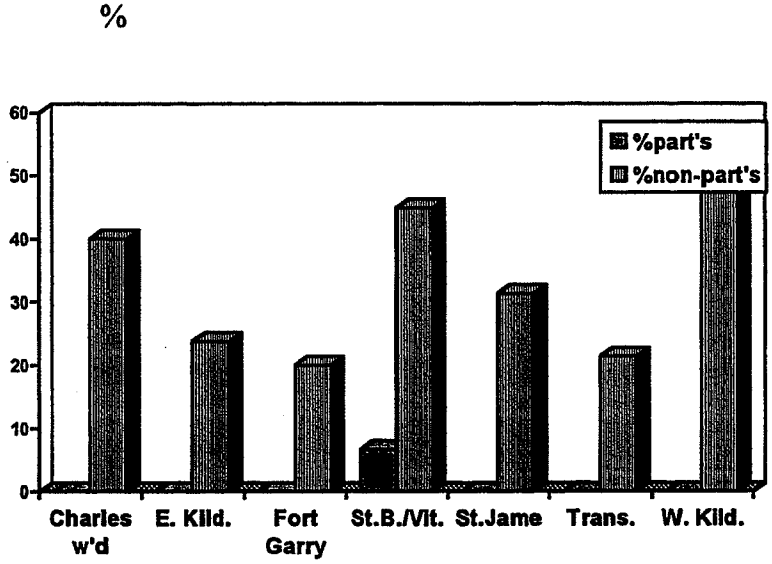
Hypothesis 8:

Participants will perceive or encounter fewer barriers to participation in the infant nutrition classes.

Respondents were asked to rate eight possible barriers to participation in the classes based on how much they agreed that they would experience them. The barrier score is the average of these ratings, where values closer to one indicate that barriers are thought to be more likely, based on the respondents' perceptions. The scale for each question ranges between one and five, and the barrier score has the same possible range.

Analysis of the mean barrier score scores in the pooled data shows non-participants perceiving significantly ($p < 0.001$) higher barriers to participation overall, and the trend is consistent for all eight possible barriers, although only significant for four (Appendix 9). For the first two barrier questions that pertain to the time and location of the classes the respondents were asked to indicate their preference if they did not agree that the current situation is convenient. A total of 15 respondents indicated another preference for the class location, 2 being participants and 13 being non-participants. These other preferences for location included any location closer to their home, the hospital; the local community centre; and the local school. There were 37 who had other preferences for when parents should be invited to an infant nutrition class, 10 being participants. The 10 participants and 11 of the non-participants said they believe the classes should be held before the baby is two months; while the other alternatives were when the baby is older, and during pregnancy. Again, to compare across the areas in Table 7.5, only those with high barrier scores (values between one and three) are considered. Based on this classification it can be seen that a significantly ($p < 0.001$) larger proportion of non-participants have a high barrier rating, as was hypothesized (Figure 7.19).

Figure 7.19 Perception of barriers - high: ≤3 by geographic area:



Additional variables explored as factors related to participation:

A number of variables were included in the study to explore other factors related to participation, and to further describe parents' information needs and preferences. Hypotheses could not be made for these variables based on the current literature. These variables are compared with the pooled data, using the Chi square statistic to determine the association between participation and these other variables.

The age of the babies was considered in order to determine if the average age of the babies of participants and non-participants was different. Looking at Table 7.6 it can be seen that there was no significant difference between the mean age of the babies for the two groups at the time the class occurs. The data confirms that the majority of the babies are between two and four months old at the time of the class.

It is shown that almost all the respondents have access to a vehicle for transportation, and therefore no significant association was found between this variable and participation.

Significantly more non-participants have more people in their households ($p < 0.001$). One possible explanation for this result is that more non-participants have more than one child. Those respondents who have other children were compared on a number of variables as well, in order to see if there is an association between these variables and participation. The results shown in Table 7.7, although not significant, show that there is a trend for more non-participants to have three or more children, and a trend for participants to have a larger gap (in years) between this current baby and their last child.

There is also a trend for more non-participants to state that having other children makes it difficult to attend a class in the community, but again not significant. All particpants with other children had attended a prenatal class with a previous baby, compared to 78 % of non-participants, although the association with participation was not significant. A majority of both participants and non-participants with other children had not attended an infant nutrition class with a previous child and no significant associaton was found.

Promotion of the classes by the public health nurses is not significantly associated with participation (Table 7.8); however there is a strong trend indicating that more non-participants do not have the classes promoted to them. It is possible that the nurses are not always promoting the classes to parents with other children, which make up the majority of the non-participant group. There is a significant association with regards to type of contact with the public health nurse ($p = 0.014$), but this could be related to the fact that a majority of participants are first time parents who may receive more home visits than those who have other children, a consideration that is explored later when controlling for first time parent status.

Variables related to infant feeding were looked at to determine if there is an association between type of feeding method and participation, and are shown in Table 7.9. A significantly higher proportion of participants state that their knowledge of infant feeding was not adequate ($p = 0.015$), a difference that is probably also related the larger number of first time parents in this group. A majority of all respondents are breastfeeding, and most have not yet introduced solid foods at the time of the survey.

Respondents rated their confidence on six infant feeding issues, and a scale was produced using the average confidence rating. The mean confidence rating for each group, along with the breakdown for each of the six questions is shown in Table 7.10. This scale is rated so that values closer to one indicate higher confidence than values closer to five. The results indicate that non-participants are significantly more confident overall, with significant differences occurring with confidence in introducing solids ($p = 0.001$) and weaning to a cup ($p < 0.001$). There was little variation in the other categories, which may accont for the lack of significance. Again the lower confidence rating that participants have is likely associated with the fact that more participants are first time parents who have less experience.

An examination of the types information sources that parents have used with regards to infant feeding were looked at to determine if there is an association between sources of information used and participation. Table 7.11 shows that books and consulting with a doctor are the most popular for both participants and non-participants. There was no significant association found between participation and the types of sources used. Looking at those sources that are considered to be most useful indicates that there is no one source that is predominantly favoured.

What is considered to be important infant feeding topics during the first year has a significant association with participation (Table 7.12). A significantly higher proportion of participants cited breastfeeding and weaning as their first choice of important subjects ($p = 0.004$), whereas a significantly higher proportion of non-participants consider formula feeding and various other issues such as illness,

allergies, quantity to feed in general and making home made baby food to be more important. Introducing solids was the most frequently cited second choice for both groups, but a significantly higher proportion ($p = 0.021$) of participants cited introducing solids than the non-participants.

Parents were also asked to specify their information needs during various periods throughout the first year of their baby's life. As Table 7.13 reveals, a significantly larger proportion of participants cited breastfeeding information as being important during the first three months ($p = 0.014$), although there is no signficant association with how they prefer to receive this type of information and participation. Preferred methods for this first time period are evenly distributed between reading material, a class, consulting with a doctor, or other health professionals and family. Introducing solids is rated as being important by both groups for the period between four to six months; however, significantly more participants would prefer to get this information by attending a class, whereas more non-participants prefer consulting with their doctor ($p = 0.002$). Reading material was the most frequently cited preference for both groups. There is no significant association between information needs or preferences and participation for when the babies are closer to one year. Introducing table food appears to be the predominant concern for both groups during this later period, and both have more parents preferring reading material to get this information.

Table 7.14 shows that a significantly larger proportion of the non-participants do not think that an infant nutrition class is necessary for themselves ($p < 0.001$); however, an examination of the open ended questions (see Chapter 8) reveals that many comment on how it is important to have such a class available even when they do not think that it is necessary for themselves. Significantly more non-participants believe that a class of this nature should only be one hour long ($p = 0.017$), and participants were more likely to prefer a class length of two hours. A significantly larger proportion of participants believe that the classes should be sponsored by the provincial government ($p = 0.01$), while non-participants preferred other sponsors, such as hospitals and baby food companies. There is no significant relationship found between preferred instructor for the classes and participation.

The respondents were asked about who they felt gave them the most help and advice for looking after the baby in order to determine if there is an association between support people and participation. There is no significant association between who are considered as support people and participation (Table 7.15). The mother's mother is regarded as the person providing the most help and advice for both groups. The respondent's spouse/ partner was the second most frequently cited for first choice in support people, with the doctor being the most frequently cited second choice in support person. Others cited less frequently as support people are the public health nurse, friends, and other family members.

Table 7.6 Demographic information

Variable	participants (n=55)	nonparticipants (n=122)
Baby's Age (days)		
Mean:	95.0	94.3
Std. dev'n:	22.5	17.5
Z = 0.21	Aspin Welch = 0.21	
p =0.834	p = 0.835	

Table 7.6 continued:

Variable	% participants (n=55)	% nonparticipants (n=122)	total %
Transportation:			
own vehicle	89.1	86.1	87.0
other	10.9	13.9	13.0
Chi square: 0.31			
p = 0.580			
# of people in house:			
≤ 3	76.4	18.9	36.7
4-6	23.6	81.1	63.3
Chi square: 53.96			
p < 0.001			

Table 7.7 Those who have other children

Variable	%participants (n=13)	%non-participants (n=91)	total %
# of children:			
two	84.6	64.8	66.0
three or more	15.4	35.2	32.7
Chi square: 2.02			
p = 0.155			
Gap (in years):			
Mean:	3.98	3.56	
Std. dev'n:	1.98	2.19	
Min.-Max.	2.0-8.0	1.2-16.0	
Z = 0.71			
p = 0.478			
Prev. prenatal class:			
yes	100	78.0	80.8
no	0.0	22.0	19.2
Chi square: 3.54			
p = 0.060			
Prev. INC:			
yes	30.8	34.1	33.7
no	69.2	65.9	66.3
Chi square: 0.06			
p = 0.814			
Difficult to attend:			
yes/somewhat	38.5	60.4	57.7
Chi square: 2.25			
p = 0.134			

Table 7.8 Promotion of INC by PHN

Variable	%participants (n=55)	%nonparticipants (n=122)	total %
PHN promoted class:			
yes	50.9	38.5	42.4
can't remember	12.7	10.7	11.3
no	36.4	50.8	46.3
Chi square: 3.23			
p = 0.199			
Contact with PHN:			
visit	76.4	54.1	61.0
phone	23.6	42.6	36.7
no contact	0.0	3.3	2.3
Chi square: 8.60			
p = 0.014			

Table 7.9 Infant feeding

Variable	%participants (n=55)	%non-participants (n=122)	total %
Knowledge adequate:			
yes	63.6	78.0	73.5
somewhat	10.9	13.0	12.4
no	25.5	9.0	14.1
Chi square: 8.45			
p = 0.015			
Feeding method:			
breastfeeding	67.3	55.7	59.3
formula feeding	21.8	36.1	31.6
other	10.9	8.2	9.0
Chi square: 3.59			
p = 0.166			
Introduced solids:			
yes	16.4	21.3	19.8
no	83.6	78.7	80.2
Chi square: 0.59			
p = 0.444			

Table 7.10 Confidence with infant feeding

Variable	participants (n=55)	nonparticipants (n=122)
Confidence scale[1]		
Mean:	2.22	1.95
Std. dev'n:	0.504	0.565
Z = 3.03		
p = 0.0024		

Confidence scale based on respondents' rating of their confidence with the following issues:

Variable	%participants (n=55)	%nonparticipants (n=122)	total %
Breast/form. feeding:			
high-very high	90.9	87.7	88.7
medium-low	9.1	12.3	11.3
Chi square: 0.39			
p = 0.533			
Introducing solids:			
high-very high	43.6	69.0	61.0
medium-low	56.4	31.0	39.0
Chi square: 10.13			
p = 0.001			
Weaning to a cup:			
high-very high	36.4	66.4	57.0
medium-low	63.6	33.6	43.0
Chi square: 13.95			
p < 0.001			
Handling problems:			
high-very high	45.5	60.7	56.0
medium-low	54.5	39.3	44.0
Chi square: 3.55			
p = 0.059			
Nourishing meals:			
high-very high	89.1	86.0	87.0
medium-low	10.9	14.0	13.0
Chi square: 0.31			
p = 0.580			
Overall confidence:			
high-very high	89.1	85.2	86.4
medium-low	10.9	14.8	13.6
Chi square: 0.48			
p = 0.489			

1. Confidence scale = the average confidence rating based on the six confidence questions, where:
   - very high = 1
   - high = 2
   - moderate = 3
   - low = 4
   - very low = 5

Table 7.11 Information sources used

Variable	%participants	%nonparticipants	
Most used sources:			
books/pamphlets	65.5 (36/55)	55.7 (68/122)	**Chi square: 1.48 p=0.22**
doctor	52.7 (29/55)	52.5 (64/122)	**Chi square: 0.00 p=0.97**
other (past exp.,etc.)	32.7 (18/55)	24.6 (30/122)	**Chi square: 1.27 p=0.26**
friends	30.9 (17/55)	20.5 (25/122)	**Chi square: 2.27 p=0.13**
PHN	23.6 (13/55)	23.8 (29/122)	**Chi square: 0.00 p=0.98**
magazines	20.0 (11/55)	24.6 (30/122)	**Chi square: 0.45 p=0.50**
hospital nurse	21.8 (12/55)	21.3 (26/122)	**Chi square: 0.01 p=0.94**
mother	16.4 (9/55)	21.3 (26/122)	**Chi square: 0.59 p=0.44**

Table 7.12 Information Preferences

Variable	%participants (n=55)	%nonparticipants (n=122)	total %
Most useful sources:			
books.pamph./mag.'s	29.1	28.7	28.8
health professionals	23.6	32.0	29.4
family/friends	18.2	12.3	14.1
other	29.1	27.0	27.7
Chi square: 1.88			
p = 0.597			
Imp't topic 1st choice:			
breastfeeding	43.6	38.5	40.1
weaning/supp's	21.8	5.7	10.7
formula feeding	18.2	25.4	23.2
other/don't know	16.4	30.3	26.0
Chi square: 13.08			
p = 0.004			
Imp't topic 2nd choice:			
BF/FF/supp's	5.5	6.6	6.2
introducing solids	72.7	50.8	57.6
other/don't know	21.8	42.6	36.2
Chi square: 7.77			
p = 0.021			

Table 7.13 Information needed throughout the first year

Variable	%participants (n=55)	%nonparticipants (n=122)	total %
Inf. needed: 0-3 mo's:			
breastfeeding	65.5	41.8	49.2
formula feeding	12.7	21.3	18.6
other/don't know	21.8	36.9	32.2
Chi square: 8.49			
p = 0.014			
Preferred way to get:			
reading material/class	30.9	30.3	30.5
doctor	29.1	29.5	29.4
prof'ls/family/other	40.0	40.2	40.1
Chi square: 0.01			
p = 0.997			
Inf. needed: 4-6 mo's:			
introducing solids	87.3	83.6	84.7
other/don't know	12.7	16.4	15.3
Chi square: 0.39			
p = 0.530			
Preferred way to get:			
reading material	34.5	46.7	42.9
class	21.8	4.9	10.2
doctor	16.4	32.0	27.1
health prof'ls	16.4	7.4	10.2
other/don't know	10.9	9.0	9.6
Chi square: 17.21			
p = 0.002			
Inf. needed: 12 mo's:			
wean'g/cow's milk	9.1	7.4	7.9
intro. table foods	70.9	59.8	63.3
other/don't know	20.0	32.8	28.8
Chi square: 3.03			
p = 0.220			
Preferred way to get:			
reading material/class	49.1	50.8	50.3
doctor	20.0	28.7	26.0
health prof'ls	12.7	5.7	7.9
other/don't know	18.2	14.8	15.8
Chi square: 3.75			
p = 0.290			

Table 7.14 Class organization

Variable	%participants (n=55)	%nonparticipants (n=122)	total %
Class necessary:			
yes	80.0	32.8	47.5
no/don't know	20.0	67.2	52.5
Chi square: 33.89			
p < 0.001			
Class length:			
1 hour	27.3	44.3	39.0
2 hours	41.8	22.1	28.2
other	30.9	33.6	32.8
Chi square: 8.09			
p = 0.017			
Sponsor:			
prov'l gov't	63.6	42.6	49.2
other	36.4	57.4	50.8
Chi square: 6.70			
p = 0.010			
Instructor:			
doctor/nurse	45.5	47.5	46.9
PHEc/dietitian	43.6	41.0	41.8
other/don't know	10.9	11.5	11.3
Chi square: 0.11			
p = 0.947			

Table 7.15 Support people

Variable	%participants (n=55)	%nonparticipants (n=122)	total %
Support person-1st choice			
spouse/partner	14.5	24.6	21.5
mother	50.9	36.9	41.2
other	34.5	38.5	37.3
Chi square: 3.75			
p = 0.153			
Support person-2nd choice			
partner/mother	9.1	10.7	10.2
other family	14.5	13.1	13.6
friends	18.2	11.5	13.6
doctor	21.8	38.5	33.3
other	36.4	26.2	29.4
Chi square: 5.91			
p = 0.206			

Summary of Results:

Hypothesized relationships that were significant with both the weighted data and with the pooled data are summarized below. Other variables that were explored with the pooled data and found significant are also indicated. Alpha levels below 0.05 are considered signficant.

