MIDWIFERY INFANT FEEDING INFORMATION SURVEY

HOW MIDWIFERY CLIENTS IN ONTARIO ACCESS INFORMATION TO SUPPORT INFANT FEEDING DECISIONS: A CROSS-SECTIONAL SURVEY

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LAY ABSTRACT

The goal of this study was to examine how midwifery clients in Ontario access information about infant feeding throughout the pregnancy and postpartum period. An online survey of 235 current and former midwifery clients identified why some information sources were more useful than others, and how infant feeding information could become more accessible. The midwife-client relationship and use of online/digital media were identified as important information sources. However, a number of information gaps were identified that suggest not all clients benefit from comprehensive discussions with their midwife in preparation for infant feeding. Further research is needed to understand barriers midwives may face in discussing infant feeding with their clients, and the use of online/digital tools to support midwifery clients to meet their infant feeding goals. The results of this study may benefit all childbearing families in Ontario.

ABSTRACT

The initiation and duration of exclusive chest/breastfeeding are important health determinants and a key focus of existing public health policy and programs. Despite the demonstrated benefits of chest/breastfeeding and focus on interventions, overall rates of initiation and exclusivity in Ontario remain low. The purpose of this study was to describe how midwifery clients in Ontario - a population credited with high rates of exclusive chest/breastfeeding - access information to support infant feeding decisions. A descriptive, cross-sectional online electronic survey was conducted using the *Midwifery Infant Feeding Information Survey* questionnaire which was locally developed for this study. A total of 235 midwifery clients who were either in or recently discharged from midwifery care at the time of the survey completed the questionnaire. Data analysis was completed using descriptive statistics with total counts and content analysis for open-ended questions. This research contributes new knowledge about infant feeding information access including the reported usefulness and preferences of various information sources across the continuum of care; the importance of the midwife-client relationship and the online information environment; potential communication gaps in the delivery of comprehensive prenatal infant feeding information; and self-reported infant feeding patterns suggesting midwifery exclusive chest/breastfeeding rates may not be as high as previously thought. Further research to improve information access is needed in order to identify barriers midwives face in discussing infant feeding with clients; explore the effect of health literacy in an online information environment to support the potential

development of evidence-based, midwifery-specific online/digital tools. The study findings are relevant for both the academic and clinical midwifery community in developing effective strategies to further support midwifery clients in meeting their infant feeding goals. This study will further inform researchers, public health practitioners, policy makers, and other stakeholders representing all childbearing families in Ontario.

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I am indebted to the local content experts and the Ontario midwifery community at large for their support and encouragement of this work. A special thank you to the midwifery clients who generously gave of their time to participate in this study and contribute to the important body of research on infant feeding; may this work further support the exceptional care delivered every day by Ontario midwives.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

AOM	Association of Ontario Midwives
BCC	Breastfeeding Committee of Canada
BFI	Baby-friendly Initiative
BORN	Better Outcomes Registry & Network
EBF	Exclusive breastfeeding
HCP	Health care provider
MIFIS	Midwifery Infant Feeding Information Survey
OMEP	Ontario Midwifery Education Program
OPR	Ontario Perinatal Record
REDCap	Research electronic data capture

DECLARATION OF ACADEMIC ACHIEVEMENT

I, Jessica Jones, declare this thesis to be my own work. I am the sole author of this document. No part of this work has to-date been published or submitted for publication, or for a degree at another institution.

To the best of my knowledge, the content of this document does not infringe on anyone's copyright.

My supervisor, Dr. Elizabeth Alvarez, and the members of my supervisory committee, Dr. Laura Anderson and Dr. Beth Murray-Davis, have provided guidance and support at all stages of this project. I completed all of the research work.

CHAPTER 1: BACKGROUND

Importance of Chest/Breastfeeding [1]

The initiation and duration of exclusive breastfeeding (EBF) are important health determinants for both lactating individuals and their infants. (1-4) A significant body of research has increasingly demonstrated that EBF for the first six months is associated with the greatest individual health benefits; reducing rates of maternal, neonatal, infant and childhood morbidity and mortality worldwide (1-4). As a result, the protection, promotion, and support of EBF as a key public health issue is reflected in provincial, national, and international public health policy and program development initiatives. (5-8)

Current Breastfeeding Trends in Ontario

Despite the many demonstrated benefits of breastfeeding and the focus on interventions to improve the initiation and duration of exclusivity, rates in Ontario remain low. The Baby-Friendly Initiative (BFI) Ontario is the provincial authority for BFI in the region and reports on rates of breastfeeding initiation and exclusivity using data collected from individual public health units. These published provincial breastfeeding rates

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[1] There is growing use of the term 'chestfeeding' to reflect how individuals nurture their children from their bodies; often as an alternative to the term 'breastfeeding'. The author acknowledges the fluidity of language and the importance of building inclusivity in both academic work and clinical practice. For the purpose of reflecting current literature and consumer information sources, the author will use the term 'breastfeeding' throughout this report.

generally focus on the initiation of breastfeeding at time of delivery, and feeding status at time of hospital discharge, at two months, and at six months of age. In 2018, BFI Ontario reported breastfeeding initiation rates across the province varied from 84.6-97.9%; with EBF rates at two months of age reported as 31.7-54.5%. (9) While a detailed analysis of these rates by care provider is not publicly available, the Ontario Better Outcomes Registry & Network (BORN) database, which reports on all births occurring within the province using health care provider data, reports current midwifery-specific EBF rates of 77.0% at six weeks of age (e.g. typical time of discharge from midwifery care). (10) Despite two different data sources, these published rates suggest that midwifery clients may have higher rates of EBF compared to the general population. However, data collection methods informing these indicators differ significantly between reporting agencies, which may result in inaccuracies and inconsistencies in interpretation. A lack of standardized infant feeding surveillance data in Ontario limits the ability to make generalized comparisons at the population level. (11-14)

What Influences Infant Feeding Decisions?

The decision to breastfeed is influenced by multiple complex factors ranging from the individual to a societal level. Research has demonstrated that rates of duration and exclusivity are most strongly associated with modifiable factors such as personal intention, self-efficacy or confidence, information and support from health professionals and health care systems, and social supports; more so than socio-demographic factors.

(15-17) While global strategies such as the Baby-friendly Hospital Initiative have been credited with elevating the importance of breastfeeding at various policy levels and influencing health care practices in supporting infant feeding (18-20), public health and community-based initiatives to support improving breastfeeding rates have traditionally focused on prenatal education programs and targeted health care provider interventions. (21-24) However, research looking at the efficacy of prenatal infant feeding education programs suggests they provide little to no improvement in rates of initiation or duration of exclusivity when compared to standard care, while health care provider and lay/peer support interventions may result only in small improvements in initiation rates. (25,26) Additionally, there is a growing discourse amongst lactation and childbirth education professionals highlighting a shift in how a new generation of parents, increasingly reliant on technology, - referred to as the Millennial generation (or 'Millennials') - access health information. This has led to a growing interest in advocating for the development of modern alternatives for engaging with and delivering infant feeding information and support services. (27-29)

The Ontario Midwifery Population - Lessons to be Learned

In 2019, midwifery clients accounted for 18% of all births in Ontario, with midwives providing care to approximately 25,000 clients. (10) Several studies examining factors for the initiation of breastfeeding in the Ontario population have found that individuals who received prenatal care from midwives had significantly higher odds of

exclusive breastfeeding when compared to any other type of health provider at time of hospital discharge. (30,31) The Canadian Maternity Experiences Survey (2011) also found that midwifery outcomes - including the rates of initiation and exclusivity of breastfeeding at three and six months - either met or exceeded Canadian maternity care standards. (32) While choice of care provider is not random, given the large population of midwifery clients in Ontario who reportedly demonstrate high rates of breastfeeding initiation and exclusivity - it is worth exploring how they access information to support infant feeding decisions in order to further inform the development of effective program and service delivery strategies that may be applicable to all childbearing families in the province.

Research Question

The overall goal of this thesis was to describe how midwifery clients in Ontario access information to support infant feeding decisions. The specific study objectives were to:

1. Determine when and where midwifery clients access information to support infant feeding decisions.
2. Identify key factors midwifery clients use in determining the importance or influence of information sources on their infant feeding decisions.
3. Determine areas of programming and service development for improving information support for midwifery clients to meet their infant feeding goals.

CHAPTER 2: METHODS

Study Design

A descriptive, cross-sectional online electronic survey (e-survey) design was conducted. The checklist for reporting results of internet e-surveys (CHERRIES) was followed in the development of this study (see Appendix 1). (33)

Midwifery Infant Feeding Information Survey (MIFIS) Questionnaire

The MIFIS questionnaire was developed for this study by drawing from published surveys and guidelines from the literature as a starting framework and tailored to solicit responses appropriate to the stated study objectives. (34-38) The first part of the questionnaire included information about socio-demographic characteristics, information regarding prior infant feeding experiences (as applicable), and study recruitment source. For the second part of the questionnaire, respondents were directed to one of two options depending on whether they were currently pregnant (e.g. prenatal respondents) or had recently given birth (e.g. postpartum respondents). Prenatal respondents were asked information regarding their current pregnancy, their infant feeding plan, infant feeding information discussed with their midwife, and the usefulness of and preferences for additional infant feeding information sources in the prenatal period. Postpartum respondents were asked information regarding their pregnancy and newborn, their planned and current infant feeding method including the use of breast milk alternatives, infant feeding information discussed with their midwife prenatally, and the usefulness of

and preferences for additional infant feeding information sources both during the prenatal and postpartum period.

The Ontario Perinatal Record (OPR) user guide was used to develop questions regarding infant feeding information topics respondents discussed with their midwife during the prenatal period. (38) Table 1 provides a comparison between identified OPR infant feeding discussion topics and the corresponding MIFIS questionnaire response options. Questions soliciting self-reported information on past and current infant feeding patterns were modelled after the infant feeding categories provided by the Breastfeeding Committee of Canada (BCC). (77) Table 2 provides a comparison between the chosen BCC infant feeding categories and the corresponding MIFIS questionnaire response options.

