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Exploring Health Care Access for Gay, Bisexual, and Other Men Who Have Sex with Men Living in Middlesex County, Ontario

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EXPLORING HEALTH CARE ACCESS FOR GAY, BISEXUAL, AND OTHER MEN WHO HAVE SEX WITH MEN LIVING IN MIDDLESEX COUNTY, ONTARIO

(Dissertation format: Integrated Article)

by

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Abstract

Published research suggests gay, bisexual, and other men who have sex with men (GB-MSM) present in health care with additional, distinct psychosocial and sexual health concerns compared to heterosexual men, emphasizing the importance of access to health care for these groups.

This exploratory thesis used data from the online survey (n=202) of the Health in Middlesex Men Matters (HiMMM) Project – a community-based study examining health care access for GB-MSM living in Middlesex County, Ontario. For each manuscript, blockwise modified Poisson regression models were fit sequentially with predisposing, enabling, and need variables, as theorized by the Behavioral Model of Health Services Use.

The first manuscript identified factors associated with access to a primary care provider (PCP), identifying subgroups with which to direct health care promotion efforts centred upon access. Older age, student status, marital and relationship status, social support (from a significant other and from GLBT - gay, lesbian, bisexual and transgender - communities), and self-perceived general health were crudely associated with having a PCP and were variably significantly associated with the outcome during the modelling process with additional variables.

The second examined factors associated with sexual orientation disclosure and communication with providers about GB-MSM health issues. Marital/relationship status, experiences of homophobia, and assessment of provider's communication were associated with having a PCP know respondents' sexual orientation, crudely and in the modelling process with other variables. Internalized homonegativity, experiences of homophobia, provider communication, and prior negative experiences with a PCP were associated with talking to a PCP about GB-MSM health issues.

The third examined demographic, socio-behavioural, and community-relevant factors associated with mental health service utilization in the past 12 months for local GB-MSM. Access to a PCP, childhood versus current religiosity or spirituality, self-perceived mental health, and internalized homonegativity were associated with the outcome, crudely, and in the blockwise modelling process with other variables.

The fourth manuscript investigated demographic and socio-behavioural factors associated with not accessing HIV testing services, and explored descriptive reasons for this,

discussing implications for HIV testing promotion. Factors significantly associated with being untested included social connection to GLBT communities, current versus childhood religiosity/spirituality levels, education, and employment.

Keywords:

Health care access; HIV testing; gay, bisexual, and other men who have sex with men; mental health service utilization; primary care

Co-Authorship Statement

All chapters, including the four manuscripts that present results, of this thesis were written by Todd Coleman and are intended to fulfill the requirements of his doctoral degree in the Department of Epidemiology & Biostatistics. These manuscripts were all written based on data collected from the Health in Middlesex Men Matters (HiMMM) Project. The HiMMM Project is a community-based research project initiated by Mr. Coleman, based on his attendance at a community health forum for the local "lesbian, gay, bisexual, two-spirit, questioning," or "LGBT2SQ" communities in London, Ontario in 2006. Mr. Coleman conceived the original idea for the project, built the research team, and designed all elements of the project in collaboration with the research team. Mr. Coleman participated in all project activities, including writing two funding proposals; writing two research ethics board submissions; designing a capacity-building phase; managing the project's qualitative recruitment; conducting qualitative interviews; managing quantitative survey recruitment; cleaning and creating new variables for the quantitative data set; completed most data analysis (all data analysis related to this thesis); participated in knowledge translation activities; and was primarily responsible for general project management activities.

The manuscripts in this dissertation represent work completed by Mr. Coleman. He conceived of the research questions, designed the analyses, conducted all analyses, and wrote all components of the manuscripts. Research questions were formed based on findings from the LGBT2SQ health forum, and informational needs from the Regional HIV/AIDS Connection, St. Joseph's Infectious Diseases Care Program, the Options Anonymous HIV Testing Clinic at the London InterCommunity Health Centre, and the Middlesex London Health Unit. Analyses were designed by Mr. Coleman with assistance from his Thesis Supervisory Committee – Drs. Greta Bauer, Barry Adam, Kathy Nixon Speechley. Drs. Greta Bauer and Kathy Nixon Speechley were consulted and provided guidance in matters related to survey design and data analysis, as needed. All manuscripts were drafted by Mr. Coleman. The Thesis Supervisory Committee and HiMMM research team provided feedback on each of the four manuscripts. Team members who assisted in conceptualization, who worked on commenting and editing of the manuscripts were listed as authors.