Hypothesized bivariate relationships:

Demographic and socio-economic variables

- a significantly larger proportion of participants are first time parents
- a significantly larger proportion of participants are employed and have higher levels of education
- fathers associated with the participants have significantly higher levels of education
- income levels are significantly higher for the participants

Previous experience with attending classes

- a significant association was found between attendance at prenatal classes with this current baby and participation, with more participants having attended, although this is related to first time parent status as can be seen in the next section controlling for this variable;
- when looking at first time parents with the weighted data it seen that the differences in prenatal class attendance between participants and non-participants are not consistent across the areas

Preferred information sources and ways to receive information

- a significant association exists between the preferred way to receive infant nutrition information and participation, with more participants preferring reading material, consulting with a health professional (other than doctor) and attending a class
- there is a significant association between what topics are considered to be important and participation; with a larger proportion of participants citing breastfeeding, weaning and introducing solids
- a significantly larger proportion of participants indicated needing information on breastfeeding during the first three months, while the non-participants responses were distributed amongst other choices such as formula feeding, introducing solids and cow's milk
- a significantly larger proportion of non-participants prefer to consult with the doctor during the four to six month period when information is needed on introducing solids, while a larger proportion of participants prefer a class
- a significantly larger proportion of non-participants feel that a class should only be one hour long, while a significantly larger proportion of participants feel that the classes should be sponsored by the provincial government
- a significantly larger proportion of participants stated that they think an infant nutrition class is necessary than the non-participants who were less likely to consider it necessary

Barriers

- a significantly larger proportion of non-participants perceive barriers to participation, indicated with higher barrier perception scores

Outcome expectations

- a significantly larger proportion of participants have higher outcome expectations for the infant nutrition classes

Additional variables explored:

Promotion

- a significantly larger proportion of participants have visits from the PHN

Confidence

- a significantly larger proportion of non-participants feel more confident with their infant feeding ability

Knowledge

- a significantly larger proportion of non-participants feel that their knowledge of infant feeding is adequate

7.4 Controlling for third variables

Socio-economic status and first time parent status (versus having other children) are possible confounding variables affecting the bivariate relationships previously examined. Several three way relationships will be explored to control for this parent status variable (i.e.: first time parent status), and to control for income level, a socio-economic variable.

a) Controlling for first time parent status:

It was found that a larger proportion of participants feel that an infant nutrition class is necessary compared to the non-participants; however this relationship may be explained by the fact that more participants are first time parents. Table 7.16 examines parents' opinions on necessity of a class while controlling for first time parent status.

Table 7.16 Multi-way relationship: participation, parent status, class necessary

	% Participants		% Nonparticipants	
	1st time parent	Other children	1st time parent	Other children
Necessary	85.7	61.5	48.4	27.5
Total (count)	n=42	n=13	n=31	n=91

Table 7.16 shows that for both participants and non-participants more first time parents felt that the class is necessary; however, there is also a 34% to 37% difference between participants and non-participants when controlling for being a first time parent. It appears that both participation and being a first time parent are related to whether a parent considers a class to be necessary.

Another relationship thought to be influenced by first time parent status is that between participation and having attended a prenatal class with the new baby. The bivariate analysis showed that attendance at prenatal classes with the new baby was positively related to participation in the infant nutrition classes. Parents are probably more likely to attend prenatal classes with their first baby than with a second or third one. Table 7.17 illustrates this multi-way relationship between participation, parent status and attendance at prenatal classes with the newest baby.

Table 7.17 Multi-way relationship: participation, parent status, prenatal classes

	% Participant		% Nonparticipant	
	1st time parent	Other children	1st time parent	Other children
Attend prenatal	88	15.4	80.6	9.9
Total (count)	n=42	n=13	n=31	n=91

Table 7.17 shows that the difference between participants and non-participants on attending prenatal classes with this baby is not as large when first time parent status is controlled for. These results confirm that both participants and non-participants are more likely to attend prenatal classes with their first baby, and not with subsequent children, therefore, parent status explains the bivariate relationship that was found.

The bivariate analysis found that a significantly larger proportion of non-participants rate their confidence in infant feeding higher than the participants do. Those who have other children will have more parenting experience that may increase their confidence levels. The relationship between confidence and participation while controlling for first time parent status is shown in Table 7.18.

Table 7.18 Multi-way relationship: participation, parent status, confidence

	% Participants		% Nonparticipants	
	1st time parent	Other children	1st time parent	Other children
High confidence: confidence score ≤ 2	16.7	46.2	19.4	58.2
Total (count)	n=42	n=13	n=31	n=91

It is evident from the information in Table 7.18 that the largest percentage difference in confidence is between first time parents and those who have other children. The difference between participants and non-participants becomes very small (3% to 12%) when controlling for first time parent status.

There was also a significantly larger proportion of non-participants who stated that their knowledge of infant feeding is adequate. Again, it is possible that having more parenting experience actually means that it is those who have other children that are more likely to consider their knowledge to be adequate. The distribution of participants and non-participants that consider their knowledge to be adequate while controlling for first time parent status is shown in Table 7.19.

Table 7.19 Multi-way relationship: participation, parent status, adequate knowledge

	% Participant		% Nonparticipant	
	1st time parent	Other children	1st time parent	Other children
Adequate	62.0	69.0	67.7	81.3
Total (count)	n=42	n=13	n=31	n=91

Table 7.19 shows that the biggest difference is with those who are non-participants, where non-participants with other children are more likely to consider their knowledge of infant feeding to be adequate. The difference between non-participants with other children and other respondents (non-participants first time parents and participants for both parent status categories) ranges between 12.3 % and 19.3 %.

Analysis of the hypotheses in the previous sections showed that non-participants are likely to have higher knowledge scores regarding infant feeding for the weighted data, although the difference between the mean scores were not shown to be significant with the pooled data. Again, because more non-participants have other children they likely have more parenting experience, which could explain their slightly better knowledge scores. The respondents scores on the set of knowledge questions are examined in Table 7.20 in relation to whether participants and non-participants are first time parents or not.

Table 7.20 Multi-way relationship: participation, parent status, knowledge score

	% Participants		% Nonparticipants	
	1st time parent	Other children	1st time parent	Other children
Score: ≥ 10/12	47.6	53.8	38.7	64.8
Total (count)	n=42	n=13	n=31	n=91

It is evident in Table 7.20 that those with other children do answer more of the knowledge questions correctly, for both participants and non-participants. A 26 % difference occurs within the non-participants between those who are first time parents and those with other children. The difference between participants and non-participants is not as large when parent status is controlled for; however. participants who are first time parents do slightly better with the knowledge questions than non-participants who are first time parents.

Promotion of the classes by the public health nurses will also be examined. Bivariate analysis showed a strong trend indicating that more non-participants do not have the classes promoted, although the association was not significant. It is possible that the nurses promote the classes more to first time parents. Both the promotion of the classes by the nurses and their contact with the mothers will be illustrated in Tables 7.21 and 7.22.

Table 7.21 Multi-way relationship: participation, parent status, promotion by PHN

	% Participants		% Nonparticipants	
	1st time parent	Other children	1st time parent	Other children
Class promoted	55.0	38.0	42.0	37.4
Total (count)	42	13	31	91

Table 7.22 Multi-way relationship: participation, parent status, contact with PHN

	% Participants		% Nonparticipants	
	1st time parent	Other children	1st time parent	Other children
Visit	88.1	38.5	80.6	45.1
Phone	11.9	61.5	19.4	50.5
No contact	0.0	0.0	0.0	4.4
Total (count)	n=42	n=13	n=31	n=91

In table 7.21 it is seen that the difference between participants and non-participants with regards to promotion becomes very small when first time parent status is controlled for. The bivariate analysis showed a significant association between type of contact with the public health nurse and participation, with participants being more likely to receive home visits, and non-participants more likely to only be contacted by phone. Table 7.22 shows that it is mainly first time parents who receive a home visit from the public health nurse, with a 35.5% to 49.6% difference between them and those with other children, and it is this variable that accounts for the differences seen between participants and non-participants.

The last three way relationship involving parent status to be considered will illustrate the breakdown of first time parents and those with other children amongst the seven areas of the Winnipeg Health Region. Examining the distribution of participants and non-participants by first time parent status amongst each area will indicate which areas have larger proportions of first time parents not attending the classes or vice versa. For instance, it can be seen in Table 7.23 that 32.3% of first time parents who are non-participants are from West Kildonan. This information can be of interest to those who provide and teach the infant nutrition classes.

Table 7.23 Multi-way relationship: participation, parent, area

	% Participants	% Nonparticipants
	1st time parent	1st time parent
Charleswood	14.3	9.7
East Kildonan	11.9	12.9
Fort Garry	7.2	3.2
St. Bon./Vital	23.8	12.9
St. James	14.3	16.1
Transcona	19.0	12.9
West Kildonan	9.5	32.3
Total (count)	n= 42	n=31

b) Controlling for income (socio-economic status):

Socio-economic status has been shown to have a relationship to participation, and may be an intervening factor in several bivariate relationships. For instance, it was found that non-participants are more likely to perceive barriers to participation. The relationship between the barrier scale score and participation is examined again controlling for the income variable, shown in Table 7.24.

Table 7.24 Multi-way relationship: participation, income, barriers

	%Participants			%Non-participants		
	<$60 000	≥$60 000	don'tknow/ no response	<$60 000	≥$60 000	don'tknow/ no response
High barrier rating: ≤3	0.0	5.6	0.0	24.0	28.0	29.4
Total (count)	30	18	7	76	29	17

Table 7.24 shows that when income is controlled for the differences between participants and non-participants in terms of perceived barriers remain. Non-participants are more likely to perceive barriers to participation, for both income groups.

The relationship between participation and marital status could also be affected by socio-economic status, although there was no signficant association found with the bivariate analysis. Table 7.25 illustrates the three way relationship between participation, marital status and income.

Table 7.25 Multi-way relationship: participation, income, marital status

	%Participants			%Non-participants		
	<$60 000	≥$60 000	don'tknow/ no response	<$60 000	≥$60 000	don'tknow/ no response
Married	86.7	94.4	85.7	72.4	96.6	58.8
Common-law	6.7	5.6	0.0	18.4	3.4	23.5
Single	6.7	0.0	14.3	9.2	0.0	17.6
Total (count)	30	18	7	76	29	17

It is evident from Table 7.25 that income does have a relationship to marital status for non-participants. For non-participants, 96.6 % of those with incomes greater than $60 000 are married compared to 72.4 % of those non-participants with incomes below $60 000. Comparing participants and non-participants, it can be seen that there is an 11.7 % more non-participants with incomes below $60 000 who live common-law than participants at the same income level. There is little variation in marital status for the participants for the different income levels.

Another relationship that could be affected by socio-economic status is that between participation and preferred method for receiving information. A signficant association was found, with more participants preferring reading material and more non-participants preferring to consult with a doctor. Table 7.26 illustrates this three way relationship, showing information preferences for participants and non-participants while controlling for income.

Table 7.26 Multi-way relationship: participation, income, preferred method

	%Participants			%Nonparticipants		
	<$60 000	≥$60 000	don't know/ no response	<$60 000	≥$60 000	don't know/ no response
Reading	33.3	33.3	28.6	18.4	31.0	11.8
Doctor	20.0	11.1	42.9	42.1	20.7	41.2
PHN/PHEc	20.0	16.7	14.3	11.8	10.3	5.9
Family/friends	10.0	11.1	0.0	5.3	6.9	11.8
Class	10.0	16.7	14.3	3.9	6.9	17.6
Other	6.7	11.7	0.0	18.4	24.1	11.8
Total (count)	30	18	7	76	29	17

Table 7.26 indicates that participants and non-participants do differ with regards to preferred method for receiving information, even when income is controlled for. It can be seen that income level is also related to information preferences, with a smaller percentage of non-participants with incomes under $60 000 preferring to consult with a doctor, rather than having reading material. A larger percentage of particpants from both income categories prefer a class compared to the non-participants, although compared to the other methods the percentage is small even for participants.

It was found that significantly more participants have higher outcome expectations for the infant nutrition classes. This relationship will also be re-examined in Table 7.27 by controlling for income, to determine if the difference in outcome expectations could be better explained by this variable.

Table 7.27 Multi-way relationship: participation, income, outcome beliefs

	%Participants			%Nonparticipants		
Outcome:	<$60 000	≥$60 000	don'tknow/ no response	<$60 000	≥$60 000	don'tknow/ no response
Low: ≤84	3.3	11.1	14.3	18.4	31.0	29.4
Medium: ≤125	70.0	55.6	57.1	57.9	48.3	47.1
High: ≤150	26.7	33.3	28.6	23.7	20.7	23.5
Total (count)	30	18	7	76	29	17

In Table 7.27 it can be seen that even when income is controlled for a larger percentage of non-participants have lower outcome belief scores; however expectations also vary with income level. For instance, both participants and non-participants with incomes above $60 000 have lower outcome expecation scale scores than those with incomes below $60 000. Those with outcome expectation scores between 85 and 125 also vary with income, with a larger percentage of those with incomes below $60 000 falling in this category for both groups.

Summary of Results:

The results for the three way analysis, controlling for first time parent status and income, is summarized below. It is important to note that statistical analysis was not done on these relationships to determine significance, as the purpose was to look for practical differences between the groups.