Table 1. Comparison of OPR discussion topics with MIFIS questionnaire response options

OPR user guide discussion topic (38)	**MIFIS questionnaire response option**
Previous breastfeeding experience (as applicable)	Asked if you have breastfed a baby before
Importance of breastfeeding	The benefits of breastfeeding for you and your baby
Risks associated with formula feeding	The risks and costs of formula feeding for you and your baby
Personal risk factors that may affect successful breastfeeding	Things that may make it difficult to breastfeed your baby
Quality information sources	Where you can get more information about infant feeding during your pregnancy
Prenatal classes	Where you can get more information about infant feeding during your pregnancy
Postpartum supports for breastfeeding	Where you can get support for breastfeeding after your baby is born

Table 2. Comparison of BCC infant feeding categories with MIFIS questionnaire response options

BCC infant feeding categories (39)	MIFIS questionnaire response options*
Exclusive breastfeeding	Only breastfeeding; I only give my baby breast milk
Non-exclusive breastfeeding	Mostly breastfeeding; I mostly give my baby breast milk, but also sometimes give formula
	Equally breast and formula feeding; I give my baby both breast milk and formula equally (for example, 50/50)
	Mostly formula feeding; I mostly give my baby formula, but also sometimes give breast milk
No breastfeeding	Only formula feeding; I only give my baby formula

*Respondents were provided the following definitions when considering their response options:
- breastfeeding includes providing expressed breast milk by bottle or other lactation aid
- other names for formula include artificial baby milk, breast milk substitute, commercial infant formula, or non-human milk

Face validity was evaluated by eight volunteer clients from a local midwifery clinic in Hamilton, Ontario providing both prenatal and postpartum representation. Content validity was evaluated by five content experts from the same local midwifery community and public health unit breastfeeding resource team. Feedback regarding comprehension, interpretation, response options, and question formatting was incorporated. The reading level was then adjusted using an open-access online readability tool (40) and validated with two school-aged children to confirm a grade 6-8 reading level suitable for health questionnaires. (41-43) A final beta testing with six representatives from the same local midwifery community and general public was conducted to evaluate the usability and technical functioning of the e-survey. Throughout the development process, careful consideration was given to question design and language use in order to ensure the questionnaire would be welcoming to all respondents,

regardless of individual infant feeding choice (e.g. breastfeeding, formula feeding, or both). Questions regarding past feeding experiences, information sharing, feeding plans and/or current feeding patterns were presented in such a way as to minimize any stigma or judgement regarding an individual's feeding method. With the exception of mandatory questions to determine study eligibility and current prenatal or postpartum status, respondents were able to leave questions unanswered as desired. The final questionnaire consisted of 51 items and included a mix of open- and closed-ended questions presented in an adaptive format. The MIFIS questionnaire used for this survey is attached at Appendix 2.

Setting and Participants

Midwifery clients in Ontario, aged 16 years and over, who were either receiving or recently discharged from care within the last two months (at time of survey completion), were eligible to participate in this survey and complete the MIFIS questionnaire online. All eligible Ontario midwifery clients, regardless of their planned or current feeding method (e.g. breastfeeding, formula feeding, or both) were invited to participate. The MIFIS was an open survey, accessed online through the Research Electronic Data Capture (REDCap) secure web application. (44) The MIFIS questionnaire was only available in English.

Study Recruitment

Recruitment for this study relied mainly on investigator contact with individual midwifery clinics and the provincial professional association - Association of Ontario Midwives (AOM) - to promote the survey with their client base, both in-clinic and on relevant social media platforms.

Midwifery group contact database. A total of 105 Ontario midwifery practices were identified using the AOM online 'Find a Midwife' tool using a 'Select by Practice' feature. (45) Publicly listed contact information was confirmed using the provided website link or a separate search for the practice using an internet search engine. Ten of the listed practices were excluded from the contact database as their listed services could not be confirmed to cover the full spectrum of midwifery care (e.g. prenatal, labour and birth, and postpartum care) or their email address was determined to be 'undeliverable'. A total of 95 Ontario midwifery practices, including the AOM, were included in the midwifery group recruitment database. A further search of Facebook accounts for each identified group was conducted to assess the potential for the use of social media for study recruitment. It was determined that 90 of the 95 groups had an active Facebook account, with the majority of them having posted at least once between August and October 2020.

Recruitment campaign. All 95 Ontario midwifery groups were approached via email to introduce the study and request support in distributing the survey information to both current and former clients. Emails were sent at four different time points over three

months: T0 (initial email), T1 (one month later), T2 (two months after baseline), and T3 (three months after baseline). Study recruitment tools, including a poster for local display/distribution and prepared social media posts suitable for multiple platforms (e.g. Facebook, Instagram, Twitter, etc) were provided as email enclosures. All recruitment tools included either an embedded QR code or website link that directed participants to the online MIFIS questionnaire.

MIFIS Facebook page. A public MIFIS Facebook page was created and facilitated during the study period to further support recruitment by providing current information about the study, links to the online questionnaire, and investigator contact information. The prepared social media posts provided to midwifery groups were also posted to the MIFIS Facebook page to coincide with the email distribution timeline. This gave midwifery groups the option of either following the MIFIS Facebook page (e.g. the practice of 'reposting' from the originating account), or generating posts from their own accounts using the prepared social media products provided.

Passive recruitment. The use of social media for this study was designed to support passive recruitment - the distribution of recruitment materials (e.g. poster, social media posts) with the intent to attract potential participants to either self-refer for study participation by completing the online questionnaire or contact the study investigator for additional information. (46) Other than engaging directly with individual Ontario midwifery clinics and the AOM to promote the distribution of survey information,

potential respondents were not actively engaged by the investigator using social media profiles or member groups for study recruitment.

Sample Size

As a descriptive study, a sample size of 200 completed surveys was determined to be sufficient to address the study objectives. Although this represents only a small proportion of the target population, this study was only looking to gain a preliminary understanding of information access patterns versus measuring the effectiveness of a particular intervention.

Data Collection

The MIFIS questionnaire was available for online completion for four months, from November 2020 to February 2021. All survey data were collected and stored using the REDCap secure online data storage system. Data extraction was done in aggregate form. No personal identifying information was collected.

Data Analysis

Data were downloaded from REDCap using survey ID numbers. Descriptive statistics with total counts and percentages are provided. Content analysis as described by Sandelowski (2000) was completed using NVivo software for open-ended questions. (47). Content analysis involves the use of data-generated codes (or categories) to summarize the informational content of qualitative data; resulting in a descriptive

summary, rather than any interpretive analysis typical of other qualitative approaches. (47)

Ethics

Approval for this study was obtained from the Hamilton Integrated Research Ethics Board (HiREB). Implied consent by participants was provided when respondents viewed the study information provided on the welcome page of the e-survey and subsequently completed the mandatory eligibility questions, thereby starting the questionnaire.

CHAPTER 3: RESULTS

Survey Respondents

Between November 2020 and February 2021, 308 individuals were recruited to complete the MIFIS questionnaire online. Of this group, only 244 met the eligibility criteria; 64 had indicated being discharged from Ontario midwifery care beyond the two month window of eligibility at time of access and were excluded. Further, there were nine respondents who started the survey but completed only the initial demographic section (either all or in part) before discontinuing and thereby were considered to have dropped out of the study. A total of 235 completed surveys were used for analysis, giving a completion rate of 96.3%.

Sources of Recruitment

Survey respondents identified ‘Facebook’ (n=125 (52.7%)) and ‘Midwife or other Health Care Provider’ (n=106 (44.7%)) as the most frequent sources of study recruitment. Additional recruitment sources were identified as ‘Instagram’ (n=38 (16.0%)), ‘Friends or family’ (n=9 (3.8%)), ‘Poster’ (n=4 (1.7%)), ‘Email’ (n=3 (1.3%)) and ’Twitter’ (n=2 (0.8%)). Respondents were able to choose multiple options for this question.

Baseline Characteristics

Table 3 summarizes the baseline characteristics of the survey respondents. Survey respondents ranged in age from 19 to 40 or more years, with over half of respondents in

the 30-34 year age range (n=120 (51.1%)). The majority of respondents identified as belonging to an urban community (n=170 (72.3%)) and having completed a college or university degree (n=154 (65.5%)). Respondents were nulliparous (no previous live births) (n=100 (42.6%)) or multiparous (at least one previous live birth) (n=135 (57.4%)), with the majority of multiparous respondents indicating they had been in midwifery care in Ontario for a previous pregnancy (n=112 (83.0%)). The vast majority of respondents were either expecting (n=74 (97.3%)) or experienced (n=157 (98.7%)) a singleton pregnancy, and 96.2% (n=153) of postpartum respondents delivered a term newborn (37 or more weeks gestation).

Table 3. Baseline characteristics of respondents

		n (%)			n (%)
All respondents n = 235					
Age (in years)	16-18	0 (-)	**Singleton vs multiple pregnancy**	Singleton	231 (98.3)
	19-24	10 (4.3)		Multiple	2 (0.9)
	25-29	51 (21.7)		Not yet confirmed	2 (0.9)
	30-34	120 (51.1)	**Prenatal respondents n = 76**		
	35-39	47 (20.0)	**Gestational age**	0-14 weeks	12 (15.8)
	40 or older	7 (3.0)		15-27 weeks	35 (46.1)
Home community	Urban	170 (72.3)		28-33 weeks	7 (9.2)
	Rural	61 (26.0)		34-42 weeks	22 (28.9)
	Preferred not to answer	3 (1.3)	**Postpartum respondents n = 159**		
	Did not respond	1 (0.4)	**Gestational age**	Less than 34 weeks	1 (0.6)
Highest level of education	Some grade/high school	3 (1.3)		Between 34-36 weeks	5 (3.1)
	High school	15 (6.4)		37 or more weeks	153 (96.2)
	College/university	154 (65.5)	**Age of newborn**	0-13 days	17 (10.7)
	Graduate degree	61 (26.0)		2-6 weeks	43 (27.0)
	Preferred not to answer	2 (0.9)		7+ weeks	96 (60.4)
Parity	Nulliparous	100 (42.6)		Preferred not to answer	3 (1.9)
	Multiparous	135 (57.4)	[1]At time of survey completion;		

Prior Infant Feeding Experience

Of the 135 multiparous respondents, 74.1% (n=100) indicated that they had 'only breastfed' their youngest baby until six months of age, with the remaining 25.9% (n=35) respondents indicating that they had introduced a breast milk substitute (e.g. formula) in various amounts as part of their feeding plan.

Planned and Current Infant Feeding

Of the 76 prenatal respondents, 82.9% (n=63) indicated that they planned to 'only breastfeed'. At the time of the survey, only 48.7% (n=37) of respondents indicated that they had discussed their infant feeding plan with their midwife/midwives. More nulliparous respondents (n=19 (90.5%)) were planning to 'only breastfeed' compared to multiparous respondents (n=44 (80.0%)).

Of the 159 postpartum respondents, 74.8% (n=119) indicated that they were currently 'only breastfeeding'. More multiparous respondents identified as 'only breastfeeding' (n=66 (81.5%)) than nulliparous respondents (n=53 (67.1%)). The majority of postpartum respondents (n=114 (71.7%)) indicated that their current infant feeding method was consistent with what they had planned; 19.5% (n=31) of respondents were not meeting their planned infant feeding method, while 7.5% (n=12) indicated that they did not have a specific infant feeding plan. More multiparous respondents were meeting their planned infant feeding method (n=67 (83.8%)) than nulliparous respondents (n=47 (59.5%)).