Dedication

To all those who have inspired me over this incredible mind-expanding journey,

I appreciate and cherish you all.

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- Firstly, I would like to thank my supervisor, Dr. Greta Bauer, for her tremendous direction throughout the past seven years. It has been a long, long journey and I could not imagine having anyone else guiding me through it.
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List of Abbreviations and Symbols

ACOL	AIDS Committee of London
AIDS	Acquired Immune Deficiency Syndrome
aPR	Adjusted prevalence ratio
ASIL	Anal squamous intraepithelial lesion
ASO	AIDS service organization
CBR	Community-based research
CCHS	Canadian Community Health Survey
DBS	Dried blood spot
DNA	Deoxyribonucleic acid
DSM	Diagnostic and Statistical Manual of Mental Disorders
GB-MSM	Gay, bisexual, and other men who have sex with men
HAART	Highly active antiretroviral therapy
HAV	Hepatitis A virus
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HiMMM	Health in Middlesex Men Matters
HIV	Human Immunodeficiency Virus
HPV	Human papillomavirus
HSIL	High-grade squamous intraepithelial lesions
IDCP	Infectious Diseases Care Program
LGBT	Lesbian, gay, bisexual, and transgender
LSIL	Low-grade squamous intraepithelial lesions
NHANES	National Health and Nutrition Examination Survey
LGBT	Lesbian, gay, bisexual, transgender
LGBTQ	Lesbian, gay, bisexual, transgender, queer
LGBT2SQ	Lesbian, gay, bisexual, transgender, 2-spirited, queer/questioning
MHSP	Mental health service provider
MOS	Medical Outcomes Study
MSM	Men who have sex with men
PCP	Primary care provider
PHA	Person living with HIV/AIDS

PHAC	Public Health Agency of Canada
PR	Prevalence ratio
STI	Sexually-transmitted infection
UAI	Unprotected anal intercourse
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organizations

CHAPTER ONE

Introduction

1.1 Introduction to the Health in Middlesex Men Matters (HiMMM) Project

The Health in Middlesex Men Matters (HiMMM) Project is a community-based research project representing a partnership of community members, agencies and allies of the local gay, bisexual, and other men who have sex with men (GB-MSM) community. The research team was formed to conduct research to inform prevention programming, service delivery, and future research initiatives for GB-MSM in Middlesex County, Ontario.

The group was formed directly as a response to the LGBT2SQ (Lesbian, Gay, Bisexual, Transgender, Two-Spirit, Queer) Health Forum, held on November 23, 2006. The Regional HIV/AIDS Connection (RHAC – formerly the AIDS Committee of London) held the LGBT2SQ Health Forum in London, Ontario to initiate dialogue, identify health concerns, and plan next steps in improving health services for LGBT2SQ communities in London.[1] Discussions resulted in the identification of three notable themes: 1) homonegativity—external and internal; 2) isolation and social exclusion, and 3) communication. When LGBT2SQ persons interface with the health care system in the region, frequent experiences of overt and covert homonegativity occur, from systemic and individual perspectives.[1] For communities affected by HIV, these themes may interact in particular ways to affect the health of community members.

Social exclusion, isolation, homonegativity, and lack of communication impede gay, bisexual, and other men who have sex with men's (GB-MSM) access to health care. Assessing and addressing each theme is an important first step in understanding their effects. Using the information to limit undesirable outcomes through the provision of relevant and useful programming and service delivery is one of the goals of this project. The LGBT2SQ Health Forum report concluded that next stages for the community include exploring challenges to the health and wellness of the LGBT2SQ communities, addressing needs, and planning further direction.

Informal discussion within GB-MSM communities in the London area regarding these findings followed. This resulted in community members and allies from The University of Western Ontario, The Regional HIV/AIDS Connection (formerly the AIDS Committee of London - ACOL), St. Joseph's London - Infectious Diseases Care Program (IDCP)

partnering to explore these themes and their individual and collective impacts on HIV and health care use under the community-based research group "The Health in Middlesex Men Matters (HiMMM) Project." As the project's scope grew, the Middlesex-London Health Unit (MLHU) and the Options Anonymous HIV Testing Clinic at the London Intercommunity Health Centre also joined as project partners. A "Terms of Reference" document, guiding decision-making on the project can be found in APPENDIX A, with a summary of individual roles listed in APPENDIX B.