First time parent status:

- previous attendance at prenatal classes is related to first time parent status, rather than participation, indicating that the bivariate relationship between participation and prenatal classes does not hold

- a larger proportion of non-participants with other children scored better than 9 out of 12 on the knowledge questions, although there was very little variation in the knowledge variable
- non-participants with other children are the group most likely to rate their knowledge of infant feeding as adequate
- participants are more likely than non-participants to consider an infant nutrition class as necessary, independent of whether they are a first time parent or not, although a larger majority of first time parents did rate the class as necessary
- confidence with infant feeding is related more to being a first time parent versus having other children than it is to participation, indicating that those with other children feel more confident with their infant feeding ability than first time parents
- first time parents are more likely than non-participants to have the classes promoted to them by the public health nurses, although a large proportion of both first time parents and those with other children were not having the classes promoted to them
- having a home visit by the public health nurse is related more to first time parent status than participation
- the largest proportion of first time parents who are non-participants are from West Kildonan

Controlling for income:

- non-participants perceive more barriers to participation independent of income
- the majority of both participants and non-participant are either married or common-law with little variation existing in the variable; however, a larger proportion of non-participants with incomes below $60 000 are living common-law
- non-participants with incomes below $60 000 are less likely to prefer reading material and are more likely to prefer consulting with a doctor
- a larger proportion of participants with incomes above $60 000 have lower outcome expectations for the infant nutrition classes.

Chapter 8

Analysis of Responses to Open-Ended Questions

Survey respondents were asked several open-ended questions to obtain their thoughts and input on a variety of issues:

- the types of infant feeding information that parents need
- the kind of reassurance that parents of infants are looking for
- the letter that invites them to the infant nutrition class
- what they think might prevent parents from attending the classes

Each of these issues will be considered separately.

8.1 Parents need for infant feeding information

Respondents had a variety of comments regarding parent's needs for infant feeding information. The most consistent themes are: i) their desire for information; ii) the topics that are of most concern to them; iii) how they prefer to receive this type of information; and iv) advice on how the class should be organized.

Desire for information:

Parents desire for information was a consistent theme in the respondents' comments. This theme was reflected in comments about how useful or beneficial infant feeding information is, and whether or not a class is necessary. Some parents talked about how much they appreciate having up to date information, and how they

purposely seek it out. Others said that although they do not think the class is necessary for themselves, they do think it is beneficial to have available. Three of the respondents who have other children said that they believe the class is necessary because they like to keep up to date on the latest information, while others felt that an infant nutrition class would only be necessary for first time parents. Two mothers talked about how they like to seek out information, with one saying that she belongs to a breastfeeding support group, and the other saying that her and her husband are obtaining information on infant feeding from their library. One respondent who had other children stated that she would like refresher information but does not want to go to a class, without indicating what she would prefer. Only one respondent indicated that the classes are completely unnecessary, because she says that she doesn't need anyone telling her what to do with her child.

While the majority of respondents who felt that an infant nutrition class is necessary are those that participated in them, it can be seen from these comments that many of the non-participants desire this type of information even if they do not feel the class is necessary for themselves.

Topics:

i) quantity: An interesting theme that arose from the comments is that "quantity" is a very big concern when it comes to feeding their children. The importance of quantity, in terms of how much breastmilk, formula or solids should be fed, was mentioned by 40 respondents when asked about information needs.

The issue of quantity was the most frequently mentioned topic in the parents comments. For instance, several talked about the importance of knowing how often to feed and how much solid food to prepare; while others were concerned with how much milk the babies should be drinking when introducing solids. One mother specifically said that information is needed on 'what quantity to feed at what stage.' Another respondent stated that information is needed on quantity because all the sources are too vague, and don't specify the right amounts, so it would be helpful if the amount of food to be given to the baby is specified.

These are just a few of the many comments that were made regarding quantity. Concern about quantity was raised in relation to breastmilk, formula and introducing solids. Respondents also raised the issue of quantity in response to other open ended questions, such as when asked about reassurance. This survey makes it very clear that the amount of milk or food to give a baby is something that many parents feel very unsure about, and desire more information on.

ii) solid foods: The other most frequently mentioned issues which respondents stated that parents need more information include how to introduce solids, and making homemade baby food. These topics were mentioned as being important by 17 respondents in their general comments. For example, one mother said that she needs to know exactly what to feed her baby, and another mother commented that she needs information on the proper introduction of solids because she is concerned with the baby becoming overweight. Most of these comments focused on when and how to introduce solids. A few mentioned that they would like more information on the best

types and right brands of foods to get for their baby, while others stated that they would prefer information on how to make their own baby food. Some also commented that they need information on when to start table foods. Some parents indicated a concern with safety aspects of introducing solids, stating that they would like to know more about what foods should be avoided.

iii) Breast and formula feeding: Breastfeeding and formula feeding were mentioned by 11 of the respondents as being topics that they need more information on. One mother said that she needs more information on breastfeeding because the reading material she has does not explain it well enough. Another stated that mothers need to be told about the importance of breastfeeding for the baby's immune system. The differences between breastfeeding and formula feeding was also mentioned as being important information for parents to have. Two respondents commented on breastfeeding to say that they were not comfortable with breastfeeding in public.

iv) Health related issues: Menu planning and the nutritional quality of food was mentioned by 14 respondents as being important information that is needed by parents. These comments indicated a concern for balanced diets, and the nutritive value of foods. Others specifically said that they would like menu suggestions and recipe ideas, including one mother who said this was important because she is concerned with fat and cholesterol in her children's diet. Others said they would like information on nutrition for the mother, allergies, sickness and vitamins. For instance, one respondent indicated that mother's nutrition in general is important, while another specified that information on medicines for mothers would be beneficial. One

respondent said that information is needed on what vitamin supplements to give and when they are needed. Another said that information on the vitamins/nutrients in baby food is important. Four mentioned that information on allergies and sickness are important, with gas, colic and stomach upset in the baby being mentioned specifically.

A variety of different topics are currently covered in the infant nutrition classes, and this is appreciated by most parents. Since there are so many different issues that parents are concerned with, it may be helpful if it is stressed to parents that by going to the class they will be able to consult with a health professional to address any questions or concerns that they may have with regards to infant feeding.

Preferred way to receive information:

When asked if they had any comments about parents information needs many respondents talked about how they would prefer to receive infant feeding information. A variety of different suggestions and preferences were indicated. For instance, there were 11 stated that infant feeding information should be provided before the baby is born, indicating that this information could be given at prenatal classes, La Maze classes, or at the hospital when the baby is born. There were 8 others who said that they would prefer a combination of reading material and having access to a professional to consult with either over the phone or at a class. Another four mentioned that making information more accessible to parents is important, with one mentioning that more brochures on this subject should be available in doctors'

offices. Three respondents indicated that more follow up on is needed after mothers are released from the hospital to ensure that they do have the information they need.

Others were more specific in their preferences. For example, other ways that respondents said they would prefer for receiving information include: receiving reading material in the mail, watching a video or television program, and having an infant feeding chart that can be put on their refrigerator. Three respondents specified that they would prefer a class or information to be provided later on to help them with feeding toddlers, when there is a lot of fussiness and trouble getting them to eat. Another respondent recommended distributing infant feeding information in the gift baskets that are given to mothers when they leave the hospital, which contain booklets and questions that she can discuss with the public health nurse.

These comments indicate that there is no one method that is strongly preferred by a majority of parents. These comments also draw into question if the current class format is the best way to reach parents to provide them with infant feeding information.

Advice regarding the infant nutrition classes:

Many of the survey respondents had advice for how the infant nutrition classes should be organized and delivered. For instance, there were several recommendations about when the classes should be held. Two respondents referred to when the parents are invited; with one saying that the class should be held when the baby is older because she doesn't like breastfeeding in public, and the other suggesting that the class

be earlier. Nine recommended having the classes more often and/or offering evening classes as well. Some of the comments made were that evening classes would allow their husbands to come to the class, or that afternoons are bad because they have other children in school or other activities. These comments indicate parents desire for more flexibility with when the classes are offered.

Others gave advice for how the classes should be structured. For instance, two people advised that baby-sitting should be offered, while one said that offering baby-sitting would be ridiculous. A respondent who had attended a class previously in Charleswood recommended a different location, because the present one (a church basement) is too warm and stuffy. Others gave advice about what the classes should cover, with one stating that information on allergies and special needs should be covered. Another respondent said that the classes have to emphasize breastfeeding because mom's need encouragement for this, while two others said that too much emphasis should not be placed on breastfeeding. In fact one mother said that she had been to an infant nutrition class with a previous baby and that it dealt more with breastfeeding than anything else, and that this is of no interest to her because she tried to breastfeed and just can not do it. This mother said the class made her feel guilty, so she advises giving equal weight to formula feeding. These comments indicate that there no one method for receiving information that is strongly preferred by a majority of parents, but rather that there is a variety of opinions how this information is best delivered.

There was also some advice given regarding the promotion of the classes. One respondent advised that mothers, especially first time moms, need to be actively recruited in order to get them to attend because they need so much encouragement. Another respondent informed the interviewer that information needs will vary depending on the target population, such as single parents, or first time parents. Someone else advised that the classes should be promoted at the prenatal classes. Only one respondent specifically said that the classes should be aimed at first time mothers only.

Comments about information providers:

There were a variety of comments given about the respondents' experiences with health care providers. For instance, one parent stated that she gets conflicting information from different doctors, another (nurse by profession) said that nurses do not know as much about breastfeeding as they should, while another respondent said that doctors and nurses do not give enough information on breastfeeding, and one mother said that when she had trouble with breastfeeding she received conflicting information about it from her doctor and the public health nurse. Another respondent had a different experience saying that she was having difficulty with formula feeding and that her pediatrician and the public health nurse have been very helpful. In some of the other comments that were made one respondent said that it can get confusing if there are too many different sources of information, another said that there should be national standard forms available at hospitals and doctors offices.

8.2 Reassurance needed by parents of infants

During the preliminary qualitative interviews several parents had indicated that getting reassurance that one is doing the right things as a parent would be important. Again in the pretest several said that receiving reassurance would be a very likely outcome of attending an infant nutrition class. It was decided that this issue of reassurance needed more exploration, and an open ended question was included in the survey asking the respondents what types of reassurance it is that parents are looking for. The majority of respondents could not specify any one thing in particular, stating that reassurance that they are doing the right things in general was needed. Others were able to be more specific, and those responses have been classified into: technical aspects of feeding, having 'normal' experiences.

Technical aspect of infant feeding:

The issue of reassurance generated a lot of responses regarding the quantity of milk or food that babies should be receiving. Twenty four of the respondents said that parents need reassurance that their babies are getting enough, or that they are feeding the right amounts of milk or food. To paraphrase one respondent's comments: 'With breastfeeding a big thing is feeling that the baby is not getting enough milk. Mom's need reassurance that they have enough milk because there is a lot of worry about this.'

Introducing solids in general is another aspect of feeding that parents would like to receive reassurance for, with twenty six respondents commenting on this. As one mother stated: '...to know that your introducing the right foods at the right time, and choosing the best products to give the baby.'

Fourteen respondents talked about needing reassurance for breastfeeding and formula feeding in general. Many of these comments focused on the encouragement and reassurance needed for breastfeeding. Another remarked that it is important 'to be reassured that formula feeding is O.K. and to know that the formula you've chosen is appropriate.' Two other mothers stated that they need reassurance on weaning their babies from the breast.

These comments confirm that the issue of quantity, in terms of how much they should be feeding their babies, is a dominant concern for parents. Introducing solids is another area that many parents feel unsure about, and this is already a primary focus of the infant nutrition classes. The comments on breastfeeding emphasize the need for early and continued education and support for breastfeeding mothers, because not feeling comfortable with it can decrease breastfeeding choice and/or duration (Canadian Dietetic Association, 1989).

Having normal experiences:

Parents expressed a definite need to be reassured that the experiences that they have are the same that other parents have, and that their baby is progressing as expected. Several respondents stated that parents want to be reassured that any

problems they are encountering, or questions they have are normal. Others specified that this type of reassurance is especially important for first time parents in order 'to boost their confidence.'

Eight of the respondents specified that parents need reassurance regarding their baby's health. As one mother stated, parents need to know 'that the baby is eating well and growing O.K.' Another area of concern is that parents are receiving the right information. Six respondents talked about the conflicting information that parents often receive, and that reassurance that they have the correct information is important.

One mother's comments reflects many of the parents' concerns about receiving reassurance: 'To know that your doing a good job, and to have some support.' On the other hand two of the respondents stated that reassurance is not necessary for parents. To paraphrase one these respondents remarks: ' A mom would already know what she is doing with breastfeeding by this time and wouldn't need reassurance on that, and she wouldn't have started solids yet, so no reassurance is necessary.'

It can be seen from these comments that even if parents are experience problems or having questions, it is reassuring to know that other parents have the same experiences and questions. It may be possible to promote reassurance as a positive outcome of attending the classes, since it is an issue that many parents confirm is important.

8.3 Comments about the invitational letter

An open-ended question regarding the invitational letter was included in the survey, since this is the principal way that the classes are marketed to the target audience. Most of the comments about the letter were vague and indicated that they thought the letter was 'good', 'fine', and 'informative'. Others were able to be more specific with their remarks, indicating ways in which they think the letter could be improved.

One respondent from Fort Garry said that the location of the public health office was too vague in the letter. Another from Fort Garry said that the letter should let her know that if she can not make it to the class that she can talk to someone on the phone. In a similar vein a Charleswood respondent who had attended a class in St. James indicated that the letter should suggest that if you can not make this class that you can call to register for another class in different area of the city. Two mothers commented on the wording "bring anything you need to make your baby comfortable," with one saying that she did not understand what this meant, and the other saying that she did not like this wording. Another said that the letter should specify if she can bring her husband to the class. Two respondents said they misunderstood the letter: one saying that the letter gave the impression that the classes are held once a week, and that it should be clearer that they are only once a month; and the other, who had attended a class in the past, said that the letter gives the impression that there will be many people there and it should point out that there is only a few people making it easy to talk and share with others.

This question about the letter also generated comments about the timing of the classes, with two respondents saying that parents should be invited to an infant nutrition class sooner because this class is being held too late. Another respondent stated that she would have been more interested in the class if it was divided into two sections, one on breastfeeding and formula feeding, and another on solids, and that she then she would have gone to the second section on solids. One mother talked about the timing of the promotion, saying that first time parents should receive some earlier promotion by being told about these upcoming classes at the hospital or at prenatal classes. Three respondents stated that only first time parents should be invited to these classes.

There were several positive comments made about the letter as well. For instance, several respondents remarked about how much they appreciated the letter telling them that they can bring their baby to the class. Others talked about how they liked that the letter listed the topics to be covered in the class, with some saying that this motivated them to attend. Two parents discussed how the letter, and the class is an important follow up for parents after leaving the hospital.

Some of the respondents talked about why they could not attend the class when they were asked what they thought about the letter. Three respondents started off with the letter is fine but, with one saying that her older child sleeps in the afternoon, another saying that she does not drive, and one commenting that she does not feel comfortable breastfeeding in public. Another mother said that she has no comments on the letter but that it is too difficult to bring two children to the class.

Two respondents, both having other children, said that they did not pay much attention to the letter.

Parents comments about the invitational letter can be used to make improvements in the promotion of the classes. Another draft of the letter may be needed to clarify points that some may find confusing, and to ensure that parents understand how they can access information if they are unable to attend the class.