Use of Breast Milk Substitute

Regardless of their current feeding method, 44.7% (n=71) of the 159 postpartum respondents indicated the use of a breast milk substitute (e.g. formula) in any degree since birth. Formula was most commonly introduced between 1-3 days (n=27 (38.0%)), followed by less than 24 hours (n=20 (28.2%)). At the time of survey completion, 25.2% (n=40) of respondents indicated ongoing formula use, with 'up to 25% of feeds' being identified as the most frequent supplementation pattern (n=15 (37.5%)) followed by '76-100% of feeds' (n=14 (35.0%)).

Infant Feeding Information Sources

Table 4 summarizes the infant feeding information sources accessed during the prenatal and postpartum period. Using closed-ended questions, respondents were asked to rate the perceived usefulness of each information source using a Likert scale of 1 to 5 (1 = not useful, 3 = somewhat useful, 5 = very useful; 2 and 4 were not assigned). Respondents were also able to indicate that they 'did not use' a particular information source.

Prenatal information sources. Sources identified as the *most accessed* by respondents included: 1) midwife/midwives (n=181/220 (82.3%)), 2) family or friends (n=158/198 (79.8%)), and 3) websites or blogs (n=149/197 (75.6%)). The *least accessed* sources included: 1) prenatal classes (in-person) (n=55/196 (28.1%)), 2) lactation consultant (phone or virtual appointment) (n=35/194 (18.0%)), and 3) newspapers or

magazines (n=27/192 (13.7%)). The *most useful* sources identified by rating were: 1) midwife/midwives and lactation consultant (in-person visit) (4.3), 2) other health care provider (in-person visit) (4.2), and 3) websites or blogs and videos (4.1).

Postpartum information sources. Sources identified as the *most accessed* by respondents included: 1) midwife/midwives (n=109/114 (95.6%)), 2) family or friends (n=93/114 (81.6%)), and 3) partner (n=82/112 (73.2%)). The *least accessed* sources included: 1) public health nurse (in-person visit) (n=12/112 (10.7%)), 2) newspapers and magazines (n=10/111 (9.0%)), and 3) Telehealth Ontario (n=6/109 (5.5%)). The *most useful* sources identified by rating were: 1) midwife/midwives and lactation consultant (in-person visit) (4.4), 2) websites or blogs (4.2), and 3) videos and social media groups (4.0).

Table 4. Infant feeding information access and usefulness

	Prenatal access		Postpartum access	
Information Source	**Rated usefulness**	**Used/n (%)**	**Rated usefulness**	**Used/n (%)**
Midwife/midwives	4.3	181/220 (82.3)	4.4	109/114 (95.6)
Lactation consultant (in-person visit)	4.3	67/195 (34.4)	4.4	46/112 (41.1)
Other health care provider (in-person visit)	4.2	128/197 (65.0)	3.5	37/112 (33.0)
Websites or blogs	4.1	149/197 (75.6)	4.2	75/111 (67.6)
Videos (e.g. YouTube)	4.1	114/199 (57.3)	4.0	54/113 (47.8)
Social media groups	4.0	137/194 (70.6)	4.0	73/114 (64.0)
Lactation consultant (phone or virtual visit)	3.9	35/194 (18.0)	3.7	22/112 (19.6)
Books or DVDs	3.7	109/195 (55.9)	3.6	34/111 (30.6)
Other health care provider (phone or virtual visit)	3.7	77/194 (39.7)	3.3	18/110 (16.4)
Prenatal classes (in-person)	3.7	55/196 (28.1)		
Family or friends	3.5	158/198 (79.8)	3.7	93/114 (81.6)
Prenatal classes (online)	3.5	76/191 (39.8)		
Apps	3.5	77/195 (39.5)	3.7	37/112 (33.0)
Other	3.5	8/156 (5.1)	4.8	4/92 (4.3)
Partner	3.2	120/196 (61.2)	3.4	82/112 (73.2)
Handouts or brochures	3.2	92/196 (46.9)	3.1	42/113 (37.2)
Newspapers or magazines	2.4	27/192 (13.7)	2.3	10/111 (9.0)

Peer-support group (in-person or virtual meeting)		3.7	17/111 (15.3)
In-hospital nurse		3.3	61/112 (54.5)
Public health nurse (in-person visit)		3.0	12/112 (10.7)
Public health nurse (phone or virtual visit)		2.4	19/111 (17.1)
Telehealth Ontario		2.3	6/109 (5.5)

[1]Respondents were asked to rate the usefulness of an information sources on a scale of 1 to 5 (1 = not useful, 3 = somewhat useful, 5 = very useful; 2 and 4 were not assigned)

Infant Feeding Information Usefulness and Preferences

Respondents were asked via an open-ended question '*why'* some information sources - either during the prenatal or postpartum period (as applicable) - were more useful to them than others. Of the 163 responses, indications of usefulness were consolidated into the following three categories: 1) availability and ease of access, 2) confidence in source/perceived trustworthiness - including professional knowledge and lived experience, and 3) personalized support and reassurance. See Appendix 6, Table 6 for sample quotations capturing respondent views.

Respondents were also asked via an open-ended question how they would '*prefer'* to access information - either during the prenatal or postpartum period (as applicable). Of the 170 responses, access preferences were consolidated into the following two categories: 1) information source - including health care professionals and online/digital media and 2) information style - including in-person/discussions with care provider and

organized/formal classes. See Appendix 6, Table 7 for sample quotations capturing respondent views.

Infant Feeding Information Discussed with Midwives

Table 5 summarizes the infant feeding topics respondents discussed with their midwife during the prenatal period. The most common topic was the benefits of breastfeeding (n=116 (49.4%)) followed by postpartum supports for breastfeeding (n=114 (48.5%)), with the least discussed topic being the risks of formula feeding (n=9 (3.8%)). No discussion of infant feeding was identified by 17.0% (n=40) respondents.

Table 5. Prenatal infant feeding discussion with midwife/midwives

Respondents n = 235	**n (%)**
Asked if you have breastfed a baby before	110 (46.8)
The benefits of breastfeeding for you and your baby	116 (49.4)
Things that may make it difficult to breastfeed your baby	64 (27.2)
The risks and costs of formula feeding for you and your baby	9 (3.8)
Where you can get more information about infant feeding during your pregnancy	96 (40.9)
Where you can get support for breastfeeding after your baby is born	114 (48.5)
I have not discussed any information about infant feeding with my midwife/ midwives	40 (17.0)
Prefer not to answer	1 (0.4)
Other	6 (2.6)
Did not answer	15 (6.4)

Midwife Infant Feeding Information Preferences

Respondents were asked via an open-ended question to identify what their midwife '*could'* have shared with them during the prenatal period to better help them prepare to feed their newborn. Of the 115 responses, infant feeding topics were consolidated into the following three categories: 1) management of breastfeeding and common issues, 2) personalized resource(s), and 3) realistic expectations of the physical and emotional challenges of breastfeeding. See Appendix 6, Table 8 for sample quotations capturing respondent views.

CHAPTER 4: DISCUSSION

This is the first study looking at infant feeding information access in the Ontario midwifery population. This study found that Ontario midwifery clients actively access information to support infant feeding decisions throughout the continuum of care (e.g. prenatal and postpartum periods) and that the midwife-client relationship appears to be a central part of supporting that information access. Other important information sources included family and friends, and the online information environment. While midwives are discussing infant feeding with their clients prenatally, a number of topic areas were either infrequently discussed or missing altogether. Current infant feeding patterns self-reported by survey respondents indicate that EBF rates in the midwifery population may not be as high as previously thought. However, when developing strategies to support improving infant feeding information access, *the planned* feeding method versus rates of EBF may be a more important indicator.

Midwife as Information Source

Midwife-client relationship central to information access. Midwives were reported to be the most accessed and the most useful source of information by respondents in both the prenatal and postpartum period. While a detailed exploration of the midwife-client relationship in supporting access to infant feeding information and its influence on decision making was beyond the scope of this study, literature on the role of

healthcare providers (HCPs) in providing health information during the childbearing cycle and the model of midwifery care in Ontario may provide some explanation.

Role of the HCP as information source. The role of the HCP as a source of health-related information in pregnancy is well documented. Studies have repeatedly found that pregnant individuals rely on their HCP (e.g. physician, nurse practitioner, or midwife) for health-related information throughout the continuum of care. (9,48,49) Initiatives aimed at improving rates of breastfeeding initiation and duration of exclusivity specifically target HCP education and counselling skills to ensure clients are given the information necessary to make informed decisions. (50) However, beyond individual HCP knowledge and skill, the development of meaningful HCP-client relationships has also been shown to be important to individuals and may be the foundation on which quality prenatal care and postpartum support is based. While the nature of HCP-client relationships is multidimensional, the importance of delivering person-centred prenatal and postpartum care within a model that supports continuity of provider, has been repeatedly shown to facilitate the development of meaningful HCP-client relationships characterized by trust. (51-53)

Midwifery model of care. In Ontario, registered midwives are recognized as autonomous primary care providers for low-risk pregnant individuals. The professional standards set out by the College of Midwives of Ontario require that midwives organize the delivery of services in a manner that supports continuity of care and person-centred care (54); standards that are also reflected in two of the seven core principles of the

Canadian model of midwifery care. (55) Continuity of care is recognized as the mechanism by which midwives are able to develop an ongoing relationship of trust with their clients, while person-centred care recognizes the central role of the client in the delivery of care responsive to their individual needs, values and preferences. (54) Informed choice is an essential aspect of providing person-centred care in the midwifery model. Within an informed choice framework, midwives work with clients to fully appreciate all aspects of decision making including the provision of adequate information about a proposed treatment/option, affording time for individual decision making, and supporting a clients' right to accept or refuse. (54) In this model, the client is centred as the primary decision maker in all aspects of their care and the care of their newborn(s).

Choosing a HCP for pregnancy care is a highly personal decision, and individuals in Ontario have the choice - where options exist - between an obstetrician, family physician, or registered midwife. While literature is limited on exploring why individuals choose one provider over another, publicly available information from organizations promoting pregnancy options highlight Ontario midwifery as a choice that offers personalized care, frequent and lengthy appointments, opportunities for relationship building, on call/consistent availability, and breastfeeding support. (56,57)

In identifying *why* some information sources were more useful than others and how respondents would *prefer* to access information about infant feeding, it is clear that the model of midwifery care in Ontario supports the increased availability of information

from a known and trusted HCP across the continuum of care, with the professional knowledge and person-centred care approach to provide individualized support.

Other Information Sources

Infant feeding information sources other than midwife/midwives that were identified as either highly accessed and/or useful by respondents in this study were varied. However, common to both prenatal and postpartum respondents was the reliance on in-person lactation consultant support, family or friends, and websites or blogs for information and/or support with infant feeding.