A key characteristic of community-based research (CBR), sometimes called "community-based participatory research," is "the emphasis on the participation and influence of non-academic researchers in the process of creating knowledge."[2] The HiMMM Project involves community members, organizational representatives, and researchers in all aspects of the research process.

There are several key principles to community-based research. CBR recognizes community as a unit of identity and builds on strengths and resources within the community. It also facilitates collaborative partnerships in all phases of the research and integrates knowledge and action for mutual benefit of all partners. CBR promotes a co-learning and empowering process attending to social inequalities and it involves a cyclical and iterative process. It addresses health from positive and ecological perspectives. Finally, CBR disseminates findings and knowledge to all partners.[3]

Middlesex London has a sizeable and vibrant LGBT2SQ community that has faced unique challenges over the years. These include the "Project Guardian" police investigation which sought to implicate dozens of local gay men with child pornography charges, resulting in a number of false accusations and outing of several men.[4] Additionally, there was the refusal to proclaim Gay Pride Week by elected mayor Diane Haskett in the late 1990s, which subsequently resulted in a complaint to the Ontario Human Rights Commission that led to a $10,000 fine.

While social exclusion, isolation, homonegativity, and lack of communication were all identified as local concerns, formally documented information from GB-MSM communities in Middlesex County is scarce. There is also a dearth of research about GB-MSM and health care that exists outside of the HIV field. Further, many studies of Canadian GB-MSM have been conducted in larger metropolitan centers, such as Toronto, Vancouver, or Montreal. While this metropolitan-based research is valuable in guiding health promotion efforts such

as HIV prevention campaigns, the results of this research tend to be generalized to GB-MSM living across the province. This ignores the complexities that may exist in the lives of GB-MSM from rural or mid-sized urban settings.

This study provides information that is locally relevant to the GB-MSM of Middlesex County, and represents action taken directly from the experiences of local men.

1.2 Thesis Objectives

1. To explore factors associated with access to a primary care provider (PCP) for GB-MSM living in Middlesex County, Ontario, Canada.
2. To examine socio-demographic, psycho-social and community-specific factors associated with GB-MSM living in Middlesex County, Ontario's sexual orientation disclosure and communication with their PCP about GB-MSM-related health issues.
3. To explore demographic, socio-behavioural, and community-relevant factors associated with mental health service utilization in the past 12 months for GB-MSM living in Middlesex County, Ontario.
4. To investigate demographic and socio-behavioural factors associated GB-MSM not accessing HIV testing services in Middlesex County, Ontario, exploring descriptive reasons for not having accessed testing services

1.3 Thesis Organization

Results from this thesis are intended to provide relevant and useful results for prevention programming, service delivery, and future research initiatives for GB-MSM in Middlesex County, Ontario, and more broadly. This thesis research is tied to the aims of the HiMMM Project, however, conceptual models, data analysis, and writing to achieve the objectives of this thesis project represent my own work. This dissertation is presented in an integrated-article format, organized into seven chapters. Chapter 2 provides an examination of current literature on health care access and HIV in GB-MSM. Chapters 3 to 6 contain the articles that comprise the main results and discussion of the thesis. Chapters 3 and 4 have been submitted for publication to *Healthcare Policy* and *CMAJ Open, respectively.* Chapters 5 and 6 are currently being prepared for publication to *Canadian Journal of Mental Health* and *AIDS Care*, respectively. Chapter 7 provides an integrated discussion of Chapters 3 through 6, highlighting the findings related to themes from the LGBT2SQ Health Forum and additional

HiMMM Project activities, discusses broad implications for program development and service delivery for local GB-MSM, outlines the implications for future research, and discusses the limitations associated with the study.

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CHAPTER TWO

Literature Review

A review of the literature was performed. The following databases were used to locate articles: PubMed, EMBASE, and Web of Science. Further, Google Scholar was used to search for additional journal articles, reports, and grey literature. For instances where Canadian information was available, these references are highlighted more extensively over studies from regions outside of Canada. Each article was reviewed to determine which definitions were used to measure sexual orientation.