8.4 Reasons for not attending

There were two open ended questions dealing with the issue of why parents would not attend infant nutrition classes. The respondents were asked a series of closed ended questions about possible barriers to participation, and then they were asked with an open ended question if they could think of anything else that might prevent them or someone else from attending an infant nutrition class. Many respondents had a variety of responses to these questions. First, comments pertaining to themselves will be discussed, and then those pertaining to someone else will be looked at.

Reasons why the respondents themselves might not attend:

The most frequently given reason why a respondent herself would not attend is lack of time. Remarks about lack of time ranged from the fact that the class is only held once a month, that the timing of the class is inconvenient, that their schedules

are too hectic, or that they are too busy with older children. Some of these comments specified that having evening classes would make it easier to attend. Of these respondents mentioning lack of time, three specified that it was because of work, and two because of school.

Related comments from parents with other children indicated that not being able to find a baby-sitter for older children would prevent them from attending. Three first time parents also said that not having a baby-sitter would prevent them from going, indicating that they either do not want to bring their baby or were not clear on the fact that they can bring their baby to the class. One mother who has other children, said that she has twins making it too difficult to attend.

There were seven respondents that said they would not go because they were not first time parents, indicating that they do not think they would find the class useful. Five, who had other children, specifically said that they did not think the class was necessary and that they were not interested, with one saying that she could get more information from reading material. Several respondents said that if their baby, other children or themselves became ill that they would then not be able to attend. Two others said that because their baby is fussy they would not be able to go, and another said that colic prevented her from going.

A variety of other reasons were given that could prevent them from attending including: bad weather; lack of transportation; already having attended an infant nutrition class; not being comfortable breastfeeding in public; being out of town; if something came up at the last minute. Others had more specific responses, for

instance: one said that she was moving; one said that she is too shy and does not like classes; one (from Charleswood) said that she got the letter too late; and another said she would not go because the classes covered breastfeeding and formula feeding, and another indicated that it would depend on her baby's mood at the last minute.

Other reasons why someone might not attend:

A variety of responses was also given to the second question asking if anything else that might prevent someone from attending a class. For example, respondents mentioned lack of time, either in relation to hectic/conflicting schedules, or if mothers have returned to work. Two suggested that having older children could make it difficult to attend. Eight others indicated that not having a baby-sitter would be a problem, although only three of these related lack of baby-sitting to older children. One comment indicated that parents may have trouble getting out, another said that it could be too much trouble to get to the class, and another said 'if they just can't go'.

A lack of interest was also mentioned as a reason that others would not attend, either because they do not feel it is necessary, or they feel that they already know everything that would be taught in the class, or general lack of interest. Of these responses, one mother's paraphrased comments are worth noting: 'Parents are more concerned with breastfeeding and formula feeding information before the baby is born. So if a class is offered after the baby is born they won't find it necessary to go.' Another mother said that it would depend if they are first time parents, and another stated that others may already be getting the same information from a doctor or nurse.

Very few respondents indicated that lack of transportation was problem for themselves in response to the first part of this question; however, several speculated that this could be preventing others from going, with there being 20 comments on this. Weather was only mentioned three times as a possible reason for others not to attend, and location of the class was only mentioned once.

Other suggestions were that people may not feel comfortable attending classes, either because they are too shy, lack confidence, are not comfortable in a group, or because they do not like to breastfeed in public. Three people mentioned either the baby or the mother being sick as a reason, and three others suggested that a fussy baby could be a reason for not attending.

There were some other responses that were mentioned only once. For instance, one said that a person might not go if they had already been to a class, another said that others might not be open to new ideas, and lastly someone stated that it was the person's own business why they might not go.

The feedback on why parents may not attend an infant nutrition class illustrates that the main reasons for non-participation are lack of time, not having a babysitter for older children, and not seeing any benefit to going. These are all issues that can be addressed in order to make the classes more accessible to parents. For instance, offering both an afternoon and evening session would provide more flexibility in when parents can attend; a supervised play area could be provided so that babysitting will not be an issue; and better promotion of the classes is needed so that a larger number of parents will find them appealing.

Chapter 9

Discussion and Conclusions

9.1 Discussion

The overall objective of this study was to compare participants and non-participants in infant nutrition classes sponsored by Manitoba Health on several variables, in order to better understand how parents differ in their information needs and characteristics, and from that to determine factors related to participation. Several differences between the participants and non-participants have been hypothesized, while other variables have been examined for exploratory purposes. The results related to these objectives can have implications for the design and marketing of the infant nutrition classes.

Comparing participants and non-participants:

The first objective was to determine if parents who participate in the infant nutrition classes differ from those who do not on a number of socio-demographic, behavioural and belief characteristics. The survey results indicate that those who participate in the infant nutrition classes are more likely to be first time mothers with higher levels of education, employment and income. There was less variation in these variables for the respondents' partners. Most of the fathers were employed; however, there was a significant association between fathers education and participation, where the participants' partners were more likely to have a university degree. These findings

support other studies which confirm that those who choose to participate in health programs have a higher socio-economic status (Atkins et al., 1990; Nice & Woodruff, 1990; Wilson, 1990).

The majority of participants were first time parents; however, over 25 % of the sample of non-participants were also first time parents. West Kildonan was shown to be an area having a higher proportion, of respondents that are younger, first time parents with lower levels of education and income, in comparison to some of the other areas in the Winnipeg Health Region. In terms of geographic segmentation it appears that West Kildonan has a larger proportion of the younger, first time parents, of lower socio-economic status that are not being reached.

There was little variation found in the variables pertaining to perception of health, although respondents in general tended to rate their baby's health better than their own. Past research has found that participants in health programs are more likely to perceive themselves as being healthy than non-participants (Conrad, 1987; Nice, 1990). The small variation in these variables could be a result of the population of the Winnipeg Health Region having relatively high levels of education and income, factors that have been shown to be positively related to health status (Wilson, 1990).

Research studies have found that participants in health programs tend to have better health practices than non-participants in general, and that participants are more likely to be non-smokers in particular (Atkins, 1990; Stange et al., 1991a; Wilson, 1990). This study found little variation in the smoking variable due to there being only a very few who said that they smoked on a daily basis.

It was hypothesized that the participants in the infant nutrition classes would have more knowledge regarding infant feeding; however this was not supported by the data due to the little variation found in the knowledge scores. Previous studies have found that participants in health programs are more active in seeking out health information, and are more likely to have a higher degree of knowledge pertaining to the program content (Conrad, 1987; Mavis et al., 1992). The lack of variation in the knowledge scores may be due to the question items themselves. The reliability was measured for the study itself with the KR20 formula being 0.65; however, the item analysis established that the question items were easy (easy defined as being answered correctly by more than 70 % of the respondents). Despite the lack of variation in overall knowledge scores, an examination of the responses to individual knowledge questions can be beneficial to those who provide the classes (see Appendix 8). Those questions that a majority of parents had trouble with indicate where many parents have misconceptions or misunderstandings. For example, nearly 30% of the respondents said they do think that solids can help an infant to sleep through the night, over 20% think that solids should be introduced before four months, and nearly 23% think it is alright to mix cereal into the baby's bottle.

Other studies have shown that previous attendance in health programs influences information seeking behaviour (Atkins, 1990; Mavis et al., 1992). This study examined the respondents' previous experience with attending classes, with the expectation that participants would be more likely than non-participants to have attended classes for health information in the past, and to have attended prenatal

classes. There was little variation in the variable pertaining to previous attendance at classes for health information, with the majority of both groups indicating that they have not attended classes for health information. A significant association was shown between attendance at prenatal classes and participation in the infant nutrition classes, and this relationship was further explored by controlling for first time parent status, because the majority of participants are first time parents. It was found that attendance at prenatal classes is better explained by the parent status variable, where parents are more likely to attend prenatal classes with their first baby than with subsequent children.

Respondents were asked about how they would prefer to receive infant feeding information, with the expectation that participants would be more likely to prefer a class than non-participants. Neither the participants or non-participants showed a strong preference for attending a class, with very few respondents in total citing class as being their preferred method. The results show that the participants were more likely to prefer reading material than the non-participants, while the non-participants were more likely to prefer consulting with a doctor. Those preferring reading material often indicated that they would prefer to receive this by mail, or in conjunction with consultation, a result that was also found by Tanaka et al., 1989. The respondents' preferences for receiving information was also examined by controlling for income. Looking only at the non-participants, it was found that a larger proportion of those with incomes over $60 000 have a preference for reading material, while a larger proportion of those under $60 000 have a preference for consulting with a doctor.

The participants in the infant nutrition classes were shown to perceive more positive outcomes to attending than non-participants, while non-participants perceived more barriers than participants is in agreement with other studies that find participants perceiving more benefits and fewer barriers to participation (Alexy, 1991; Contento & Murphy, 1990). Several of the barriers perceived by the non-participants are related to having other children. For instance, a lack of babysitting, and the time and effort required to attend are the major barriers cited by non-participants. The perceived barriers and outcome expectations were also examined by controlling for income. It was found that non-participants do perceive a greater number of barriers to participation, even when income is controlled for. The results pertaining to outcome expectations showed that although the non-participants did have lower outcome belief scores for all income levels, those respondents with incomes greater than $60 000 had lower outcome belief scores for both participants and non-participants. These results suggest that more effort is required in promoting the beneficial outcomes of attending the classes to all parents who are invited, and that there is a need to address the barriers that are perceived.

It was found that a greater proportion of non-participants feel that their knowledge of infant feeding is adequate and have more confidence in their infant feeding ability. These bivariate relationships were re-examined by controlling for first time parent status, and it was shown that non-participants with other children are the most likely to perceive their knowledge as adequate. The results also show that confidence is more strongly related to parent status, where those with other children

indicate being the most confident with their infant feeding ability. There is a paucity of literature pertaining to participation by parents of infants in health programs and confidence, and this is an issue that deserves further study.

The respondents were asked who they felt gave them the most help and advice with looking after their baby, in order to determine if there was an association between perceived support people and participation. There was no significant association found between participation and who is regarded as providing the most support. For both participants and non-participants, their own mother is considered as the dominant support person for giving advice and help. This supports the findings from other research that confirms the influence of the mother's mother (Crockenberg, 1986; Solem, Norr & Gallo, 1992; Zachariah, 1994). The doctor was the second most frequently cited support person. It is possible that the advice given by the grandmothers many conflict with that given by health care professionals, therefore the letters inviting parents to the classes should welcome them to bring others with them, such as their mothers.

Perceived infant nutrition information needs:

Attending classes was not a strongly preferred method for receiving infant nutrition information; however, if the infant nutrition classes, or something similar, are to remain then the feedback from the mothers in response to the open ended questions suggests that it may be more beneficial to broaden the focus of the classes to incorporate topics and issues that those with other children would have more

interest in. What parents say their information needs are will be looked at to aid in determining what these broader issues might be.

Several questions asked parents about the types of information that they feel they need or would be interested in. A majority of both participants (72.7%) and non-participants (50.8%) said that introducing solids is one of the most important topics during the first year of their baby's life. Many parents also stated that breastfeeding and formula feeding are important topics, but by the third month most of their questions regarding these issues have been answered and they now have other concerns, such as introducing solids, table foods, and for all aspects of infant feeding quantity was a very important issue for all parents. For those who have other children, dealing with a toddlers fussy eating habits and changes in eating patterns came across as important issues. Tanaka et al. (1989) also reported that mothers of infants four months and older are most interested in the introduction of solids, the preparation of home made foods, and the use of cow's milk.

The comments from the mothers in response to the open ended questions also indicated several different preferences for receiving infant feeding information, including having more brochures available in doctors offices, receiving written information in the mail, and having a combination of reading material in conjunction with a professional to consult with, a preference that was also found by Tanaka et al. (1989).

It was also made evident by the responses to the open ended questions that receiving reassurance is an important issue for parents of infants. There were several comments made regarding the need that parents have to receive reassurance pertaining to technical aspects of feeding, that their experiences are normal, and reassurance that they are doing the right things in general. These comments indicate that promoting reassurance as a positive outcome of attending the classes may be beneficial. This issue of receiving reassurance also deserves further study.

Reasons given for non-participation:

This study also obtained feedback from the respondents regarding what reasons they perceive parents' having for not attending. A lack of time was a frequently mentioned reason, which is probably often related to having other children. Only a few of the respondents said that they would not attend because they are not comfortable breastfeeding in public; however it is possible that this may be a concern for more mothers even if it was not specifically mentioned that often. There were several who stated that a general lack of interest, or feeling that they already know enough as being reasons for not attending. A number of parents also indicated that not feeling comfortable with attending classes could be an important factor. Not being a first time parent was also mentioned by a few of the respondents as being a reason that someone would not attend. These findings support other studies that have found that the main reasons given for non-participation are lack of time and not perceiving the classes as necessary (Mavis et al., 1992; Tanaka et al., 1989).

9.2 Conclusions and implications

Conclusions:

The data suggests that the factors most strongly related to participation in the infant nutrition classes sponsored by Manitoba Health are socio-economic status (in terms of employment, education, and income), first time parent status, perceived benefits to attending, and perceived barriers to participation. A better understanding of the non-participants will allow the educators to better design these classes to meet the needs of those currently not being reached. For instance, non-participants are shown to have lower levels of employment, education and income; that they are more likely to have more than one child; that they don't perceive the benefits to attending; and that they perceive barriers in terms of time, effort and babysitting.

It has been made apparent that non-participants are more likely not to perceive the benefits to attending an infant nutrition class, having outcome index belief scores that are lower than the participants, and to not consider an infant nutrition class as necessary. Parents have to be made more aware of the benefits of attending, and the promotion of the classes needs to be more consistent and widespread. Currently, the Public Health Nurses are tending to promote the infant nutrition classes more to first time parents than those with other children. Promotion by the nurses also varies across the different areas with West Kildonan having the least promotion. West Kildonan is an area of particular concern because of the lower socio-economic status

of this area which is more greatly associated with non-participation. West Kildonan also has the highest proportion of younger first time parents who are non-participants.

Looking at preferred methods for receiving infant feeding information, reading material and consulting with a doctor were the most frequently cited preferences. Reading material was often cited as being preferred in conjunction with having a professional to consult, while others would prefer to receive this material in the mail.

Several topics were shown to be important for parents of infants. For instance, a majority of both participants and non-participants cited that information on introducing solids is important, and for all aspects of infant feeding information regarding quantity, in terms of how much to feed, was cited as being important. Those with other children indicate a need for information regarding feeding toddlers.

Two variables were found to have a significant association with participation that deserve further study. These variables include parents' confidence with their infant feeding ability, and the reassurance that the respondents have indicated is important for parents of infants to receive. It was found that non-participants with other children were more likely to rate themselves as being confident with their infant feeding ability, which could also be related to why they are more likely to find attending a class as unnecessary. A better understanding of the issues that parents indicate as being important for receiving reassurance (technical aspects of feeding, normal experiences) could provide further insight in to parents' information needs and preferences.

The results from this study are specific to the Winnipeg Health Region, which is a higher income area than the rest of Winnipeg city, and therefore the results must be considered in relation to the income level of the area and not be generalized. The results are also specific to the fall season, and it is not known if there is any seasonal variation in participation in the infant nutrition classes. A lack of resources prevented a comparison of factors in different seasons. It should also be noted that the lack of variation in several variables may account for the lack of significance found regarding there association with participation.