Influence of family and friends. A 2008 literature review of effective breastfeeding supports found that family members and friends can have a significant impact on an individual's successful breastfeeding experience, particularly if they are positive about breastfeeding and have the skills to support it when questions or challenges arise. (58) Additionally, when family and friends are involved in breastfeeding education and decision making, individuals are able to identify an existing support network which has been shown to enhance their sense of breastfeeding self-efficacy. (15) While family and friends have been shown to be an effective information and support network for successful breastfeeding, individuals are likely to feel empowered with any infant feeding decision - breastfeeding, formula feeding, or both - if their network of family and friends support their chosen feeding method. Survey respondents identified *useful* information and support sources as those that were: readily available and easily accessed, provided a

degree of confidence and perceived trustworthiness (e.g. lived experience), and delivered personalized support and reassurance; all of which are likely to be addressed through a network of family and friends. However, when looking at how respondents would *prefer* to access infant feeding information and support, including sources with professional knowledge, in-person/discussions with care providers, and organized/formal classes - these preferences are not likely to be addressed by this social network.

The online information environment. Pregnant individuals are increasingly relying on online resources to access health related information and support. Our findings support other research exploring the use of online resources during pregnancy as valued for their ability to provide unlimited access to health information (e.g. 24 hours a day), timely - if not instant - responses to their questions and concerns, confirmation of information provided by other sources, and diverse advice from which individuals can choose what suits their needs. (59-62). Interactive online environments also appear to provide important social support, especially for individuals who are isolated, time poor, or needing reassurance. (63,64) The use of online environments for pregnancy-related health information seeking may also contribute to developing an individual's sense of empowerment in their transition to parenthood. (65) Discourse amongst lactation and childbirth education professionals point towards a growing culture of 'virtual breastfeeding' where new parents are accessing infant feeding information when and how it is convenient for them - either from professional or lay sources - and specifically seek out supportive social networks that reflect their personal views, values and experiences.

(27,28) The usefulness of and preference for online/digital infant feeding information and support sources indicated by survey respondents is likely reflective of their ease of access, degree of confidence and perceived trustworthiness (e.g. professional knowledge and/or lived experience), and level of personalized support and reassurance that can be facilitated by online communities.

The 'Millennial' effect. The majority of survey respondents are classified as 'Millennials'. While a number of differing definitions exist, it is generally accepted that Millennials are the generation born between the early 1980s to the mid-to-late 1990s (approximately aged early-20s to early-40s at the time of this paper). Research looking at the health information seeking patterns amongst Millennial pregnant individuals have found that there is a desire to seek information from a variety of sources, and that using online/digital media to fill information gaps and seek social support is largely viewed as a generational approach. (49,62) Beyond information seeking, online/digital platforms can be highly interactive and for many people are an integral part of daily life. While today's pregnant individuals are technology savvy, the amount of information available can be difficult to navigate; increasingly consumers are looking to HCPs to increase and/or improve their online/digital information offerings. (66,67) Respondents in this survey indicated preferences for accessing infant feeding information from health care professionals and online/digital sources. While we should not discount the value of in-person, client-practitioner interaction in delivering person-centred prenatal and postpartum care, the desire for multiple information sources and specifically the use of

online/digital media amongst Millennials provides an opportunity for midwives to explore alternative ways to deliver high-quality, evidence-based infant feeding information to support the needs of their clients.

Prenatal Infant Feeding Discussions - What's Missing?

This study chose to explore what infant feeding information midwives are discussing directly with their clients during the prenatal period. While overall midwives were rated as 'very useful' as a prenatal information source, there were a number of infant feeding topics that were infrequently discussed, in addition to a number of topic areas that clients indicated they had wanted their midwives to address but were missing at the time of survey completion. While there is no specific standard in Ontario for the provision of infant feeding information by HCPs during the prenatal period, a number of advocacy and stakeholder groups supporting the protection, promotion and support of breastfeeding as a public health strategy agree that discussions should start as early in the prenatal period as possible, and be delivered in such a way as to support the pregnant individual and their family to make an informed decision regarding infant feeding. (6,18,50,68,69) While suggested content differs across the literature, there is general agreement that these discussions should *at a minimum* provide evidence-based breastfeeding information and - depending on the knowledge and skill level of the HCP - where individuals can seek additional quality information/breastfeeding support both in the prenatal and postpartum period. (21,22,38,70,71)

The Ontario Perinatal Record as baseline. The OPR is the standard form guiding the documentation of perinatal care delivered in the province. While not intended to reflect the standard of clinical care, the OPR and accompanying user guide provide a useful starting point from which to explore *expectations* for HCP initiated counselling on infant feeding topics. The guide details several time points during the prenatal period for discussions to occur, including suggestions as to what evidence-based information should be provided. (38) It was from this document that the infant feeding information topics presented in the questionnaire were developed. Using the OPR as a baseline, while survey results indicate that midwives are having prenatal discussions to some degree with their clients about infant feeding, it does not appear that all clients are benefiting from these opportunities.

Delivering comprehensive prenatal infant feeding information. Survey respondents identified a number of additional topic areas related to supporting optimal breastfeeding practices that their midwife/midwives *could have* discussed with them to better prepare them for infant feeding. The provision of this type of anticipatory guidance - practical knowledge about breastfeeding and management of common issues, identification of additional information and support sources tailored to the setting and needs of the individual, and realistic expectations of infant feeding (both the physical and emotional challenges) - are well supported in the literature as contributing to successful breastfeeding outcomes. (72-75) Effective infant feeding support has also been found to be associated with interventions delivered by trained personnel as part of a standardized

care approach, over more than one time point during the prenatal and postpartum period. (74,75) Several respondents identified useful information sources as those that provided personalized support and reassurance - specifically positive messaging regarding alternative feeding options. Qualitative data has highlighted the need for HCPs to remain non-judgemental and encouraging, while providing infant feeding support that is 'family-centred' rather than idealistic or goal-oriented in order to minimize feelings of guilt and failure. (51,52,76) Given the model of midwifery care in Ontario - in particular the professional standards of continuity of care and person-centred care - midwives are in a unique position to facilitate comprehensive prenatal infant feeding information. However, the low rate at which respondents indicated that infant feeding topics were being addressed during the prenatal period suggests a potential communication gap between midwives and their clients regarding infant feeding preparation.

Barriers to Discussing Infant Feeding

It is important that all pregnant individuals in Ontario are supported by and provided with evidence-based infant feeding information in order to make informed decisions regarding the health of their newborns. The knowledge, skill and attitude of HCPs supporting these decisions is a significant determinant of positive outcomes and improved feeding practices. (77) Registered midwives practicing in Canada are expected to meet the *Canadian Competencies for Midwives* maintained by the Canadian Midwifery Regulators Council. (78) These competencies detail the knowledge and skills expected of

an entry-level midwife in Canada, and inform the development of regional midwifery education program curriculum content. (78) Current competencies require that midwives have specific knowledge to support clients during the postpartum period - including support of infant feeding. (78) A study by Kaufman et al. (2007) surveying graduates of the Ontario Midwifery Education Program (OMEP) found that overall, graduates felt well prepared for clinical practice. (79) Although preparation for specific clinical skills (e.g. infant feeding) was not captured, it can be argued that this particular competency was felt to have been met by graduates of the OMEP. The College of Midwives of Ontario requires registered midwives to annually undergo self-selected continuing education activities as part of an ongoing quality assurance program, intended to support the professional development of midwives and enhance the quality of client care. (80) However, it may be that only individuals who recognize their own limitations in supporting infant feeding or have a specific interest in this clinical skill would choose to engage in further professional development in this area.

HCPs have been shown to consistently overestimate the amount and adequacy of counselling and support that pregnant individuals receive - from themselves and others - and underestimate their own influence upon infant feeding outcomes. (81) For those that do recognize their own limitations - deficits in knowledge, resources, and counselling skills have been identified by HCPs as barriers to effective infant feeding counselling. (16,82) A survey of Ontario HCPs found that many struggled with providing evidence-based information about infant feeding as part of an informed decision-making process -

citing lack of knowledge as to what needed to be discussed, how to approach the topic of formula feeding, and how best to support an individual with their infant feeding decision. (50) HCPs may also be wary of actively promoting breastfeeding for fear of causing feelings of guilt or failure in those who either choose or are unable to breastfeed. (16) Understandably, a significant challenge for HCPs across all disciplines is how to effectively translate evidence-based infant feeding information into a message that can be easily delivered, while respecting an individual's right to choose.

While an exploration of the barriers Ontario midwives experience in providing clients with evidence-based infant feeding information was beyond the scope of this study, the literature would suggest that despite the current training program and continuing education opportunities, individual midwives may lack the knowledge, skill, resources, or confidence in their ability to appropriately support a client with their infant feeding decisions. This study found the midwife-client relationship to be a central part of supporting access to information regarding infant feeding. Survey respondents identified a preference for discussions with care providers for accessing infant feeding information; clients should feel confident in the knowledge and skill of their midwife to provide appropriate information to support their individual infant feeding decisions and experiences.

Breastfeeding Rates Amongst Survey Respondents

Published rates of breastfeeding initiation and duration of exclusivity are used to report on the effectiveness of infant feeding interventions and program/service initiatives in a given population. But what informs these rates and how do they impact our understanding of population-level infant feeding support?

Exclusive breastfeeding (EBF) rates - a difference of definition? The definition of EBF has been found to differ considerably across studies and reporting agencies, with the largest discrepancies being the differentiation between exclusive and non-exclusive breastfed infants. (2) The BFI Ontario is the provincial authority for BFI in the region and reports on rates of breastfeeding initiation and exclusivity using data collected from public health units following a strict definition of EBF provided by the BCC: "the infant receives human milk (including expressed milk, donor milk) and allows the infant to receive oral rehydration solution (ORS), syrups (vitamins, minerals, medicines) but does allow the infant to receive anything else." (39) Under this definition, a newborn that has received a breast milk substitute - for whatever reason, for whatever duration - is classified as non-exclusively breastfeeding despite feeding status at time of data collection.

In contrast, midwifery-specific reported breastfeeding rates are based on data collected from the Ontario Better Outcomes Registry & Network (BORN) database. BORN infant feeding data is sourced directly from hospitals and midwifery practice groups, and reflects the method of feeding *at the time* of the specific data collection point,

thereby potentially misclassifying individuals who may have temporarily introduced a breast milk substitute as EBF when they would not in fact meet this definition. (83,84) While a recent review of the accuracy of BORN data found moderate-to-high levels of agreement between most data elements collected when compared to chart abstraction, infant feeding data were determined to be potentially problematic warranting caution in their interpretation. (85) Furthermore, research investigating the reliance on self-reported infant feeding rates has found that the number of individuals truly EBF - using the strict BCC definition - may actually be lower than reported. (86) There may be a tendency to overestimate either self-reported or provider-reported EBF status when the use of a breast milk substitute is perceived to be temporary, occurred in the period preceding the reporting time point, or unknown.