2.1 Defining "gay," "bisexual," and "other men who have sex with men"

Sexual identity is an important construct necessary to measure and assess health disparities.[1] Traditionally, in HIV/AIDS and sexually-transmitted infection (STI) research, gay and bisexual men have been grouped into one category under the heading "men who have sex with men (MSM).[2] The sole label "MSM" ignores that "gay" can denote a socio-cultural identity, rich with norms, identities and behaviours important in prevention and health promotion work.[2] Measuring sexuality solely as a behaviour omits the influences of sexual and relational identification, socio-political positioning, and other components of sexuality.[3] Clustering and labelling as "men who have sex with men" masks that some who share sexual behaviours with gay men might not identify in these ways.[4,5,6,7,8] Recent research has advocated for the "recognition of local identities and communities (where they exist) as crucial to a proper understanding of the issues and also for the development of meaningful, participatory prevention programmes."[9] The lexicon of terms used to self-identify has become more complex as new terms are continually being added to the list of possible identities.[10] A recent cluster analysis of survey data from Canada and the United States (n = 2,372; 1,183 men) suggested that two and three distinct subgroups of gay and bisexual men exist within these broader categorizations, respectively.[10] "Gay" and "bisexual" denote men who have emotional and sexual relationships with other men and self-identify with these respective communities. Other "men who have sex with men" (MSM) are those who may not identify as gay or bisexual, but engage in sexual relationships with other men. GB-MSM may also contain a vast spectrum of different identities, including two-spirit,

queer, and other identities. These are linked by shared experiences of being men who are sexually attracted to or involved with other men.

Measuring sexual orientation in youth is slightly more complex. For youth, classifying using three separate measures that cover sexual behaviour, identity, and attraction has been shown to form an adequate measure of sexual orientation. The reasoning for including "attraction" as a component is due to the tendency in surveys for non-response to, and non-concordance between, questions of orientation identity (due to uncertainty in identity) and sexual behaviour (due to not having had the opportunity to experience these).[8,11,12]

Since "attraction" is primarily used to categorize youth who have not yet formed a sexual orientation identity or have not had any sexual experience, measuring behaviour and identity in adults can capture this construct adequately.[4] It must also be acknowledged that sexual orientation – whether identity, behaviour, or attraction – is not static and can change from one time point of measurement to the next.[12] It has been posited by some that sexual identity be measured in gradients, with added categories such as "mostly gay" and "mostly heterosexual" suggested to be added for further precision in measuring sexual orientation identity, however these pose methodological challenges for quantitative analysis.[13]

The HiMMM Project team chose to measure identity, behaviour, and attraction, with the ability to write in other identities if participants felt the list did not capture their particular identity. The population is referred to as "gay, bisexual, or other men who have sex with men" or "GB-MSM" so as to more appropriately define a heterogeneous group.

2.2 Structural level policies affecting gay, bisexual, and other men who have sex with men in Canada

Acceptance of sexual minority groups in Canada at structural levels has evolved considerably in the past 50 years, beginning with the decriminalization of "homosexuality" in 1969.[14] In 1986, an amendment was passed by the Ontario Legislature that was added to the Ontario Human Rights Code as a grounds for protection.[15] In 1996, the Canadian Human Rights Act followed with the inclusion of "sexual orientation" as a prohibited ground of discrimination[16] and, in 2005, the Civil Marriage Act legalized same-sex marriage across the country.[17] Having more international repercussions, in 1973, the American Psychiatric Association declassified "homosexuality" as a mental disorder from the *Diagnostic and Statistical Manual of Mental Disorders*.[18]

2.3 Health issues for gay, bisexual, and other men who have sex with men

It is important to state that, while GB-MSM present with different, distinct health concerns as compared to their heterosexual counterparts,[19,20] this is not an indication that homosexuality is indicative of health pathology.[21] Most differences can be explained by broader, systemic stigmas experienced by sexual minority groups.[22]

A recent U.S.-based retrospective cohort study, using data originally collected from the National Health and Nutrition Examination Survey (NHANES III; 1988 to 1994) subsequently linked to the National Death Index (NDI), sought to examine sexual orientation and mortality.[23] Classifying men into three groups, based on sex of partners (any same sex, n = 85; only female partners, n = 5292; and no partners, n = 197), they found that, compared to men with only female partners, MSM had greater all-cause mortality (hazard ratio = 3.59; 95% CI = 1.91 – 6.74), with HIV-related causes being the sole reason for this discrepancy.[23]

The following sections outline sexual, physical, mental, and broader social health topics relevant to GB-MSM. These have further implications regarding health service utilization and the need for providers to be aware of and provide culturally-relevant care for GB-MSM.