9.3 Limitations and recommendations for future research

Limitations:

A limitation of this study relates to the small number of participants available for the survey. A census of participants in the infant nutrition classes for the study period were surveyed; however, this resulted in having only 55 participants being part of the survey. It would have been more beneficial to have the survey conducted over a longer period of time to enable more participants to be included. The small number of participants resulted in small total counts in each area to base the comparisons between participants and non-participants on. Unfortunately, due to a lack of resources this was not possible for this study.

A lack of variation in some variables is also a limitation, which affected the conclusions that could be made. The lack of significance that was found with some variables could be the result of the low variation in those variables. For example, smoking was not found to have a significant association with participation, and this could be due to the fact that so few respondents stated that they smoked on a daily basis.

One survey question was poorly constructed. The question pertaining to previous experience with attendance at classes for health information was not specific enough. Some respondents may have included attendance at prenatal classes in their response and other may not have, and the question should have been better designed to account for this possible discrepancy.

An inherent drawback to survey research is the reliance on self reported data, and the possibility for receiving socially desirable responses. One question where this limitation may be a concern is the one pertaining to smoking, considering that at the time of the survey there was a television campaign emphasizing the harm that cigarette smoke can have on infants.

Recommendations for future research:

One recommendation for future research would be to use a qualitative approach to determine what types of resources would be most successful for getting infant feeding information to parents, especially those of a lower socio-economic status. Qualitative research is recommended in order to provide a more detailed and in depth look at the situation. This approach could entail focus groups or individual interviews.

Efforts are also required to determine if incentives would enhance participation, and what types of incentives would be most successful. Industries and agencies would also need to be approached to determine what material they could provide at no or low cost that could be used as incentives (i.e.: coupons, recipes for childrens' meals, nursing pads, magazines). These incentives could then be used to promote attendance at the classes.

Research is also needed for the implementation strategies that can be used to improve the infant nutrition classes, if they are to be continued. Any strategies (i.e.: baby fair, incentives, promotional campaigns) that are used should be carefully recorded and evaluated to determine the effect of these variables on participation, and draw conclusions about their success.

Implications for practice:

The results could have several implications for how the classes are structured and promoted. For instance, it is evident that certain segments of the target population for the infant nutrition classes are not attending. These segments that are not being reached include those with other children, and those with lower education and income levels.

Considering that respondents have indicated that the need for information on breastfeeding and formula feeding is not as high by the time the baby is three months old, another option may be to mail information on breastfeeding and formula feeding to all parents by including it in with the letter that invites them to the infant nutrition class. Parents have indicated a need for both information and support with breastfeeding and formula feeding, but have also stated that this information and support are needed before the baby is three months old. This strategy would allow more time to be spent on issues that are of interest to a larger proportion of parents. The feeding information that is mailed out to parents should include names and numbers of community resources that parents can call if they have questions and/or need support. Receiving written material in the mail, and in conjunction with a professional to call was often cited as the preferred ways to receive infant feeding information.

Attending a class was not a strongly preferred method for receiving information, therefore, instead of referring to the session as a class, it may be better to have a less formal format, such as a 'baby fair'. This baby fair could still involve a

presentation by the Home Economist, but shorter and focusing more on topics that a majority of parents cited as being important, such as introducing solids, making homemade food, and feeding toddlers. Incentives are always an important aspect of marketing programs, and although incentives were not a factor investigated in this study they have been shown to be effective for the promotion of programs for parents (Sciacca et al., 1995). A short session with the Home Economists could be accompanied by a display table where the parents could pick up information sheets and brochures, as well as be informed of resources in their community. Any other incentives that could be obtained for the display table, such as coupons, nursing pads or magazines would be an added bonus. A question and answer period after the presentation would allow those who want to leave to do so, while others with specific questions or interests could stay longer The preferred length of time for a class was shown to be associated with participation, with the non-participants preferring one hour. Offering childcare would also be beneficial, and would help to address some of the barriers to attending.

The incentives should be mentioned in the letter, such as receiving free booklets with the latest information, and an infant feeding chart that covers the first year. The infant feeding chart is currently being handed out at the classes but specifying it in the letter may be an incentive. Parents should also be welcome to bring others with them to the session, such as their own mothers. The letter should stress that parents are able to call the Home Economists with their questions if they are unable to attend the session, as many respondents indicated that they would prefer

written material in conjunction with someone to call. It should also be made very clear that both parents are invited to the session, since this was an issue raised in response to the open ended questions.

Other factors were revealed by this study that have consequences for the promotion of the classes. For instance, the current methods of promotion are not consistent or widespread. As several of the respondents suggested, promotional sheets should probably be inserted into the baskets they receive when leaving the hospital. Parents could also be informed of the upcoming classes in their prenatal classes, although this would entail communication with the instructors of prenatal classes that currently are offered in several different locations in the Winnipeg Health Region. Promotion sheets should also be given to the public health nurses, and they should be informed of the importance of promoting these classes to all parents.

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Appendix 1: Objectives of the Infant Nutrition Classes

OBJECTIVES FOR INFANT NUTRITION CLASSES

A. Breastfeeding

1. Parents will know the benefits of breast milk.

2. Parents will know the C.P.S. recommendations for vitamin D and other nutrients.

3. Mothers will know two ways (manually/pump) of expressing breast milk.

4. Mothers will know factors that affect breastfeeding and breast milk.

5. Mothers will know how breastfeeding can be continued if they return to work outside the home.

6. Mothers will know how to wean from breast to bottle and/or cup.

B. Formula/Milk - Alternate Liquids

1. Parents will know the C.P.S. iron recommendations for infants.

2. Parents will know similarities and differences of various formulas.

3. Parents will know when to introduce whole milk and appropriate use of evaporated milk.

4. Parents will know the appropriate introductions and use of juice, water, 2%, 1% and skim milk.

5. Parents will be aware of infants individual feeding patterns and appetites.

C. Introduction of Solid Food

1. Parents will know why solid food should be delayed to 4 - 6 months.

2. Parents will recognize developmental signs of readiness for solids.

3. Parents will know:

- to introduce foods one at a time
- about allergic reactions to food
- how to choose nutritious commercial food
- how to make home made baby food
- how to plan an infant's menu
- to gradually increase amounts of food
- to gradually add texture to food
- to respect appetite of infant

D. Safety/Miscellaneous

1. Parents will know recommendations for storing breast milk, formula and baby food.

2. Parents will know guidelines for sterilizing water and equipment.

3. Parents will be aware of how to prevent choking on food.

4. Parents will be know safe microwaving techniques for warming formula and infant food.

5. Parents will know how to prevent infant tooth decay.

6. Parents will know safe methods of relieving teething pain.

7. Parents will know correct sleeping position to prevent Sudden Infant Death Syndrome (SIDS).

8. Parents will be aware of community resources for young families.

Appendix 2: Approval for Research Proposal Involving Human Subjects

UNIVERSITY OF MANITOBA

FACULTY OF HUMAN ECOLOGY

APPROVAL FOR RESEARCH PROPOSAL INVOLVING HUMAN SUBJECTS

This is to certify that Ms. Arlene Reid, of the Faculty of Human Ecology, submitted a proposal for a research project entitled:

Comparison of participants and non-participants in infant nutrition classes

The Faculty of Human Ecology Ethics Review Committee is satisfied that the appropriate ethical criteria for research involving human subjects have been met.

Members of the Committee:

Name	Position	Department
J. Bond	Professor	Family Studies
W. Pelton	Associate Professor	Clothing and Textiles
G. Sevenhuysen	Associate Professor	Foods and Nutrition

Date: April 4, 1995

Rosemary Mills
Committee Chair

Appendix 3: Exploratory Interview Question Guide

Introduction and Interview Questions to be used as a guide for the qualitative telephone interviews with the parents who are invited to the infant nutrition classes:

Introduction: Hello. May I speak with _____
(IF THE PERSON IS NOT IN ASK WHEN THE BEST TIME TO CALL BACK WOULD BE).

This is Arlene Reid from the University of Manitoba. I a graduate student in nutrition. I am calling because I am working with Manitoba Health to review the infant nutrition classes, and we would like to get your opinion on how to best meet parents needs for infant nutrition information. You were sent a letter a while back inviting you to an infant nutrition class. We are now following up on this. Your input and comments are very important and appreciated.

The questions I need to ask will take about 10 minutes. Your answers will be kept strictly confidential, and you may refuse to answer any of the questions. I would be glad to answer any questions that you may have about the study. I can also give you the number of my advisor, Dr. Campbell, so that you can verify the legitimacy of this study. Would you be willing to answer these questions?

IF YES: With your permission I would like to tape record your answers to the questions to save time from taking notes. Your name will not appear on the tape and we will erase the tape after the study. Would you be willing to have this interview tape recorded?

IF THEY ARE NOT WILLING TO HAVE THE INTERVIEW TAPE RECORDED THEN: Would you be willing to proceed with the interview without the tape recorder, and I will just keep some brief notes instead?

Is this a convenient time for you, or would you like me to call you back.
(IF THEY ASK TO BE CALLED BACK:
When is appropriate time to call you? _____).

Questions:

1. I would like to start by asking you what types of infant feeding information you think that parents need?

   Probes:

   What other kinds of infant feeding information do parents need?

How important is it that parents get this information on infant feeding?

Do you think that it is really necessary?

Do you think that other issues might have priority over infant feeding issues? (i.e. medical, financial, or psychological).

Rationale: To determine the perceived need for infant feeding information.

2. There are several ways that people can obtain the information that they need. In what ways have you received information on infant feeding?

Probes:

How do you prefer to receive information on infant feeding and nutrition? (i.e. format)

Who do you feel are the best sources of infant nutrition information?

How do you feel about having Home Economists as sources of infant nutrition information?

Rationale: Looking for differences between those who attend the classes and those who do not regarding how they prefer to receive information on infant feeding.

3. What kind of things do you think that parents would be expecting to get from attending an infant nutrition class?

Probes:

Can you think of any other consequences that may be associated with attending an infant nutrition class?

What do you see as some of the advantages and disadvantages of attending an infant nutrition class?

Rationale: To gain information on what parents think the possible outcomes of attending are.

4. There are several reasons why people may choose not to come to an infant nutrition class. Why do you think people would decide not to come to an infant nutrition class?

Probes:

Can you think of anything else that may prevent someone from attending an infant nutrition class?

Is there anything about the letter that invites parents to the class that may affect their decision to attend?

What did you like about the letter that invites the parents to the class?

What did you dislike about the letter?

Some people may not go to the class because they may feel that they are unable to attend a class, or carry out what they learn. What things may some parents not feel confident about being able to do when it comes to attending an infant nutrition class?

Rationale: Looking for information on possible barriers to attending the classes.

5. THE FOLLOWING QUESTION IS ONLY FOR THOSE WHO HAVE ATTENDED AN INFANT NUTRITION CLASS:

What are some of the reasons that you decided to attend the infant nutrition class?

Probe:

What else were you hoping to get from the class?

Rationale: To learn what factors have motivated people to attend.

6. THE FOLLOWING QUESTION IS ONLY FOR THOSE WHO DID NOT ATTEND AN INFANT NUTRITION CLASS:

Why did you choose not to attend the infant nutrition class?

Probes:

Are there any other reasons why you decided not to attend the infant nutrition class?

What was the main reason for your not attending?

What would influence you to attend a class?

Rationale: To learn what has prevented people from attending.

7. Do you think that childrens' health is mainly the responsibility of the parents, or the responsibility of health professionals, such as doctors and nurses?

8. Are you a first time parent?

9. Did you attend prenatal classes?

10. Did the Public Health Nurse encourage you to attend the infant nutrition class?

11. Do you have any comments or suggestions that you think may help us with the infant nutrition classes.

Thank you very much for your time and contribution, we really appreciate your help.

Appendix 4: Letter to Parents

Dear parent,

Enclosed is a letter inviting you to a Manitoba Health infant nutrition class. In a week or two you may be telephoned as part of a study to evaluate these infant nutrition classes. The purpose of this study is to see how well these classes are meeting parents' information needs. Asking parents about their views on infant nutrition is an important part of this evaluation.

When we call, we will ask if you would like to participate in the study. Participation will involve answering a few questions on the telephone about infant feeding, your family, and how you like to receive infant nutrition information. The call will take about 20 minutes. All answers that you provide will be kept strictly confidential.

This study is being conducted by the University of Manitoba, in conjunction with Manitoba Health. Although we would like to talk with all the parents who are invited to the class, this is not possible, but we wanted you to be informed that you may be called. If we call at an inconvenient time, please tell us and we will be happy to call back later.

Participation in the study is voluntary, however, your thoughts about infant nutrition are very important for the study's success. Your help will be greatly appreciated. It is important to hear from all parents, because we need to know the opinions of everyone. If you would like the results of the study we would be happy to send you a summary when the study is completed.

Thank you for your time and consideration.

Sincerely,

Ms. Arlene Reid
(Project Coordinator)
Dep't of Foods & Nutrition
Faculty of Human Ecology
University of Manitoba
phone:

Dr. Marian Campbell
(Associate Professor)
Dep't of Foods & Nutrition
Faculty of Human Ecology
University of Manitoba
phone:

Appendix 5: Survey Questionnaire

A COMPARISON OF PARTICIPANTS AND NON-PARTICIPANTS IN INFANT NUTRITION CLASSES SPONSORED BY MANITOBA HEALTH: TELEPHONE SURVEY

Subject Identification Number: ____ _____ _____ **I.D.**

Interviewer Identification Number: _____ _____ **INT**

Participation: **PART**

- Participant 1
- Non-participant 2
- Registers but doesn't attend 3
- Attends but doesn't register 4

Class: **CLASS**

- Charleswood 1
- East Kild./North Kild 2
- Fort Garry 3
- St. Bon./St. Vital 4
- St. James 5
- Transcona 6
- West Kildonan 7

Record Of Calls:

	Date	Time	Comments
1.			
2.			
3.			
4.			
5.			
6.			

Fate Of Interview: **FATE**

Completed. Date:_____ 1

Partially completed
- no NR questionnare 2
- with NR questionnaire 3

Record why _____

Refused
- no NR questionnaire 4
- with NR questionnaire 5

Record why: _____

No contact after 6 callbacks 6

Telephone not in service 7

Other: *(SPECIFY):*_____ 8

INTRODUCTION:

Hello. Is this _____?
(FIRST AND LAST NAME)

(IF NO: May I speak with _____?)

This is _____ calling. I'm calling on behalf of Manitoba Health and the University of Manitoba. We're conducting a study on infant nutrition classes sponsored by Manitoba Health.

Last week we sent you two letters: one invited you to the infant nutrition class and the second explained the study.

Did you receive these letters? ____Y ____N **RECLET**

(IF YES: Did you get a chance to read them? ___Y ___N) **READLET**

(IF NO TO EITHER ABOVE/OR IF CAN'T REMEMBER: We are interested in knowing what types of questions parents have about feeding babies, and how best to get parents the information they need. Even though you didn't see the letter, we would still like your opinions on this. I would like to ask you questions about infant feeding over the phone. It would take about 15-20 minutes. Your answers would be kept strictly confidential, and your participation is voluntary)

Are you willing to participate in the survey? _____Y ____N

(IF NO, GO TO NON-RESPONDER QUESTIONS AND THEN TERMINATE CALL).

Is this a convenient time to ask the questions, or would you prefer I call back another time?

(IF NO: When is a good time to reach you?

SPECIFY DATE: _____

TIME: _____)

IF YES: Thank you for agreeing to participate. I will get started, and it is not a problem if you choose not to answer any question.