Infant feeding method of survey respondents. This study chose to collect self-reported information on current infant feeding patterns from survey respondents in order to provide a comparator for discussions regarding rates of EBF amongst Ontario midwifery clients. From the survey responses collected, 44.7% of respondents indicated the use of a breast milk substitute *in any degree* since birth. While the majority of respondents (74.8%) indicated 'only breastfeeding' at time of survey completion, in reality only 54.1% of these respondents would be considered to be EBF despite their current feeding status. This adjusted value is more in keeping with the provincial EBF rate at two months of age of 31.7-54.5% reported by BFI Ontario, suggesting that EBF

rates amongst midwifery clients at a comparable time point (e.g. two months/discharge from midwifery care) may not be that different. (9-10)

Meeting planned infant feeding goals. Often missing from the discussion of EBF rates is whether or not the current feeding method is in fact *the planned* feeding method. Much focus is given to using breastfeeding rates to examine the effectiveness of promoting, protecting and supporting breastfeeding as a public health strategy. However, can these rates not also be used to reflect whether infant feeding supports are meeting an individual's planned feeding goals, or to better identify where programming and services should be focused? This study found that the majority of prenatal respondents planned to exclusively breastfeed their newborns, suggesting that the promotion of breast milk as an optimal feeding method is the dominant discourse influencing infant feeding goals. The majority of postpartum respondents reported that their current feeding method was consistent with what they had planned, suggesting that the infant feeding information and support they had accessed during their care was sufficient to meet their needs. That more multiparous respondents than nulliparous respondents were meeting their planned infant feeding method suggests that an individual's prior feeding experience - either positive or negative - will likely inform their decisions and approach to subsequent feeding plans. Indeed, the number of multiparous prenatal respondents who indicated that they had 'only breastfed' their youngest child until six months of age was comparable to the number of multiparous respondents who planned to 'only breastfed' this pregnancy. While further exploration as to why respondents were either not planning to exclusively

breastfeed or meeting their planned feeding method was beyond the scope of this study, it is important to recognize the potential influence of these factors on information access and support needs throughout the continuum of care.

Implications for Practice, Policy and Future Research

Improving rates of initiation and duration of exclusive breastfeeding is a key focus of public health policy and program development, and identifying how to better support the dissemination of health information for consumer use is a key factor for success. For the Ontario midwifery community, understanding the needs and preferences of clients in supporting infant feeding information access throughout the continuum of care will provide improved representation of the midwifery population in the development of program and service delivery initiatives at both local and provincial levels.

This study identified the midwife-client relationship as a central part of supporting infant feeding information access. Clients are turning to their midwifery provider throughout the prenatal and postpartum period for infant feeding information specific to their needs. Midwifery practitioners need to be aware of their responsibility to have meaningful and informed discussions with clients about infant feeding as part of the standard delivery of prenatal care. Further research is needed to identify barriers midwives face in facilitating comprehensive infant feeding discussions and developing effective approaches to address these. The online/digital environment was identified to be

a significant support for infant feeding information access amongst midwifery clients. However, despite the desire for multiple information sources and digital information seeking, it is not well known how well this information is understood or affects decision making. (87,88) Further research exploring the effect of health literacy in an online information environment is needed to ensure midwives are able to effectively meet the infant feeding information needs of clients. Additionally, as clients increasingly turn to the online information environment, there is potential for the development of evidence-based, midwifery-specific online/digital applications to further support infant feeding information access.

The rates of EBF in this study were found to be on par with provincially published rates, suggesting the higher rates of EBF reported amongst the midwifery population may not be as significant as previously thought. However, perhaps more importantly from a practical perspective of supporting access to infant feeding information, is understanding whether or not midwifery clients are meeting their *planned infant feeding goals* and how these may change over the course of care. Further research focused on supporting individuals to meet their infant feeding goals would identify opportunities for innovative, targeted health interventions and programming to support childbearing families.

Strengths

The two main strengths of this study relate to the rigorous development of a survey instrument to support this research and the robust recruitment of midwifery clients in Ontario. First, the MIFIS questionnaire was systematically developed and evaluated for both face validity and content validity using the local midwifery community and content experts respectively. Although additional evaluation of criterion validity, construct validity, or reliability was not addressed - there is potential for these indicators to be evaluated in future in order for this survey instrument to be used in other settings and/or research opportunities. Second, the study recruitment approach was successful in using social media and midwifery group engagement across the province to recruit Ontario midwifery clients from the entire continuum of care; with representation provided at all gestational ages and postpartum/newborn periods, and both nulliparous and multiparous clients. The use of social media as a passive recruitment tool offered various platforms for sharing study information while allowing potential respondents a degree of anonymity in self-referring for study participation. The majority of survey respondents identified 'Facebook' followed by 'midwife or other health care provider' as the most frequent recruitment source; as participants were able to select multiple responses to this question, it is not clear whether clients were being directly approached by their midwife/midwives or the later response is a reflection of the social media source (e.g. midwifery clinic Facebook page). While distribution of study information and social media engagement by midwifery groups was not specifically tracked, the provision of

prepared social media posts likely contributed to the participation of midwifery groups in promoting the study amongst their client base. The provincial approach to the survey meant that all eligible midwifery clients in Ontario were potential study participants. While the exact location or region of individual respondents was not collected, the potential for representation from across Ontario is a important when considering the generalizability of results within the midwifery community. As a descriptive study looking to gain a preliminary understanding of infant feeding information access, the breadth of client experience and engagement achieved with this recruitment approach contributed to a varied sampling of Ontario midwifery clients.

Limitations

This study had three limitations that affected the representation of the Ontario midwifery population and potential information access patterns. First, the use of an online research data collection method to deliver the study questionnaire (e.g. e-survey) - while a cost effective method to reach a large study population, e-surveys can be subject to considerable bias, specifically the non-representative nature of Internet users. It is likely that individuals from groups with limited online access/experience using digital media were excluded from participation. The reliance on social media as a study recruitment tool likely exacerbated this, but did increase the visibility of the research request. Additionally, the use of an English-only questionnaire limited the number of potential participants. Second, with any study that relies on individuals to self-refer for

participation, volunteer bias is a potential limitation. Decisions regarding infant feeding are highly personal and individuals may feel shamed and/or defensive of their feeding method, particularly if they are not breastfeeding. It is possible that only those midwifery clients with the most positive or negative experiences were more likely to complete the survey. While care was taken to ensure that study recruitment materials (e.g. poster, social media posts) were welcoming to all clients regardless of planned or current infant feeding method, there potentially exists a group of clients with more moderate experiences that did not complete the questionnaire. Third, this study was conducted during a time when many individuals in the province were living with the reality of restrictive COVID-19 pandemic lockdowns that no doubt had a significant impact on the experience of pregnant individuals and their families. The delivery of many pregnancy and postpartum services in the province - including midwifery care - shifted from traditional in-person visits to alternative 'virtual' platforms, routine clinical care was modified to reflect a schedule of 'essential' visits, and restrictions were placed on the attendance of support partners during clinical appointments and in-hospital settings. (89-91) While no published data yet exists on the impact of COVID-19 on infant feeding outcomes and decisions, it would not be unreasonable to consider that individuals may have modified their information access patterns in order to address the challenges of living through a global pandemic. Although we are unable to compare these study results to pre-COVID infant feeding information access patterns, that comparison may not be particularly relevant if we consider the possibility that changes in the delivery of and

interaction with health care services during the pandemic may have resulted in improvements in specific areas - particularly the use of ‘virtual’ platforms. The identification of specific information sources, and indicators of usefulness and preferences found in this study may reflect the ‘new normal’ and offer an opportunity to use these findings to shape the post-COVID infant feeding information landscape.

CHAPTER 5: CONCLUSION

The findings of this study demonstrate that access to infant feeding information amongst Ontario midwifery clients is varied and occurs throughout the continuum of care. The midwife-client relationship appears to be a central part of supporting that information access and is likely a reflection of a model of care that supports continuity of care and person-centred care. However, barriers may exist for midwives in providing evidence-based infant feeding discussions to support informed decision making. There is a strong preference for online/digital media in accessing infant feeding information and support, providing an opportunity for midwives to explore innovative ways of delivering high-quality information to support clients to meet their planned infant feeding goals.

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APPENDICES

Appendix 1. Checklist for Reporting Results of Internet E-Surveys (CHERRIES) (30)

Item category	Checklist item	Description
Design	Study design	The target population was all midwifery clients in Ontario aged 16 years and older, who were either currently receiving midwifery care, or discharged from midwifery care within the last two months, at time of survey completion.
Ethics	Ethics approval	Ethics approval was obtained from the Hamilton Integrated Research Ethics Board (HiREB) under project number 11442.
	Informed consent	Participants were informed on the welcome page of the intent of the research study, that the survey would take approximately 15-20 minutes to complete, that all responses were confidential and anonymous, and that they could choose to not answer certain questions or withdraw their participation at any time. Principal investigator name and contact details, along with data storage information was also provided. Consent was provided when respondents completed the mandatory 'Eligibility for Participation' questions, thereby starting the survey.
	Data protection	No personal identifying information was collected.

Development and pre-testing		The questionnaire was designed by drawing on published surveys from the literature and tailored to solicit responses appropriate to the proposed research question and additional study objectives. A draft questionnaire was reviewed with eight midwifery clients and five healthcare professionals in order to evaluate both face and content validity respectively; and was modified based on feedback regarding comprehension, interpretation, availability of appropriate responses, and question formatting. A grade 6-8 reading level was validated using an open-access online readability tool and two school aged-children. The survey was then pilot tested with with six members of the midwifery community to determine usability and technical functioning.
Recruitment process	Open vs closed survey	This was an open survey.
	Contact mode	Potential participants were contacted primarily via the Internet using a passive recruitment approach. A study-specific Facebook page was also created and maintained during the recruitment period to assist with Internet contact.
	Advertising the survey	A pre-determined list of 95 active midwifery groups in Ontario were approached individually by the principal investigator via email on four separate occasions requesting support with the distribution of survey recruitment materials to their client base. Each contact email contained the applicable survey information, along with a poster for in-clinic display and/or a sample social media post. Midwifery groups were also invited to share content directly from the study-specific Facebook page. All investigator published recruitment materials are available for review: emails (Appendix 3), poster (Appendix 4), social media posts (Appendix 5).
Survey	Web/e-mail	This was a web-based survey.

administration	Context	The survey was accessed through the Research Electronic Data Capture (REDCap) web application. All investigator published recruitment material included either an embedded QR code or URL that connected potential participants directly to the survey site.
	Mandatory/ voluntary	This survey was voluntary.
	Incentives	There were no incentives or personal benefits provided for participation in the survey.
	Time/date	Responses were collected from November 2, 2020 to February 28, 2021.
	Item randomization	No randomisation of items was used.
	Adaptive questioning	Adaptive questioning (branching logic) was used. Relevant survey items were displayed based on previous responses (e.g. only those who indicated they were currently pregnant completed questions designed for prenatal respondents).
	Number of items	The number of items displayed per page ranged from 3-9. The full survey comprised a total of 51 items, although due to the adaptive nature of the questionnaire, not all respondents answered all items.
	Number of screens	The full survey was distributed over 11 pages.