2.3.1 Sexual Health

Research into STIs suggests that GB-MSM are at higher risk than heterosexual men for urethritis, proctitis, pharyngitis, prostatitis, hepatitis A (HAV) and B (HBV), syphilis, gonorrhea, chlamydia, herpes, genital warts, and HIV infection.[24] In an analysis of preliminary data from the 2003 cycle (2.1) of the Canadian Community Health Survey (CCHS; n = 49,901), gay men (combination measure of gay self-identity with behavioural definition) were almost six times more likely to have ever been diagnosed with an STI (Odds Ratio = 5.80; 95% Confidence Interval = 3.92, 8.57), compared to heterosexual men.[25] Hepatitis C Virus (HCV) and HIV infection were measured in community/venue-based samples of self-identified gay and bisexual men over 15 years old (n = 5,080) in 13 cities in Ontario, Canada.[26] Prevalence estimates of HCV, HIV, and HCV-HIV co-infection in this 2009 analysis were approximately 1.9%, 9.0% and 0.7%, respectively.[26] HCV and HCV-HIV co-infection were separately associated with injection drug use in this group.[26]

For some STIs, vaccines exist and are recommended specifically for GB-MSM. Older reports documented low vaccination rates in GB-MSM. A report based out of San Francisco and Berkeley, California, using data from the venue-based sample of the Young Men's

Survey, found that 3% of MSM (n = 385; orientation determined behaviourally) in San Francisco and Berkeley, California, aged 17 to 22 years old, were vaccinated for Hepatitis B.[27] More relevant to Canadian men, the OMEGA study conducted from 1996 to 1997 (n = 625), indicated a 48% vaccination rate for HBV in homosexual men (defined as any man who had sex with a man within the previous year) in Montreal, Quebec.[28] These results were based on a venue-based sample from clinical and community locations.[28] This stark difference in vaccination rates is likely explained by the availability of school-based Hepatitis B vaccination in Canada and the differences in health coverage between the two countries.

The Lambda survey, conducted in early 2007, sampled GB-MSM (n = 2,221; measured through identity and behaviour) from venues in Toronto and Ottawa, Ontario.[29] The survey found that 55.5% of men were vaccinated for HAV and 69.5% for HBV.[29,30] These results are different from a US-based online study of HAV and HBV vaccination in MSM (sexual orientation measure not specified) which measured that 64.5% and 58% were not vaccinated for HAV and HBV, respectively, with 5.8% and 8% of MSM infected.[31] In addition to vaccination status, the Lambda survey measured the prevalence (within the past six months) of self-reported gonorrhea (2.4%), chlamydia (1.7%), genital/anal warts (2.5%), syphilis (1.3%), genital herpes (1.2%), hepatitis A (0.6%), hepatitis B (0.7%), hepatitis unknown (0.5%), and lymphogranuloma venereum (0.5%).[29]

The US-based Centers for Disease Control and Prevention, having established an MSM Prevalence Monitoring Project, reviewed medical visits of MSM (n = 21,927; sexual orientation either self-identified, clinician-classified, or the patient indicated they had male sex partners) attending Fenway Community Health in Boston between 2003 and 2004.[32] Of those that had STI testing performed, 7% of asymptomatic men tested positive for at least one STI, with 1.0% having urethral gonorrhea, 1.7% with pharyngeal gonorrhea, 5.6% with rectal gonorrhea, 2.2% having urethral chlamydia, and 4.3% seroreactive for syphilis.[32] An Australian project (The Health in Men Study) followed 1427 HIV-negative gay men (behavioural measure; participants were asked whether they had had sex with another man within the past 5 years) and found the prevalence of Herpes Simplex Virus 1 and Herpes Simplex Virus 2 was 75% and 23%, respectively, at baseline, with incidence rates of 5.58 and 1.45 cases per 100 person-years.[33] Comparing results from this study to those from a cohort of Australian HIV-positive gay men (behavioural measure identical to the HIV-

negative cohort), HCV prevalence at baseline was 1.07% in the HIV-negative men compared to 9.39% in the HIV-positive men.[34] In this same comparison, no HCV seroconversions were observed in HIV-positive men, however the HIV-negative cohort had an incidence of 0.11 per 100 person-years.[34] In a study that sampled from the San Francisco City Clinic (n = 541), which sees roughly 8,800 MSM annually, an early syphilis diagnosis and two prior chlamydia or gonorrhea rectal infections in the past two years were associated with incident cases of HIV.[35]