To begin, I would like to ask a few questions about where you have received information about infant feeding.

1. First, what sources have you used to get information about feeding your baby? *(DO NOT READ LIST; CIRCLE ALL THAT APPLY)* (*PROBE*: Is there anything else?) :

		YES	NO	
- BOOKS AND PAMPHLETS		1	2	SOURCE1
- MAGAZINES		1	2	SOURCE2
- DOCTOR		1	2	SOURCE3
- PUBLIC HEALTH NURSE		1	2	SOURCE4
- HOME EC/NUTRITIONIST		1	2	SOURCE5
- FAMILY:	HUSBAND	1	2	SOURCE6
	MOTHER	1	2	SOURCE7
	SISTER	1	2	SOURCE8
	OTHER	1	2	SOURCE9
	(SPECIFY):_____			
- FRIENDS		1	2	SOURCE10
- BABY FOOD CO.'S		1	2	SOURCE11
- HOSPITAL NURSE		1	2	SOURCE12
- PRENATAL CLASSES		1	2	SOURCE13
- INC:	MANITOBA HEALTH	1	2	SOURCE14
	MEAD JOHNSON'S	1	2	SOURCE15
- TELEVISION		1	2	SOURCE16
- OTHER:		1	2	SOURCE17
(SPECIFY):_____				
- OTHER:		1	2	SOURCE18
(SPECIFY):_____				
- NO RESPONSE		99		

2. Of the sources you just mentioned what <u>one</u> source has been the most useful to you. *(DO NOT READ LIST, CHECK ONLY ONE)*:

USEFUL

- BOOKS AND PAMPHLETS 01
- MAGAZINES 02
- DOCTOR 03
- PUBLIC HEALTH NURSE 04
- HOME EC/NUTRITIONIST 05
- FAMILY:
  - HUSBAND 06
  - MOTHER 07
  - SISTER 08
  - OTHER 09

  (SPECIFY):_____
- FRIENDS 10
- INFO. FM BABY FOOD CO.'S 11
- HOSPITAL NURSE 12
- PRENATAL CLASSES 13
- INC:
  - MANITOBA HEALTH 14
  - MEAD JOHNSON'S 15
- TELEVISION 16
- OTHER: 17

  (SPECIFY):_____
- DON'T KNOW 88
- NO RESPONSE 99

3. Now I will read a list of different ways of receiving infant nutrition information. After I read the list please tell me what <u>one</u> would be your most preferred method? (*READ OUT LIST, CHECK ONLY ONE*):

	PREFER
- READING MATERIAL	01
- CONSULTING WITH YOUR DOCTOR	02
- CONSULTING WITH A PUBLIC HEALTH NURSE	03
- CONSULTING WITH HOME ECONOMIST/NUTRITIONIST	04
- CONSULTING WITH FAMILY OR FRIENDS	05
- ATTENDING A CLASS OR INFORMATION SESSION	06
- RECEIVING INSTRUCTION AT THE HOSPITAL	07
- WATCHING A VIDEO OR FILM	08
- A SPECIAL TELEVISION PROGRAM	09
- CONSULTING WITH A PROFESSIONAL OVER THE PHONE	10
- THE COMPUTER INTERNET	11
- OR SOMETHING ELSE I THAT I HAVE NOT MENTIONED: :*(SPECIFY OTHER)*_____	12
- DON'T KNOW	88
- NO RESPONSE	99

Would you like me to repeat the list?

4. So far we've been talking about ways of receiving infant feeding information. Now I would like you to think about the topics that parents need information on. What are the two most important topics about infant feeding that you need information on during the first year? (*DO NOT READ LIST. CHECK TWO*):

	YES	NO	TOPIC1 TOPIC2
- BREASTFEEDING	1	2	
- EXPRESSING BREAST MILK	1	2	
- WEANING	1	2	
- NUTRIENTS AND SUPP'S	1	2	
- FORMULA FEEDING	1	2	
- SOLID FOOD	1	2	
- HOME MADE BABY FOOD	1	2	
- SAFETY ISSUES. (STERIL'N, CHOKING, SLEEPING POS'S, ETC)	1	2	
- ALLERGIES	1	2	
- JUICES AND WATER	1	2	
- BABY'S GROWTH & DEV'T	1	2	
- OTHER: *(SPECIFY):*_____	1	2	
- NO RESPONSE		99	

5. Now I would like you to think about how parents' need for infant feeding information changes throughout the first year. How parents prefer to receive this information may also change.

a) First, at the newborn stage, from birth to 3 months, what types of infant feeding information do you most need at this time? *(DO NOT READ LIST. CHECK ALL THAT APPLY):*

	YES	NO
		TYPE1
- BREASTFEEDING	1	2
- FORMULA FEEDING	1	2
- OTHER:	1	2
*(SPECIFY):*_____		
- DON'T KNOW	88	
- NO RESPONSE	99	

And, how would you most prefer to receive infant feeding information at this newborn stage, from birth to 3 months? *(DON'T READ LIST. CHECK ONLY ONE).*

INFNEED1

READING MATERIAL	1
ATTENDING A CLASS	2
TALKING TO A DOCTOR	3
TALKING TO A PHN	4
TALKING TO ANY HEALTH PROFESSIONAL	5
TALKING TO FAMILY OR FRIENDS	6
OTHER *(SPECIFY):*_____	7
DON'T KNOW	88
NO RESPONSE	99

b) Now think about your baby at 4 and 6 months. What types of infant feeding information do you most need at this time? *(DO NOT READ LIST. CHECK ALL THAT APPLY):*

TYPE2

	YES	NO
- INTRODUCING SOLIDS	1	2
- INTRODUCING JUICE	1	2
- OTHER:	1	2
(SPECIFY): _____		
- DON'T KNOW	88	
- NO RESPONSE	99	

And, how would you most prefer to receive infant feeding information at this stage, from 4 to 6 months? *(DON'T READ LIST. CHECK ONLY ONE).*

INFNEED2

READING MATERIAL	1
ATTENDING A CLASS	2
TALKING TO A DOCTOR	3
TALKING TO A PHN	4
TALKING TO ANY HEALTH PROFESSIONAL	5
TALKING TO FAMILY OR FRIENDS	6
OTHER *(SPECIFY):*_____	7
DON'T KNOW	88
NO RESPONSE	99

c) When your baby is older, and closer to 12 months, what types of infant feeding information do you think you will most need at that time? *(DO NOT READ LIST. CHECK ALL THAT APPLY):*

	YES	NO
		TYPE3
- WEANING	1	2
- INTRODUCING COW'S MILK	1	2
- INTRODUCING SOLID FOODS	1	2
- OTHER:	1	2
(SPECIFY): _____		
- DON'T KNOW	88	
- NO RESPONSE	99	

And, at this stage of development, when you have an older baby, how do you think you will prefer to receive infant feeding information?*(DON'T READ LIST. CHECK ONLY ONE).*

	INFNEED3
READING MATERIAL	1
ATTENDING A CLASS	2
TALKING TO A DOCTOR	3
TALKING TO A PHN	4
TALKING TO ANY HEALTH PROFESSIONAL	5
TALKING TO FAMILY OR FRIENDS	6
OTHER *(SPECIFY)*:_____	7
DON'T KNOW	88
NO RESPONSE	99

Do you have any other comments about the types of infant feeding information that parents need?

- OTHER COMMENTS: _____

_____

6. Now I would like to know if you feel that your knowledge of infant feeding is adequate? *(DO NOT READ LIST)*

KNOW

YES 1

SOMEWHAT 2

NO 3

NO RESPONSE 99

OTHER COMMENTS:*(SPECIFY)*:_____

_____

I would also like you to rate the confidence you have in your infant feeding ability, by answering 6 questions....:

7 First, would you rate your confidence in your ability to breastfeed or formula feed as: *(READ ANSWER CHOICES)*:

CONF1

VERY HIGH 1
HIGH 2
MODERATE 3
LOW 4
VERY LOW 5

8. Would you rate your confidence in introducing your baby to solid foods as *(READ LIST)*:

CONF2

VERY HIGH 1
HIGH 2
MODERATE 3
LOW 4
VERY LOW 5

9. Would you rate your confidence in weaning your baby from the breast or bottle to a cup as *(READ LIST)*:

CONF3

VERY HIGH 1
HIGH 2
MODERATE 3
LOW 4
VERY LOW 5

10. Would you rate your confidence in handling any feeding problems as *(READ LIST)*:

CONF4

VERY HIGH	1
HIGH	2
MODERATE	3
LOW	4
VERY LOW	5

11. Would you rate your confidence in providing nourishing meals for your baby when he or she is older as *(READ LIST)*:

CONF5

VERY HIGH	1
HIGH	2
MODERATE	3
LOW	4
VERY LOW	5

12. And lastly, when all things are considered, how would you rate your overall confidence in feeding your baby? *(READ LIST)*:

CONF6

VERY HIGH	1
HIGH	2
MODERATE	3
LOW	4
VERY LOW	5

Next, I would like to get your opinion on how well the infant nutrition class sponsored by Manitoba health was promoted.

The letter you were sent inviting you to the class is the first way the class is promoted. It explains where the class is, the date and time of the class, and how to register. It also mentions the topics to be discussed, including breastfeeding, formula feeding, expressing breast milk, sorting out conflicting advice, types of milk, introducing solids, making baby food, and any questions that the parents may have. The letter also invites parents to bring their babies with them to the class.

13. Do you think that the letter provides enough information about the infant nutrition classes? *(DO NOT READ ANSWER CHOICES)*:

PROMO1

YES	1
NO	2
NO RESPONSE	99

Do you have any comments about the letter, for instance, was their anything about the letter that you especially liked or disliked?

Comments:_____

_____

_____

Besides the letter, the public health nurse sometimes promotes the infant nutrition classes to parents:

14. Did the Public Health Nurse encourage you to attend the infant nutrition class? *(DO NOT READ ANSWER CHOICES):*

PROMO2

YES	1
CAN'T REMEMBER	2
NO	3
NO RESPONSE	99

15. Did the public health nurse visit you in your home, talk with you on the telephone, or have any other contact with you after you had this baby? *(DO NOT READ LIST):*

PROMO3

VISIT	1
PHONE	2
OTHER:*(SPECIFY)*:_____	3
NO CONTACT	4
NO RESPONSE	99

Now I am going to read eight statements about the timing and convenience of the classes. I would like you to tell me how much you agree or disagree with each statement. Your answer choices are Strongly Agree, Somewhat Agree, Somewhat Disagree, Strongly Disagree, or Neither Agree or Disagree. The first statement is:

16. Holding the class at (*STATE LOCATION)* is convenient for me. *(READ LIST):*

BAR1

DO YOU:	STRONGLY AGREE*(GO TO 18)*	5
	AGREE*(GO TO 18)*	4
	DISAGREE*(GO TO 17)*	2
	STRONGLY DISAGREE*(GO TO 17)*	1
OR	NEITHER AGREE OR DISAGREE*(GO TO 17)*	3

17. **If you had your choice, what location, or place would you prefer an infant nutrition class to be held?** *(DO NOT READ LIST, CIRCLE ONLY ONE)*

LOC

- CHURCHES IN THE NEIGHBORHOOD 01
- LIBRARIES 02
- COMMUNITY HEALTH OFFICES 03
- COMMUNITY CENTRE 04
- ANY LOCATION IN COMMUNITY 05
- ANY LOCATION IN THE COMMUNITY WOULD BE FINE DEPENDING ON: BEING NEAR HOUSE 06
  ON A BUS ROUTE 07
  BABYSITTING 08
  OTHER _____ 09
- OTHER:_____ 10
- DON'T KNOW 88
- NO RESPONSE 99

Alright, the next statement is:...

18. A good time to be invited to an infant nutrition class is when my baby is 2 to 4 months old. *(READ LIST):*

BAR2

DO YOU	STRONGLY AGREE(*GO TO 20)*	5
	AGREE(*GO TO 20)*	4
	DISAGREE(*GO TO 19)*	2
	STRONGLY DISAGREE(*GO TO 19)*	1
OR	NEITHER AGREE OR DISAGREE(*GO TO 19)*	3

19. In your opinion, when would be the best time to be invited to an infant nutrition class? (*DO NOT READ LIST, CIRCLE ONLY ONE*)

TIME

- SOONER (BEFORE 2 MONTHS) 1
- LATER (AFTER 4 MONTHS) 2
- OTHER:*(SPECIFY):*_____ 3
- DON'T KNOW 8
- NO RESPONSE 99
- COMMENTS:_____

Now, the next statement is....

20. It would be easier to attend an infant nutrition class if transportation there and back was offered. *(READ LIST):*

BAR3

DO YOU	STRONGLY AGREE	1
	AGREE	2
	DISAGREE	4
	STRONGLY DISAGREE	5
OR	NEITHER AGREE OR DISAGREE	3

21. The infant nutrition classes should offer babysitting for the infants. *(READ LIST):*

BAR4

DO YOU	STRONGLY AGREE	1
	AGREE	2
	DISAGREE	4
	STRONGLY DISAGREE	5
OR	NEITHER AGREE OR DISAGREE	3

22. The infant nutrition classes should offer a supervised play area for older children, so that older children can be brought to the class. *(READ LIST):*

BAR5

DO YOU	STRONGLY AGREE	1
	AGREE	2
	DISAGREE	4
	STRONGLY DISAGREE	5
OR	NEITHER AGREE OR DISAGREE	3

There are only a 3 of these statements left. The next one is....:

23. It would be difficult to find the time to attend an infant nutrition class. *(READ LIST):*

BAR6

DO YOU	STRONGLY AGREE	1
	AGREE	2
	DISAGREE	4
	STRONGLY DISAGREE	5
OR	NEITHER AGREE OR DISAGREE	3

24. Attending an infant nutrition class would require a lot of effort, in terms of getting the baby and myself ready. *(READ LIST):*

BAR7

DO YOU	STRONGLY AGREE	1
	AGREE	2
	DISAGREE	4
	STRONGLY DISAGREE	5
OR	NEITHER AGREE OR DISAGREE	3

25. Attending classes is not my preferred way of getting information. *(READ LIST):*

BAR8

DO YOU	STRONGLY AGREE	1
	AGREE	2
	DISAGREE	4
	STRONGLY DISAGREE	5
OR	NEITHER AGREE OR DISAGREE	3

26. a) The questions you just answered asked why mothers may choose not to attend an infant nutrition class. Can you think of anything else that might prevent you from attending an infant nutrition class?

NONATT1

_____

_____

b) Other than those just discussed, can you think of any other reasons why someone may choose not to attend an infant nutrition class?