	Completenes check	Only four survey items were deemed mandatory in order to confirm study eligibility and determine whether respondents were directed to either the prenatal or postpartum survey questions: 1) age - 16 years or older, 2) midwifery care - current, or 3) midwifery care - discharged last two months, and 4) pregnancy status - yes/no. All remaining survey items were optional for respondents to complete. Most items, except those designed as mandatory or a response matrix, included a 'Prefer not to answer' option. Respondents could submit the survey without having answered all questions.
	Review step	Participants had the option to move between pages using the 'back' or 'next' buttons, and to change answers as needed.
Response rates	Unique site visitor	Only participants completing the initial eligibility questions (n=308) were counted as visitors; thus, a calculation of view or participation rate is not possible.
	View rate	Not available
	Particpation rate	Not available
	Completion rate	Of the 244 participants that met the eligibility criteria and commenced the survey, 235 submitted the last page of the survey giving a completion rate of 96.3%.
Preventing multiple entries from same individual	Cookies used	No; these were not used
	IP check	No; this was not used
	Log file analysis	No; this was not used
	Registration	As this was an open survey, individual registration was not required.

Analysis	Handling of incomplete questionnaires	Only completed surveys were used for analysis. The survey was divided into four sections: 1) Part A: Introduction / Informed Consent, 2) Part B: Eligibility for Participation, 3) Client Demographics, and 4a) Infant Feeding Information - Prenatal or 4b) Infant Feeding Information - Postpartum. Given that the majority of items were optional, a submitted survey was considered to be 'complete' if the participant completed Parts A-C and a portion of 4a or 4b as indicated. If a respondent only completed Parts A and B (mandatory) and Part C (in whole or part) but did not continue on to Part 4a or 4b, their survey was not considered to be complete and was removed from the final dataset.
	Questionnaires with atypical timestamp	Response timestamps were not imposed or collected; no respondents were removed from the survey for completing items too quickly or reaching a maximum time limit.
	Statistical correction	Satisfactory numbers were achieved for analysis given the scope of this study; no statistical correction to adjust for the sample have been applied.

Appendix 2. Midwifery Infant Feeding Information Survey (MIFIS) Questionnaire

Midwifery Infant Feeding Information Survey

Part A: Introduction / Informed Consent

Thank you for your interest in this research study.

We are interested in understanding how midwifery clients in Ontario access information to support their infant feeding decisions. We want to hear from clients who are either planning or currently chest/breastfeeding[2], formula feeding, or both. Your answers will help to develop programs and services for Ontario midwifery clients to meet their feeding goals.

This online survey will take 15-20 minutes to complete.

Your participation in this survey is voluntary. We cannot promise any personal benefits to you for participating. There will be no negative consequences if you decide to not participate. You may stop answering the survey at any time. You may choose to not answer certain questions. No personal information is collected in this survey. Your answers cannot be traced back to you. All information collected as part of this study will be kept for two years after the findings are published and will then be destroyed.

By filling out this survey, you are consenting to take part in a research study.

If you have any comments or questions regarding this study, please contact:

Jessica Jones, RM
Master of Public Health (Candidate)
McMaster University
Email: jonesjm@mcmaster.ca
Phone: 905.525.9140 x 22248

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[2]'Chestfeeding' is a term used to reflect how individuals feed their children from their bodies. It is often used as an alternative to the term 'breastfeeding'. For this survey, the terms 'breastfeeding' and 'breast milk' are used.

This survey will be open until February 28, 2021

This study has been reviewed by the Hamilton Integrated Research Ethics Board (HiREB). The HiREB is responsible for ensuring that participants are informed of the risks associated with the research, and that participants are free to decide if participation is right for them. If you have any questions about your rights as a research participant, please call the Office of the REB Chair, HiREB at 905.521.2100 x 42013.

Part B: Eligibility for Participation

1. Are you currently under the care of a midwife in Ontario?
(This includes for your pregnancy or the first six (6) weeks after giving birth to your baby)

a. Yes (will skip to question 3)
b. No

2. Have you been discharged from Ontario midwifery care in the last two months?

a. Yes
b. No - Automated survey response: *"Thank you for your interest in this survey. Unfortunately, we are only collecting responses from current or recent Ontario midwifery clients at this time."*

3. Are you 16 years of age or older?

a. Yes - To be directed to Part C: Client Demographics to start the survey
b. No - Automated survey response: *"Thank you for your interest in this survey. Unfortunately, only individuals 16 years of age or older are eligible to participate in this survey."*

Part C: Client Demographics

4. Is this your first pregnancy in midwifery care in Ontario?

a. Yes b. No c. Prefer not to answer

5. Is this your first pregnancy?

a. Yes (will skip to question 8)
b. No
c. Prefer not to answer

6. How many live babies have you given birth to before (not including this pregnancy)?

a. None (will skip to question 8) b. 1 c. 2 d. 3 or more e. Prefer not to answer

7. Please select the response that best reflects how you fed your YOUNGEST child for the first SIX (6) months of age. ('Breastfed' includes providing expressed breast milk by bottle or other lactation aid. Other names for 'formula' include artificial baby milk, breast milk substitute, commercial infant formula, or non-human milk.)

a. Only breastfed; I only gave my baby breast milk
b. Mostly breastfed; I mostly gave my baby breast milk, but also sometimes gave formula
c. Equally breast and formula fed; I gave my baby both breast milk and formula equally (for example, 50/50)
d. Mostly formula fed; I mostly gave my baby formula, but also sometimes gave breast milk
e. Only formula fed; I only gave my baby formula
f. Prefer not to answer
g. Other (please explain using the space below):

8. How would you describe your home community?

a. Urban b. Rural c. Prefer not to answer

9. What is your HIGHEST level of education?

a. Some grade/high school
b. High school diploma
c. College/university degree
d. Graduate degree
e. Prefer not to answer

10. How old are you?

a. 16-18 years old
b. 19-24 years old
c. 25-29 years old
d. 30-34 years old
e. 35-39 years old
f. 40 years or older
g. Prefer not to answer

11. How did you hear about this survey? Please select all that apply.

a. Poster
b. Email
c. Facebook
d. Instagram
e. Twitter
f. Midwife or other health care provider
g. Friends or family
h. I don't remember
i. Prefer not to answer
j. Other (please explain using the space below):

12. Are you currently pregnant?

a. Yes - To be directed to Part D: Infant Feeding Information - PRENATAL
b. No - To be directed to Part D: Infant Feeding Information - POSTPARTUM

Part D: Infant Feeding Information - Prenatal Respondents

13. How many weeks pregnant are you?

a. 0-14 weeks
b. 15-27 weeks
c. 28-33 weeks
d. 34-42 weeks
e. I'm not sure
f. Prefer not to answer

14. Are you expecting more than one baby this pregnancy (for example, twins)?

a. No - just one (1) b. Yes - two (2) or more c. I don't know yet d. Prefer not to answer

This next section asks about your plan for feeding your baby (or babies).

15. Please select the response that best indicates how you are PLANNING to feed your baby (or babies) for the first SIX (6) months of age. ('Breastfeeding' includes providing expressed breast milk by bottle or other lactation aid. Other names for 'formula' include artificial baby milk, breast milk substitute, commercial infant formula, or non-human milk.)

a. Only breastfeeding; I plan to only give my baby breast milk
b. Mostly breastfeeding; I plan to mostly give my baby breast milk, but also sometimes give formula
c. Equal breast and formula feeding; I plan to give my baby both breast milk and formula equally (for example, 50/50)
d. Mostly formula feeding; I plan to mostly give my baby formula, but also sometimes give breast milk
e. Only formula feeding; I plan to only give my baby formula
f. Undecided; I have not yet decided how I am going to feed my baby
g. Prefer not to answer
h. Other (please explain using the space below):

16. Have you had a chance to discuss your feeding plan with your midwife/midwives?

a. Yes b. No c. I don't remember d. Prefer not to answer

This next section asks about what information you have received about infant feeding, including breastfeeding or formula

17. What information about infant feeding has your midwife/midwives discussed with you this pregnancy? Please select all that apply. ('Breastfeeding' includes providing expressed breast milk by bottle or other lactation aid. Other names for 'formula' include artificial baby milk, breast milk substitute, commercial infant formula, or non-human milk.)

a. Asked if you have breastfed a baby before
b. The benefits of breastfeeding for you and your baby
c. Things that may make it difficult to breastfeed your baby
d. The risks and costs of formula feeding for you and your baby
e. Where you can get more information about infant feeding during your pregnancy
f. Where you can get support for breastfeeding after your baby is born
g. I have not discussed any information about infant feeding with my midwife/midwives
h. Prefer not to answer
i. Other (please explain using the space below):

18. How useful was the information your midwife/midwives discussed with you about infant feeding? Please use the following scale (1 = Not useful, 5 = Very useful).

Not useful				Very useful
1	2	3	4	5

19. What information could your midwife/midwives share to better help you to prepare for feeding your baby (or babies)? Please use the space below.

20. How useful have you found the following additional information sources in PREPARING to feed your baby (or babies)? Please use the scale below (1 = Not useful, 5 = Very useful).

	Not Useful ----------				**Very Useful**	
Information Source	**1**	**2**	**3**	**4**	**5**	**Have not used**
a. Prenatal classes (in-person)						
b. Prenatal classes (online)						
c. Books or DVDs						
d. Handouts or brochures						
e. Websites or blogs						
f. Videos (for example, YouTube)						
g. Apps						
h. Newspapers or magazines						
i. Social media groups (for example, Facebook, Instagram, Twitter, or other)						
j. Health care provider (in-person visit). For example, a doctor, nurse practitioner, registered nurse, or registered practical nurse.						
k. Health care provider (phone or virtual visit). For example, a doctor, nurse practitioner, registered nurse, or registered practical nurse.						
l. Lactation consultant (in-person visit)						

m. Lactation consultant (phone or virtual visit)						
n. Partner						
o. Family or friends						
p. Other (please explain using the space below):						

21. Why were some information sources MORE useful to you than others? For example, type of information provided, trusted source, availability, online/digital versus print, or other. Please use the space below.