NONATT2

_____

_____

Now I would like to move on and get your opinion about how you feel an infant nutrition class should be organized:

27. **First, do you think that an infant nutrition class is necessary for yourself?** *(DO NOT READ LIST):*

NECESS

- YES 1
- NO 2
- DON'T KNOW 88
- NO RESPONSE 99

COMMENTS: *(RECORD ONLY IF ANY COMMENTS MADE):*

_____

_____

28 **In your opinion, how long can a mother and her baby be comfortable in a class situation?** *(DO NOT READ LIST)*:

LENGTH

- ONE HOUR 1
- TWO HOURS 2
- THREE HOURS 3
- HALF DAY 4
- OTHER: 5
  (SPECIFY):_____
- NO RESPONSE 99

29. Of the following, who should provide infant nutrition classes *(READ LIST)*:

SPONSOR

THE PROVINCIAL GOVT	1
BABY FOOD CO'S	2
HOSPITALS	3
OR SOMEONE ELSE:	4
*(SPECIFY)*_____	
DON'T KNOW	88
NO RESPONSE	99

30. And, in your opinion who should teach the infant nutrition classes *(DO NOT READ LIST)*:

TEACH

DOCTORS	1
NURSES	2
DIETITIANS/NUT'S	3
HOME ECONOMISTS	4
OTHER:_____	5
DON'T KNOW	88
NO RESPONSE	99

Next, I would like to ask about what you may expect to get out of an infant nutriton class. First, I will list some possible results of attending a class. Then I will ask how likely you think such a result would be.

31. First, how likely do you think it is that attending an infant nutrition class will give you new information on infant feeding? Is it: *(READ ANSWER CHOICES):*

EXPECT1

VERY LIKELY	5
SOMEWHAT LIKELY	4
SOMEWHAT UNLIKELY	2
VERY UNLIKELY	1
OR YOU DON'T KNOW	3

32. How likely do you think it is that attending the class will help you to sort out conflicting information about infant feeding. Is it : *(READ LIST):*

EXPECT2

VERY LIKELY	5
SOMEWHAT LIKELY	4
SOMEWHAT UNLIKELY	2
VERY UNLIKELY	1
OR DON'T KNOW	3

33. How likely do you think it is that an infant nutrition class will provide you with information that may contribute to your infant's health and well being. Is it: *(READ LIST):*

EXPECT3

VERY LIKELY	5
SOMEWHAT LIKELY	4
SOMEWHAT UNLIKELY	2
VERY UNLIKELY	1
OR DON'T KNOW	3

34. How likely do you think it is that attending a class will give you the opportunity to share ideas with other parents of newborns. Is it: *(READ LIST):*

EXPECT4

VERY LIKELY	5
SOMEWHAT LIKELY	4
SOMEWHAT UNLIKELY	2
VERY UNLIKELY	1
OR DON'T KNOW	3

There are only two of this type of question left. The next is.....

35. How likely do you think it is that attending a class will provide answers to questions on infant feeding that you have been unable to ask elsewhere. Is it: *(READ LIST):*

EXPECT5

VERY LIKELY	5
SOMEWHAT LIKELY	4
SOMEWHAT UNLIKELY	2
VERY UNLIKELY	1
OR DON'T KNOW	3

36. Do you think attending an infant nutrition class will provide reassurance that you are doing the right things as a parent of an infant. Is it: *(READ LIST):*

EXPECT6

VERY LIKELY	5
SOMEWHAT LIKELY	4
SOMEWHAT UNLIKELY	2
VERY UNLIKELY	1
OR DON'T KNOW	3

37. What kinds of reassurance do you think that parents of infants may be looking for? (*PROBE:* Do you have any other thoughts about reassuring parents).

REASS

COMMENTS: _____

_____

_____

_____

_____

DON'T KNOW 88

NO RESPONSE 99

This ends the questions on what parents may expect from an infant nutrition class. Now I would like you to tell me how much value you place on each of the possible outcomes of attending. These may seem to repeat the earlier questions, but they are really asking different things. The first set asked how likely the possible results are, and this set will ask about the value placed on these results. Your answer choices are 'A very high value', 'A high value', 'A low value', 'A very low value', or, 'Not sure'.

38. First, how much value would you place on receiving new information on infant feeding? *(REPEAT ANSWER CHOICES):*

VALUE1

A VERY HIGH VALUE 5
A HIGH VALUE 4
A LOW VALUE 2
A VERY LOW VALUE 1
OR ARE YOU NOT SURE 3

39. How much value would you place on sorting out conflicting information on infant feeding? *(REPEAT LIST):*

VALUE2

A VERY HIGH VALUE 5
A HIGH VALUE 4
A LOW VALUE 2
A VERY LOW VALUE 1
OR NOT SURE 3

40. How much value would you place on receiving information that may contribute to the health of your baby? *(REPEAT LIST):*

VALUE3

A VERY HIGH VALUE	5
A HIGH VALUE	4
A LOW VALUE	2
A VERY LOW VALUE	1
OR NOT SURE	3

41. How much value would you place on sharing ideas with other parents of infants? *(REPEAT LIST):*

VALUE4

A VERY HIGH VALUE	5
A HIGH VALUE	4
A LOW VALUE	2
A VERY LOW VALUE	1
OR NOT SURE	3

42. How much value would you place on getting anwers to questions on infant feeding that you have not been able to ask elsewhere? *(REPEAT LIST):*

VALUE5

A VERY HIGH VALUE	5
A HIGH VALUE	4
A LOW VALUE	2
A VERY LOW VALUE	1
OR NOT SURE	3

43. How much value would you place on receiving reassurance that you are doing the right things as a parent of an infant? *(REPEAT LIST):*

VALUE6

A VERY HIGH VALUE	5
A HIGH VALUE	4
A LOW VALUE	2
A VERY LOW VALUE	1
OR NOT SURE	3

Now I am going to move on and ask a few questions on infant feeding practices.

44. First, I would like to ask about your current feeding practice. How are you currently feeding your infant? *(CHECK RESPONSE WITHOUT READING LIST):*

FEED

BREASTFEEDING	1
FORMULA FEEDING	2
COMBINATION (BF+FF)	3
OTHER:*(SPECIFY)*:_____	4
NO RESPONSE	99

45. Have you introduced your baby to solids yet, such as baby cereal or pablum? *(DON'T READ LIST):*

SOLID

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

The next few questions ask what parents think about a variety of infant feeding practices. You can answer with a Yes, No or Don't Know. Please don't guess at any of the questions, if you don't know then you can just say so. This isn't a test, we are just interested in what parent's think about these issues. The first question is:

46. It is alright to put a baby to bed with a bottle if it only contains milk? *(READ LIST):*

TEST1

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

47. If a baby is being fed from a bottle, it is alright to prop the bottle so that that the baby does not have to be held when feeding? *(READ LIST):*

TEST2

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

48. **Breastmilk or formula is the only food that should be given to babies until they are 4 to 6 months old?** *(READ LIST):*

TEST3

YES	2
NO	1
DON'T KNOW	88
NO RESPONSE	99

49. **Solid foods can help infants sleep through the night?** *(READ LIST):*

TEST4

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

50. **It is best to introduce cow's milk to babies after they are 9 months old?** *(READ LIST):*

TEST5

YES	2
NO	1
DON'T KNOW	88
NO RESPONSE	99

51. **When a baby is ready for cow's milk, it is best to give the baby milk that is lower in fat?** *(READ LIST):*

TEST6

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

52. Infants should be given fruit juice by 2 months of age? *(READ LIST):*

TEST7

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

53. It is alright to mix baby cereal or pablum with the baby's milk or formula so that it can be fed from a bottle? *(READ LIST):*

TEST8

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

54. It is alright to give an infant corn syrup? *(READ LIST):*

TEST9

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

55. When introducing a baby to solid foods, new foods should only be introduced one at a time? *(READ LIST):*

TEST10

YES	2
NO	1
DON'T KNOW	88
NO RESPONSE	99

THE NEXT TWO QUESTIONS ARE FOR BREASTFEEDING AND COMBINATION FEEDING MOTHERS ONLY:

56. **Breastmilk contains all the vitamins a baby needs?** *(READ LIST):*

TEST11

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

57. **If a breastfed baby reacts to something the mother is eating or drinking, the mother should stop breastfeeding immediately?** *(READ LIST):*

TEST12

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

THE NEXT TWO QUESTIONS ARE FOR FORMULA FEEDING MOTHERS ONLY:

58. **When preparing formula it is alright to add extra water to the formula?** *(READ LIST):*

TEST11

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

59. **When warming formula, it is safe to warm the bottle in the microwave?** *(READ LIST):*

YES	1
NO	2
DON'T KNOW	88
NO RESPONSE	99

The last few questions are about you and your family. The first questions are about your previous experience with attending classes:

60. In the past, have you attended classes or information sessions for the public to get information on health related issues? *(DON'T READ LIST):*

PASTATT

- YES 1
- NO 2
- NO RESPONSE 99

61. Did you attend a prenatal class when you were pregnant with this baby? *(DON'T READ LIST):*

PRENAT1

- YES 1
- NO 2
- NO RESPONSE 99

62. Are you a first time parent, or do you have other children? *(DON'T READ LIST):*

PARENT

- 1ST TIME PARENT (*GO TO QUESTION 67)* 1
- HAVE OTHER CHILDREN (*GO TO QUESTION 63)* 2
- NO RESPONSE (*GO TO QUESTION 63)* 99

63. How many other children do you have?

RANK

_____

What are their ages?

GAP

_____

64. Did you attend a prenatal class with any previous pregnancy? *(DON'T READ LIST):*

PRENAT2

- YES 1
- NO 2
- NO RESPONSE 99

65. Did you attend an infant nutrition class with a previous baby? *(DON'T READ LIST):*

PREVINC

- YES 1
- NO 2
- NO RESPONSE 99

66. Does having other children make it difficult to attend a class in the community? *(DON'T READ LIST):*

DIFFIC

- YES 1
- SOMEWHAT 2
- NO 3
- NO RESPONSE 99

67. If you were to attend an infant nutrition class, how is the most likely way that you would you get to the class? *(DO NOT READ LIST, CIRCLE ONLY ONE)*:

TRANS

- OWN VEHICLE 1
- BORROWED VEHICLE 2
- BUS 3
- TAXI CAB 4
- WALK 5
- OTHER:*(SPECIFY)*:_____ 6
- NO RESPONSE 99

Now I would like you to think about the people who give you the most support.

68. Who are the two people that give you the most help and advice about looking after your baby? *(DO NOT READ LIST. CHECK TWO)*: **SUP1** **SUP2**

	YES	NO
- MALE PARTNER	1	2
- MOTHER	1	2
- FATHER	1	2
- SISTER	1	2
- BROTHER	1	2
- MOTHER IN LAW	1	2
- CLOSE FRIEND/S	1	2
- DOCTOR	1	2
- NURSE	1	2
- PEOPLE AT WORK/SCHOOL	1	2
- OTHER:*(SPECIFY)*_____	1	2
- DON'T KNOW		88
- NO RESPONSE		99

I just have a few questions left. They provide background information so we know the mothers we talk to represent mothers in Manitoba.

69. First, when was your new baby born? *(RECORD DATE OF BIRTH)*: **BABAGE**

_____
(MONTH, DAY, YEAR)

70. How would you rate the current health of your infant? Is it generally *(READ LIST)*:

HEALTH1

- EXCELLENT 1
- GOOD 2
- FAIR 3
- POOR 4
- NO RESPONSE 99

71. And your health, is it generally *(READ LIST)*:

HEALTH2

- EXCELLENT 1
- GOOD 2
- FAIR 3
- POOR 4
- NO RESPONSE 99

72. The next question is about your age. Please stop me when I get to your age group. Are you *(READ LIST)*:

MOMAGE

- UNDER 20 YEARS 1
- 20 TO 24 2
- 25 TO 29 3
- 30 TO 34 4
- 35 TO 39 5
- OR 40 YEARS OR OVER 6
- NO RESPONSE 99

73. How many people are in your household,including yourself *(DO NOT READ LIST)*:
AFTER REPLY ASK: And this number includes yourself and your baby?

PEOPLE

- ONE 1
- TWO 2
- THREE 3
- FOUR 4
- FIVE 5
- SIX OR MORE 6
- NO RESPONSE 99

74. Now about your marital status. Are you currently *(READ LIST)*:

MARITAL

- MARRIED 1
- LIVING COMMON LAW 2
- DIVORCED 3
- SEPARATED 4
- WIDOWED 5
- NEVER MARRIED 6
- NO RESPONSE 99

75. Is your spouse/partner currently *(READ LIST)*:

DADEMP

- EMPLOYED FULL TIME *(GO TO #76)* 1
- EMPLOYED PART TIME *(GO TO #76)* 2
- A COLLEGE OR UNIVERSITY STUDENT *(GO TO #77)* 3
- OR NOT EMPLOYED *(GO TO #77)* 4
- OTHER *(SPECIFY)*:_____ *(GO TO #76)* 5
- NO RESPONSE *(GO TO #76)* 99

76. What is his occupation: _____ **DADOCC**

77. What is the highest grade in school or year at college that he has completed? *(DO NOT READ LIST):*

DADED

- GRADE 8 OR LESS 1
- SOME HIGH SCHOOL 2
- COMPLETED HIGH SCHOOL 3
- COMPLETED TECHNICAL OR TRADE SCHOOL PROGRAM 4
- SOME UNIVERSITY COURSES 5
- UNIVERSITY DEGREE 6
- POST-GRADUATE DEGREE 7
- DON'T KNOW 88
- NO RESPONSE 99

78. Now about your employment status. Are you currently *(READ LIST)*:

EMPLOY

- EMPLOYED FULL TIME *(GO TO #79)* 1
- EMPLOYED PART TIME *(GO TO #79)* 2
- COLLEGE OR UNIVERSITY STUDENT *(GO TO #80)* 3
- NOT EMPLOYED OUTSIDE HOME *(GO TO #80)* 4
- OTHER *(GO TO #79)(SPECIFY)*_____ 5
- NO RESPONSE *(GO TO #79)* 99

OCCUP

79. What is your occupation: _____

80. What is the highest grade in school or year at college you have completed: *(DO NOT READ LIST)*:

MOMED

- GRADE 8 OR LESS 1
- SOME HIGH SCHOOL 2
- COMPLETED HIGH SCHOOL 3
- COMPLETED TECHNICAL OR TRADE SCHOOL PROGRAM 4
- SOME UNIVERSITY COURSES 5
- UNIVERSITY DEGREE 6
- POST-GRADUATE DEGREE 7
- NO RESPONSE 99

81. Now I would like to ask about your family's total yearly income, from all sources, before taxes. I will read several income categories. When I come to the category that best describes your family's total yearly income before taxes, please stop me. *(READ LIST)*:

INCOME

- UNDER $20,000 1
- UNDER $30,000 2
- UNDER $40,000 3
- UNDER $50,000 4
- UNDER $60,000 5
- UNDER $70,000 6
- $70,000 OR OVER 7
- DON'T KNOW 88
- NO RESPONSE 99

81. And lastly, are you currently smoking on a daily basis: *(DO NOT READ LIST)*

SMOKE

- YES 1
- NO 2
- NO RESPONSE 99

This completes my questions. Do you have any suggestions or comments that may help us with the infant nutrition classes?

Thank you very much for your time. We really appreciate your help.

Would you like to receive a report of the results from this study? ☐**yes** ☐**no**

IF YES RECORD ADDRESS OF RESPONDENT ON BACK PAGE (FOLLOWING PAGE):

Appendix 6: Non-responder Questionnaire

INTERVIEWER I.D.#: _____ SUBJECT I.D. # : ____ _____ _____

A COMPARISON OF PARTICIPANTS AND NON-PARTICIPANTS IN INFANT NUTRITION CLASSES SPONSORED BY MANITOBA HEALTH - 1995.

NON-RESPONDER QUESTIONNAIRE

I understand that you do not wish to participate in the survey. However, would you mind answering 5 or 6 short background questions instead? We use this information to make sure that the mothers we talk to represent mothers in Manitoba. It will only take a couple of minutes, and your answers are entirely confidential.

IF NO: THANK THEM FOR THEIR TIME AND TERMINIATE THE CALL

1) The first question concerns your age, please stop me when I get to your age group. Are you *(READ LIST):*

MOMAGE

- UNDER 20 YEARS 1
- 20 TO 24 2
- 25 TO 29 3
- 30 TO 34 4
- 35 TO 39 5
- OR 40 YEARS OR OVER 6
- NO RESPONSE 99

2) Now I would like to ask about your employment status. Are you currently: *(READ LIST):*

EMPLOY

- EMPLOYED FULL TIME *(GO TO # 3)* 1
- EMPLOYED PART TIME *(GO TO # 3)* 2
- COLLEGE OR UNIVERSITY STUDENT *(GO TO # 4)* 3
- NOT EMPLOYED OUTSIDE HOME *(GO TO # 4)* 4
- OTHER *(GO TO # 4)* 5
- NO RESPONSE *(GO TO # 3)* 99

3) What is your occupation _____ **OCCUP**

4) What is the highest grade in school or year at college you have completed? *(DO NOT READ LIST)*:

MOMED

- GRADE 8 OR LESS 1
- SOME HIGH SCHOOL 2
- COMPLETED HIGH SCHOOL 3
- COMPLETED TECHNICAL OR TRADE SCHOOL PROGRAM 4
- SOME UNIVERSITY COURSES 5
- UNIVERSITY DEGREE 6
- POST-GRADUATE DEGREE 7
- NO RESPONSE 99

5) Now I would like to ask about your family's total yearly income, from all sources, before taxes. I will read several income categories. When I come to the category that best describes your family's total yearly income before taxes, please stop me. *(READ LIST)*:

INCOME

- UNDER $20,000 1
- UNDER $30,000 2
- UNDER $40,000 3
- UNDER $50,000 4
- UNDER $60,000 5
- UNDER $70,000 6
- $70,000 or over 7
- DON'T KNOW 88
- NO RESPONSE 99

6) Now, about your marital status. Are you currently *(READ LIST)*:

MARITAL

- MARRIED 1
- LIVING COMMON LAW 2
- DIVORCED 3
- SEPARATED 4
- WIDOWED 5
- NEVER MARRIED 6
- NO RESPONSE 99

7) Are you a first time parent, or do you have other children?

PARENT

- FIRST TIME PARENT 1
- HAVE OTHER CHILDREN 2
- NO RESPONSE 99

Thank you very much for your time, it is really appreciated.

Appendix 7: Comparing Participants

Comparing Participants

Registered and attended = 41
Registered and did not attend = 13
Attended without registering = 1

A participant is defined as a parent who registers for the infant nutrition classes; however, there were 13 who registered and then did not attend, and 1 who attended without registering. A comparison is done to determine if these 14 respondents differ from those who registered and attended on key variables.

Variable	%Register-Attend (n=41)	%Register-don't attend (n=13) + don't register-attend (n=1)
Mom's education: ≤ gr.12	14.6	28.6
technical/some university	39.0	50.0
university degree	46.3	21.4
Chi square: 3.03 p=0.22		
Mom's employ't: employed	82.9	81.8
unemployed	17.1	21.4
Chi square: 0.13 p=0.72		
Family income: ≤$40 000	9.8	0.0
<$50 000	22.0	21.4
<$60 000	29.3	14.3
<$70 000	17.1	7.1
≥$70 000	14.6	28.6
no response	7.3	28.6
Chi square: 7.81 p=0.17		

Appendix 8: Distribution of Responses to Knowledge Questions

Distribution of responses to knowledge questions

P = participant
NP = nonparticipant

1 = incorrect response
2 = correct response

	%P n=55	%NP n=122
It is all right to put a baby to bed with a bottle if it only contains milk?		
(1) YES	1.8	4.1
(2) NO	89.1	94.3
(1) DON'T KNOW	9.1	1.6
If a baby is being fed from a bottle, it is all right to prop the bottle so that the baby does not have to be held when feeding?		
(1) YES	3.6	6.5
(2) NO	87.3	90.2
(1) DON'T KNOW	9.1	3.3
Breastmilk or formula is the only food that should be given to babies until they are 4 to 6 months old?		
(2) YES	71.0	76.2
(1) NO	21.8	19.7
(1) DON'T KNOW	7.2	4.1
Solid foods can help infants sleep through the night?		
(1) YES	20.0	33.6
(2) NO	49.1	49.2
(1) DON'T KNOW	30.9	17.2

It is best to introduce cow's milk to babies after they are 9 months old?

(2) YES	69.1	83.6
(1) NO	9.1	7.4
(1) DON'T KNOW	21.8	9.0

When a baby is ready for cow's milk, it is best to give the baby milk that is lower in fat?

(1) YES	9.1	16.4
(2) NO	78.2	75.4
(1) DON'T KNOW	12.7	8.2

Infants should be given fruit juice by 2 months of age?

(1) YES	3.6	4.1
(2) NO	85.5	87.7
(1) DON'T KNOW	10.9	8.2

It is all right to mix baby cereal or pablum with the baby's milk or formula so that it can be fed from a bottle?

(1) YES	12.7	27.1
(2) NO	60.0	63.1
(1) DON'T KNOW	27.3	9.8

It is all right to give an infant corn syrup?

(1) YES	5.5	6.5
(2) NO	78.2	82.0
(1) DON'T KNOW	16.3	11.5

When introducing a baby to solid foods, new foods should be introduced one at a time?

(2) YES	90.9	98.4
(1) NO	0.0	0.8
(1) DON'T KNOW	9.1	0.8

THE NEXT TWO QUESTIONS ARE FOR BREASTFEEDING AND COMBINATION FEEDING (BF+FF) MOTHERS ONLY:

	%P	%NP
Breastmilk contains all the vitamins a baby needs?		
(1) YES/DON'T KNOW	41.9	39.5
(2) NO	58.1	60.5

If a breastfed baby reacts to something the mother is eating or drinking, the mother should stop breastfeeding immediately?

(1) YES/DON'T KNOW	11.6	7.9
(2) NO	88.4	92.1

THE NEXT TWO QUESTIONS ARE FOR FORMULA FEEDING MOTHERS ONLY:

When preparing formula it is all right to add extra water to the formula?

(1) YES/DON'T KNOW	8.3	19.6
(2) NO	91.7	80.4

When warming formula, it is safe to warm the bottle in the microwave?

(1) YES/DON'T KNOW	8.3	19.6
(2) NO	91.7	80.4

Appendix 9: Pooled Data Results for Variables in the Hypotheses

Table A9 - 1: Demographic information

Variable	% participants (n=55)	% nonparticipants (n=122)	Total %
Mother's age:			
<20	1.8	5.7	4.5
20-24	9.1	9.0	9.0
25-29	32.7	29.5	30.5
30-34	38.2	41.8	40.7
35-39	16.4	10.7	12.4
>40	0.0	3.3	2.3
Chi square: 6.55	(n=54, 1 participant		
p = 0.364	no response excluded)		
Mother's health perceived:			
excellent	58.2	59.8	59.3
good	41.8	32.8	35.6
fair	0.0	5.7	4.0
poor	0.0	1.6	1.1
Chi square: 4.94			
p = 0.176			
Baby's health perceived:			
excellent	90.9	87.7	88.7
good	9.1	11.5	10.7
fair	0.0	0.8	0.6
Chi square: 0.70			
p = 0.706			
Smoke:			
yes	10.9	13.9	13.0
no	89.1	86.1	87.0
Chi Square: 0.31			
p = 0.580			
Marital status:			
married	89.1	76.2	80.2
common law	5.5	15.6	12.4
separated	0.0	2.5	1.7
never married	5.5	5.7	5.6
Chi square: 5.26			
p = 0.154			

Table A9-2: Socio-economic information

Variable	%participant (n=55)	%non-participant (n=122)	Total %
Dad's employment:			
full time	88.5	84.8	86.0
part time	5.8	4.5	5.0
other/no response	5.8	10.7	9.0
Chi square: 0.13	(n=52 - those with	(n=112 - those with	
p = 0.569	partners)	partners)	
Dad's occup. status:			
semi-skilled	17.6	24.3	22.1
skilled	45.1	48.5	47.4
professional	37.3	27.2	30.5
Chi square: 1.90	(n=41 - those with	(n=103 - those with	
p = 0.387	employed partners)	employed partners)	
(5 no responses excluded-1p & 4np's)			
Dad's education:			
≤ grade 12	25.0	45.0	38.7
tech./some univ'ty	28.8	26.1	27.0
university degree	46.2	28.8	34.4
Chi square: 6.87	(n=52 - those with a	(n=112 - those with a	
p = 0.032	partner)	partner)	
Mother's employment:			
full time	49.1	36.1	40.1
part time	32.7	22.1	25.4
not employed/other	18.2	36.1	34.5
Chi square: 9.42			
p = 0.009			
Mom's occup. status:			
semi-skilled	19.6	33.3	28.0
skilled	37.0	41.7	43.5
professional	43.5	25.0	32.2
Chi square: 5.03	(n=46 - those employed)	(n=72 - those employed)	
p = 0.081			
Mom's education:			
≤ grade 12	18.2	53.7	42.6
tech./some univ'ty	41.8	19.8	26.7
university degree	40.0	26.4	30.7
Chi square: 20.31		(1 no response	
p < 0.001		excluded - np)	
Total family income:			
under $50 000	29.1	51.6	44.6
under $60 000	25.5	10.7	15.3
under $70 000	14.5	6.6	9.0
over $70 000	18.2	17.2	17.5
don't know/no res.	12.7	13.9	13.6
Chi square: 12.50			
p = 0.0140			

Table A9-3: Parent status

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Parent:			
first	76.4	25.4	41.2
not first	23.6	74.6	58.8
Chi square: 40.62			
p < 0.001			

Table A9-4: Previous attendance at classes for nutrition information

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Past attendance-health information:			
yes	36.4	37.0	36.7
no	63.6	63.0	63.3
Chi square: 0.004			
p = 0.947			
Attend prenatal-this baby:			
yes	70.9	28.0	41.2
no	29.1	72.0	58.8
Chi square: 28.98			
p < 0.001			

Table A9-5: Knowledge score

Score on knowledge:			
Mean (/12):	9.13	9.56	
Std. dev'n:	2.28	2.03	
Z = 1.19			
p = 0.234			

Table A9-6: Perceived barriers to participation

Variable	participant	nonparticipant
Barrier score[1]:		
Mean:	3.70	3.26
Std. dev'n:	0.34	0.45
Z = 6.85	**Aspin-Welch: 6.86**	
p < 0.001	**p < 0.001**	

Barrier index based on respondents rating of the following potential barriers:

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Locat'n convenient:			
disagree	3.6	10.7	8.5
agree	96.4	89.3	91.5
Chi square: 2.41			
p = 0.121			
Good timing:			
disagree	18.2	22.0	21.0
agree	81.8	78.0	79.0
Chi square: 0.36			
p = 0.550			
Easier if transp'n offered:			
agree	21.8	34.4	30.5
disagree	78.2	65.6	69.5
Chi square: 2.84			
p = 0.092			
Babysitting should be offered:			
agree	21.8	35.2	31.1
disagree	78.2	64.8	68.9
Chi square: 3.19			
p = 0.074			
Supervision for older children:			
agree	67.3	84.4	79.1
disagree	32.7	15.6	20.9
Chi square: 6.75			
p = 0.009			
Difficult to find time:			
agree	7.3	41.8	31.1
disagree	92.7	58.2	68.9
Chi square: 21.10			
p < 0.001			

1. Barrier score created by taking the average rating of eight possible barriers. The respondents rated the barriers on the following scales:

For the first two (location and timing):

strongly agree = 5
agree = 4
neither = 3
disagree 2
strongly disagree 1

For the rest:

strongly agree = 1
agree = 2
neither = 3
disagree = 4
strongly disagree 5

Table A9-6 continued

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Requires alot of effort:			
agree	14.5	32.0	26.6
disagree	85.5	68.0	73.4
Chi square: 5.99			
p = 0.015			
Not preferred method:			
agree	9.1	53.3	39.5
disagree	90.9	46.7	60.5
Chi square: 30.96			
p < 0.001			

Table A9-7: Parent's outcome expectations re: the infant nutrition classes

Variable	participant	nonparticipant
Outcome index[1]:		
Mean:	116.25	104.40
Std. dev'n:	19.48	25.25
Z = 3.41	**Aspin-Welch: 3.40**	
p = 0.0006	**p = 0.0009**	

The outcome index is based on the respondent's rating of the following 6 outcomes:

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Receive new info.:			
likey-very likely	90.9	77.0	81.4
not likely-don't know	9.1 (5)	23.0	18.6
Chi square: 4.80			
p = 0.028			
high-very high value	100	87.7	91.5
not sure-low value	0.0	12.3	8.5
Chi square: 7.39			
p = 0.007			

1. The outcome index = the sum of the outcome expectations multiplied by the corresponding outcome values: i.e.: (expect 1 x value 1) + (expect 2 x value 2) .....

Outcome expectations were rated as follows:		Outcome values were rated as follows:	
Very likely =	5	Very high =	5
Somewhat likely=	4	High =	4
Don't know =	3	Not sure =	3
Somewhat unlikely =	2	Low =	2
Very unlikely =	1	Very low =	1

Table A9-7 continued

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Sort out conflicting inf.:			
likey-very likely	89.1	79.5	82.5
not likely-don't know	10.9	20.5	17.5
Chi square: 2.41			
p = 0.121			
high-very high value	94.5	82.8	86.4
not sure-low value	5.5	17.2	13.6
Chi square: 4.47			
p = 0.034			
Info.↑infant health:			
likey-very likely	94.5	83.6	87.0
not likely-don't know	5.5	16.4	13.0
Chi square: 4.01			
p = 0.045			
high-very high value	100	96.7	97.7
not sure-low value	0.0	3.3	2.3
Chi square: 1.84			
p = 0.174			
Share ideas-parents:			
likey-very likely	89.1	93.4	92.1
not likely-don't know	10.9	6.6	7.9
Chi square: .99			
p = 0.321			
high-very high value	89.1	82.8	84.7
not sure-low value	10.9	17.2	15.3
Chi square: 1.17			
p = 0.280			
Questions answered:			
likey-very likely	83.6	64.0	70.1
not likely-don't know	16.4	36.0	29.9
Chi square: 7.01			
p = 0.008			
high-very high value	98.2	86.0	89.8
not sure-low value	1.8	14.0	10.2
Chi square: 6.09			
p = 0.014			

Table A9-7 continued

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Reassurance:			
likely-very likely	98.2	87.7	91.0
not likely-don't know	1.8	12.3	9.0
Chi square: 5.06			
p = 0.024			
high-very high value	96.4	91.0	92.7
not sure-low value	3.6	9.0	7.3
Chi square: 1.61			
p = 0.204			

Table A9-8: Preferred method for receiving information

Variable	%participant (n=55)	%nonparticipant (n=122)	Total %
Most preferred way:			
reading material	32.7	20.5	24.3
doctor	20.0	37.0	31.6
PHN/PHEC/nutri't	18.2	10.7	13.0
family/friends	9.1	6.6	7.3
class	12.7	6.6	8.5
other	7.3	18.9	15.3
Chi square: 12.77			
p = 0.026			