22. How would you PREFER to access information about infant feeding during your pregnancy? For example, discussions with your midwife/midwives or health care providers, online/digital or print resources, personalized apps, prenatal classes, or other. Please use the space below.

23. Is there anything you would like to add about your experience accessing infant feeding information during your pregnancy? Please use the space below.

Thank you for taking the time to complete this survey!

Part D: Infant Feeding Information - Postpartum Respondents

13. Did you give birth to more than one baby this pregnancy (for example, twins)?

a. No - just one (1) baby b. Yes - two (2) or more c. Prefer not to answer

14. At how many weeks of pregnancy was your baby (or babies) born?

a. Less than 34 weeks
b. Between 34-36 weeks
c. 37 or more weeks
d. I don't recall the exact number of weeks
e. Prefer not to answer

15. How old is your baby (or babies) today?

a. 0-13 days
b. 2-6 weeks
c. 7 or more weeks
d. Prefer not to answer

This next section asks about how you are CURRENTLY feeding your baby (or babies).

16. Please select the response that best reflects how you are CURRENTLY feeding your baby (or babies). ('Breastfeeding' includes providing expressed breast milk by bottle or other lactation aid. Other names for 'formula' include artificial baby milk, breast milk substitute, commercial infant formula, or non-human milk.)

a. Only breastfeeding; I only give my baby breast milk
b. Mostly breastfeeding; I mostly give my baby breast milk, but also sometimes give formula
c. Equally breast and formula feeding; I give my baby both breast milk and formula equally (for example, 50/50)
d. Mostly formula feeding; I mostly give my baby formula, but also sometimes give breast milk
e. Only formula feeding; I only give my baby formula
f. Prefer not to answer
g. Other (please explain using the space below):

17. Has your baby (or babies) EVER had formula?

a. Yes b. No (will skip to question 20) c. Prefer not to answer

18. How old was your baby (or babies) when they were FIRST given formula?

a. Less than 24 hours
b. 1-3 days
c. 4-13 days
d. 2-6 weeks
e. 7 or more weeks
f. I don't remember
g. Prefer not to answer

19. In the past seven (7) days, how often has your baby (or babies) been given formula?

a. Up to 25% of feeds; up to a quarter of feeds
b. 26-50% of feeds; a quarter to half of feeds
c. 51-75% of feeds; half to three quarters of feeds
d. 76-100% of feeds; three quarters to all of feeds
e. My baby (or babies) has NOT had formula in the past seven (7) days
f. Prefer not to answer

20. Is your current feeding plan DIFFERENT from what you had PLANNED for your baby (or babies) for the first SIX (6) months?

a. Yes
b. No
c. I didn't really have a plan
d. Prefer not to answer
e. Other (please explain using the space below):

This next section asks about what information you received about infant feeding, including breastfeeding or formula

21. What information about infant feeding did you midwife/midwives discuss with you DURING your pregnancy? Please select all that apply. ('Breastfeeding' includes providing expressed breast milk by bottle or other lactation aid. Other names for 'formula' include artificial baby milk, breast milk substitute, commercial infant formula, or non-human milk.)

a. Asked if you have breastfed a baby before
b. The benefits of breastfeeding for you and your baby
c. Things that may make it difficult to breastfeed your baby
d. The risks and costs of formula feeding for you and your baby
e. Where you could get more information about infant feeding during your pregnancy
f. Where you could get support for breastfeeding after your baby is born
g. I did not discuss any information about infant feeding with my midwife/midwives
h. Prefer not to answer
i. Other (please explain using the space below):

22. How useful was the information your midwife/midwives discussed with you about infant feeding? Please use the following scale (1 = Not useful, 5 = Very useful).

Not useful ---------- Very useful
1 2 3 4 5

23. What information could your midwife/midwives have shared to better help you PREPARE for feeding your baby (or babies)? Please use the space below.

24. How useful did you find the following additional information sources in PREPARING to feed your baby (or babies)? Please use the scale below (1 = Not useful, 5 = Very useful).

	Not Useful				**Very Useful**	
Information Source	**1**	**2**	**3**	**4**	**5**	**Did not use**
a. Prenatal classes (in-person)						
b. Prenatal classes (online)						
c. Books or DVDs						
d. Handouts or brochures						
e. Websites or blogs						
f. Videos (for example, YouTube)						
g. Apps						
h. Newspapers or magazines						
i. Social media groups (for example, Facebook, Instagram, Twitter, or other)						

j. Health care provider (in-person visit). For example, a doctor, nurse practitioner, registered nurse, or registered practical nurse.						
k. Health care provider (phone or virtual visit). For example, a doctor, nurse practitioner, registered nurse, or registered practical nurse						
l. Lactation consultant (in-person visit)						
m. Lactation consultant (phone or virtual visit)						
n. Partner						
o. Family or friends						
p. Other (please explain using the space below):						

25. Why were some information sources MORE useful to you than others? For example, type of information provided, trusted source, availability, online/digital versus print, or other. Please use the space below.

26. How would you have PREFERRED to access information about infant feeding DURING your pregnancy? For example, discussions with your midwife/midwives or health care providers, online/digital or print resources, personalized apps, prenatal classes, or other. Please use the space below.

This next section asks about information you have received about infant feeding, including breastfeeding or formula feeding, SINCE the birth of your baby (or babies).

27. How useful you have found the following information sources when you have had questions or needed support feeding your baby (or babies)? Please use the scale below (1 = Not useful, 5 = Very useful).

Information Source	Not Useful 1	2	3	4	Very Useful 5	Have not used
a. Books or DVDs						
b. Handouts or brochures						
c. Websites or blogs						
d. Videos (for example, YouTube)						
e. Apps						
f. Newspapers or magazines						
g. Social media groups (for example, Facebook, Instagram, Twitter, or other)						
h. Midwife/midwives						
i. In-hospital nurse						
j. Public health nurse (in-person visit)						
k. Public health nurse (phone or virtual visit)						
l. Telehealth Ontario						
m. Lactation consultant (in-person visit)						

n. Lactation consultant (phone or virtual visit)						
o. Peer-support group (in-person or virtual meeting)						
p. Health care provider (in-person visit). For example, a doctor, nurse practitioner, registered nurse, or registered practical nurse.						
q. Health care provider (phone or virtual visit). For example, a doctor, nurse practitioner, registered nurse, or registered practical nurse.						
r. Partner						
s. Family or friends						
t. Other (please explain using the space below):						

28. Why were some information sources MORE useful to you than others? For example, type of information provided, trusted source, availability, online/digital versus print, or other. Please use the space below.

29. How would you PREFER to access information about infant feeding AFTER the birth of your baby (or babies)? For example, discussions with your midwife/midwives or health care providers, online/digital or print resources, personalized apps, prenatal classes, or other. Please use the space below.

30. Is there anything you would like to add about your experience accessing infant feeding information either during your pregnancy, or after the birth of your baby (or babies)? Please use the space below.

Thank you for taking the time to complete this survey!

Appendix 3. Study Recruitment Materials - Midwifery Group Emails

The following emails were sent to the 95 identified midwifery groups using publicly available contact information. As a study recruitment tool, the emails were intended to introduce the survey and request support in distribution the study information/ questionnaire link to both current and former clients using an attached poster and/or prepared social media posts for distribution as appropriate. The emails were sent over three months following the online launch of the study questionnaire: T0 (initial), T1 (one month later), T2 (two months after baseline) and T3 (three months after baseline).

1. T0 Email - Initial

Subject: Midwifery Infant Feeding Information Survey

Dear [NAME OF MIDWIFERY GROUP]

I am a Master of Public Health student at McMaster University working under the supervision of Dr. Elizabeth Alvarez in the Department of Health Research Methods, Evidence & Impact (HEI). I am contacting you to request your assistance in promoting a study exploring how Ontario midwifery clients access information to support their infant feeding decisions.

Midwifery Infant Feeding Information Survey (MIFIS)

The intent of this study is to understand when and where midwifery clients access infant feeding information, identify factors used in weighing the importance or influence of information sources on infant feeding decisions, and determine areas of programming and service development for improving information support for midwifery clients to meet their infant feeding goals.

The study is designed as an online survey and is open to clients, 16 years of age or older, currently receiving midwifery care in Ontario (pregnant or postpartum) or who have been discharged from midwifery care within the last two months (at time of survey completion). The survey will be available online until **February 28, 2021**.

Participation by clients in this survey is both voluntary and anonymous. There is no compensation for individual client participation, or support with client recruitment. This study has been reviewed by the Hamilton Integrated Research Ethics Board (HiREB).

Please consider promoting this study with your clients. A poster that can be locally printed, along with a sample social media post (e.g. Facebook, Instagram, Twitter, etc), are enclosed for your use. You can also link to our study Facebook page at *Midwifery Infant Feeding Information Survey*.

If you would like additional information about this study, or have any questions, please do not hesitate to contact me. Thank you in advance for your assistance.

Sincerely,

[RESEARCHER CONTACT INFO/LOGO]

2. T1 Email - Reminder (one month later)

Subject: Reminder - Midwifery Infant Feeding Information Survey

Dear (NAME OF MIDWIFERY GROUP),

Thank you for taking the time to consider my earlier request for support with study recruitment. I am a Master of Public Health student at McMaster University working under the supervision of Dr. Elizabeth Alvarez in the Department of Health Research Methods, Evidence and Impact (HEI). A part of my thesis work, I am conducting a study exploring how Ontario midwifery clients access information to support their infant feeding decisions.

Midwifery Infant Feeding Information Survey (MIFIS)

The study is designed as an online survey and is open to clients, 16 years of age or older, currently receiving midwifery care in Ontario (pregnant or postpartum) or who have been discharged from midwifery care within the last two months (at time of survey completion). The survey will be available online until **February 28, 2021**.

Participation by clients in this survey is both voluntary and anonymous. There is no compensation for individual client participation or support with client recruitment. This study has been reviewed by the Hamilton Integrated Research Ethics Board (HiREB).

If you have already put up the poster in your clinic or promoted the study via your social media platforms - thank you! Enclosed you will find a NEW sample social media post to continue promoting this study for your use. You can also link to our study Facebook page at Midwifery Infant Feeding Information Survey.

If you are interested in supporting this study, please consider promoting it with your clients. A poster that can be locally printed, along with sample social media posts are enclosed for your use. You can also link to our study Facebook page at *Midwifery Infant Feeding Information Survey.*

If you would like additional information about this study, or have any feedback, please do not hesitate to contact me. Thank you in advance for your assistance.

Sincerely,

[RESEARCHER CONTACT INFO/LOGO]

3. T2 Email - Reminder (two months after baseline)

Subject: Reminder - Midwifery Infant Feeding Information Survey (MIFIS)

Dear (NAME OF MIDWIFERY GROUP),

Thank you to everyone who has taken the time to promote the **Midwifery Infant Feeding Information Survey (MIFIS)** - your support is invaluable!

I am a Master of Public Health student at McMaster University working under the supervision of Dr. Elizabeth Alvarez in the Department of Health Research Methods, Evidence and Impact (HEI). The MIFIS is part of my thesis work, exploring how **Ontario midwifery clients** access information to support their infant feeding decisions.

The MIFIS is an online survey open to clients, 16 years of age or older, currently receiving midwifery care in Ontario (pregnant or postpartum) or who have been discharged from midwifery care within the last two months (at time of survey completion). **The survey will be available online until February 28, 2021**.

Participation by clients in this survey is both voluntary and anonymous. There is no compensation for individual client participation or support with client recruitment. This study has been reviewed by the Hamilton Integrated Research Ethics Board (HiREB).

If you are interested in continuing to support this study, **enclosed you will find a new social media post for your use.** The original recruitment poster is also enclosed for posting in your clinic space as appropriate. You can also link to our Facebook page at *Midwifery Infant Feeding Information Survey*.

If you would like additional information about this study, or have any feedback, please do not hesitate to contact me. Thank you in advance for your assistance.

Sincerely,

[RESEARCHER CONTACT INFO/LOGO]

4. T3 Email - Final (three months after baseline)

Subject: MIFIS - Study Recruitment is Almost Complete!

Dear (NAME OF MIDWIFERY GROUP),

Thank you for taking the time to promote the MIFIS with your clients. Your support these last months has been incredible!

Midwifery Infant Feeding Information Survey (MIFIS) is in the final month of study recruitment!

If you are interested in continuing to support the study during this final month, you will find a ***NEW* social media post enclosed for your use**. You are also welcome to link to our study Facebook Page *Midwifery Infant Feeding Information Survey* and share any content that has been posted to-date.

The MIFIS is open to clients, 16 years of age or older, currently receiving midwifery care in Ontario (pregnant or postpartum), or who have been discharged from midwifery care within the last two months (at time of survey completion). **The survey will only remain available online until February 28, 2021**.

If you would like additional information about this study, or have any questions, please do not hesitate to contact me. Thank you in advance for your assistance.

Sincerely,

[RESEARCHER CONTACT INFO/LOGO]

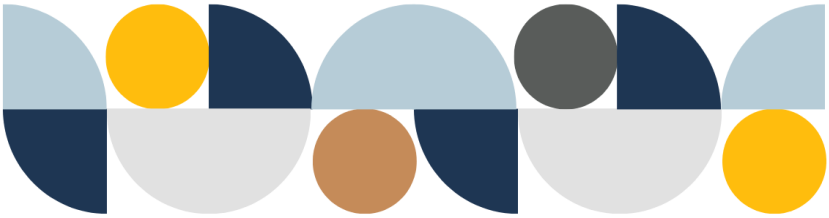
Enclosure:
MIFIS Social Media Post - Final

Appendix 4. Study Recruitment Materials - Poster

MIFIS

Are you in midwifery care in Ontario? Or have you recently given birth with a midwife?

McMaster University



Midwifery Infant Feeding Information Survey

Study for Ontario midwifery clients

We are interested in understanding how midwifery clients in Ontario access information to support their infant feeding decisions. Whether you are planning to, or are currently, chest/breastfeeding, formula feeding, or both - **we want to hear from you!**

Participants will be asked to complete an online survey. The survey is voluntary and anonymous. It should take **15-20 minutes** of your time.

There is no compensation for participation in this study.

For more information please contact:

Jessica Jones, RM
Master of Public Heath Candidate
Email: jonesjm@mcmaster.ca
Phone: (905) 525-9140 x 22248

Are you eligible?

- 16 years of age or older
- currently in midwifery care or discharged from midwifery care in Ontario within the last two months

To participate in this study

Please visit: https://rsjh.ca/redcap/surveys/?s=RYL3ARPX79 before **February 28, 2021**. You can also access this study via Facebook at *Midwifery Infant Feeding Information Survey* or by scanning the following QR code:

This research study has been reviewed by the Hamilton Integrated Research Ethics Board under Project #11442

Appendix 5. Study Recruitment Materials - Social Media Posts

The following social media posts were published to the Midwifery Infant Feeding Information Survey (MIFIS) Facebook page over three months following the online launch of the study questionnaire: T0 (initial), T1 (one month later), T2 (two months after baseline) and T3 (three months after baseline). The release of these posts coincided with the timeline of the distribution of the study recruitment emails to each of the 95 identified midwifery groups and were provided as email attachments to be used for internal use/ promotions as appropriate.

1. T0 Social Media Post - Initial

Accompanying Post Text: Introducing a study for Ontario midwifery clients - the Midwifery Infant Feeding Information Survey (MIFIS)! If you are 16 years of age or older, and are either currently in midwifery care in Ontario or have been discharged from care within the last two months, you are eligible to complete the survey. We want to hear from you! #mifisurvey #midwiferyresearch

2. T1 Social Media Post - New (one month later)

Accompanying Post Text: We want to year from you! If you are 16 years of age or older, and are either currently in midwifery care in Ontario or have been discharged from care within the last two months, we welcome you to complete the Midwifery Infant Feeding Information Survey (MIFIS) at: https://rsjh.ca/redcap/surveys/?s=RYL3ARPX79. The survey is open until February 28, 2021. #mifisurvey #midwiferyresearch

3. T2 Social Media Post - Reminder (two months after baseline)

Accompanying Post Text: A study for Ontario midwifery clients! The Midwifery Infant Feeding Information Survey (MIFIS) is looking for individuals currently in midwifery care in Ontario, or who have recently given birth with a midwife, to complete an online survey: https://rsjh.ca/redcap/surveys/?s=RYL3ARPX79. Be sure to have your say! The survey will be open until February 28, 2021. #mifisurvey #midwiferyresearch

4. T3 Social Media Post - Final (three months after baseline)

Accompanying Post Text: Have you completed the Midwifery Infant Feeding Information Survey (MIFIS) yet? If you are in midwifery care in Ontario or recently gave birth with a midwife, this study may be for you! This survey will only be open until February 28, 2021: https://rsjh.ca/redcap/surveys/?s=RYL3ARPX79. We look forward to hearing from you! #mifisurvey #midwiferyresearch

Appendix 6. Sample Quotations from Content Analysis of Open-ended Questions

Table 6. Sample quotations: usefulness of infant feeding information sources

MIFIS questionnaire item: Why were some information sources MORE useful than others?
Category 1: Availability and ease of access
"My midwives were very knowledgeable, confident, and available to help at any time." *Prenatal respondent* "Online websites were easier to access at all hours." *Postpartum respondent* "Social media groups have a big degree of ease of access, and are a nice way to feel connected during a pandemic." *Postpartum respondent* "Access was important. Getting my questions answered as quickly as possible." *Postpartum respondent*
Category 2: Confidence in source/perceived trustworthiness - including professional knowledge/lived experience
"Trusted family members and friends who honestly shared their experiences." *Prenatal respondent* "Other mom's experiences through a Facebook group was helpful because I knew what to expect and what was normal." *Postpartum respondent* "Midwives know what they are talking about [so] that was very helpful. People in our circle seem to all give conflicting advice so it's nice to just ignore them and follow the [midwife's] advice." *Postpartum respondent* "I also trusted the information from professionals much more than that from family/friends." *Postpartum respondent*
Category 3: Personalized support and reassurance
"Professional advice is tailored to my needs/situation and most up-to-date/valid/reliable." *Prenatal respondent* "I think speaking with individuals who had been through what I was going through helped me to understand that sometimes breastfeeding just doesn't work out despite mom and baby's best intentions. You read Fed is Best but there is definitely a significant push towards breastfeeding and it can make you feel very defeated when you've tried everything." *Prenatal respondent* "Learning from others who had struggles instead of those who found it easy was much easier for me because it was really difficult in the beginning for me to nurse." *Postpartum respondent* "The main thing I needed once the baby arrived was emotional support and encouragement." *Postpartum respondent* "Midwives took the time to help… they also listened to what I wanted and worked with me." *Postpartum respondent*

Table 7. Sample quotations: preference for accessing infant feeding information

MIFIS questionnaire item: How would you PREFER to access information about infant feeding during your pregnancy/after your baby is born?
Category 1: Information Sources - including health care provider and online/digital media
"Educated and informed discussion with midwives… alongside access to digital resources and apps." *Prenatal respondent* "Discussion with midwives and after birth in-person support and online resources." *Prenatal respondent* "Online or via app is the most convenient way to access." *Postpartum respondent* "Online resources were much more readily available, though there is value in speaking directly with the midwife to identify the right questions." *Postpartum respondent*
Category 2: Information style - including in-person/discussions with care provider and organized/ formal classes
"I prefer in-person discussion, with a list of reliable resources made available to me." *Prenatal respondent* "Discussions with midwives, recommendations for prenatal classes, recommendations for [social media] accounts to follow." *Postpartum respondent* "…a specific class with both a [lactation consultant] and a fellow mom who has maybe had troubles but then experienced successes!" *Prenatal respondent* "Prenatal classes were the most beneficial method and would be my preference if doing it all over again. They are a good foundation for further discussion with your midwife or other healthcare provider if needed." *Postpartum respondent*

Table 8. Sample quotations: midwife infant feeding information preferences

MIFIS questionnaire item: What information could your midwife/midwives share to better help you prepare for feeding your baby?
Category 1: Management of breastfeeding and common issues
"More in-depth info to prepare for example: how to deal with sore nipples, pumping schedule/info, how milk supply works." *Postpartum respondent* "Information on what to expect during the first week with breastfeeding, what is normal, etc." *Postpartum respondent* "Even through I have breastfed before, given me a refresher and what it should feel like. What a good latch will look and feel like and how to correct a poor latch." *Postpartum respondent* "How to prepare if breastfeeding [is] not possible" *Postpartum respondent*
Category 2: Personalized resource(s)
"A conversation about resources would be very helpful - especially in advance of baby being born so I don't have to dig this info up on an hour of sleep and in the midst of [postpartum depression]." *Prenatal respondent* "All options thoroughly. I know a lot about breastfeeding but very little about the other options, only that they are there." *Prenatal respondent* "More information on local resources, public health nurse access." *Postpartum respondent* "This was the second time around and breastfeeding came easily to us. Pumping, bottle feeding did not… a little formula was for us a tool for successful breastfeeding… I wish there was more support, flexibility." *Postpartum respondent*
Category 3: Realistic expectations of the physical and emotional challenges of breastfeeding
"That it's hard - it's not easy and it's okay if it doesn't work out. No shame." *Prenatal respondent* "How much time and emotional energy it takes to breastfeed a baby." *Postpartum respondent* "Some of the challenges and emotional elements of breastfeeding, especially when milk comes in. Some information beyond the latch would have been helpful." *Postpartum respondent*