Human papillomavirus (HPV) is a virus that can infect many parts of the body by skin-to-skin contact. Some subtypes are sexually transmitted and can cause warts or infection in the ano-genital region of men and women.[36] Other subtypes that infect these areas can lead to certain cancers (cervical, penile, anal).[36] Types of HPV are classified into low and high risk according to their likelihood in developing into cancer. Government prevention messages for HPV stress condom use, however, they indicate that a condom protects only the areas that it covers, meaning a wart on the scrotum could possibly transmit infection.[37] In Canada, there is currently no HPV DNA screening test approved for men, only for women.[36] A recent U.S.-based study of the acceptability of anal cancer screening has indicated that, other than cost-related factors, this type of screening would be highly acceptable to gay and bisexual men.[38] It has been suggested that in HIV-negative homosexual and bisexual men, screening every three years in the form of an anal pap smear, similar to Pap smears used in women, would be clinically beneficial.[39] Health Canada has recently approved the HPV vaccine for use in young men aged 9 to 26.[40] Despite this age range, the National Advisory Committee on Immunization recommends HPV vaccination for *all* MSM.[41] Men (n = 608) have indicated that they would be more accepting of the HPV vaccine if it is framed as preventing cancer compared to preventing genital warts, with higher interest in the vaccine in gay and bisexual men (n = 312; self-identity measure) in the United States compared to heterosexual men.[42] HPV has been shown to be present in both HIV-positive and HIV-negative men, but prevalence of infection is higher among HIV-positive men, being disproportionately represented in later stages of HIV.[43,44] A recent cohort study of HIV-positive MSM (having had a history of sexual intercourse with other men) in Montreal found that HPV DNA was detected in 97.9% of the 247 participants at baseline, with multiple types being found in the anal canals.[45]

To determine whether trends in STIs differed significantly in the era prior to the availability of highly active antiretroviral therapy (HAART) compared to afterwards, Rietmeijer analyzed data from the Denver Metro Health Clinic. The authors found that the positivity rate of gonorrhea was significantly higher in the period 1996 to 2001, compared to 1990 to 1995, which is the opposite trend of what was seen in men who have sex with women (MSW) during those two periods.[46]

Lifetime probability for acquiring diagnoses for an STI can be high in gay youth. Early initiation of sexual intercourse, higher total number of sexual partners, and higher numbers of partners within the previous 30 days, were associated with gay, lesbian, or bisexual identity in a sample of youth (n=4,159; sample consisted of 9th to 12th grade students in public high schools from across Massachusetts).[47] In a recent analysis of data from the NHANES over 2001 to 2006, it was found that MSM (behavioural measure – over lifetime) were more likely than non-MSM to have had their first sexual encounter by 15 years old.[48]

2.3.1.1 HIV and gay, bisexual, and other men who have sex with men

Worldwide, it has been estimated that 34.0 million people are currently living with HIV.[49] In 2007, across the world, an estimated 6,800 people became infected every day with 5,700 deaths occurring every day.[50]

The Public Health Agency of Canada (PHAC) states that in 2011, 71,300 people were living with HIV (and AIDS) in Canada.[51] It is estimated that, in Canada, 2,250 to 4,100 new HIV infections occurred in 2011 compared with the slightly lower 2,370 to 4,300 in 2008.[51] As of 2011 in Ontario, 32,547 diagnoses of HIV infection have been recorded, with approximately 68.6% of these in MSM.[52] In an analysis of US data from NHANES surveys over 2001-2006, the prevalence of HIV in MSM (behavioural measure – over lifetime) was 9.1%.[49] After noticing a decreasing trend in HIV diagnoses in Ontario in the 1990s, the level remained relatively stable from 2002 to 2008.[53] Calzavara et al., using data obtained from diagnostic HIV tests from persons who tested at least twice ("repeat testers") and using a technique that adjusts for repeat testing, found an increase in incidence among MSM from 1996 to 1999.[54] A study from a similar period conducted in MSM in the United Kingdom also found that HIV diagnoses were increasing in MSM there, although this reflected an increase in HIV testing rather than a rise in HIV incidence.[55] In cohort studies conducted in Australia, 53 HIV seroconversions were identified, giving an incidence of 0.78 per 100

person-years, and HIV seroconversion was associated with anal gonorrhea and anal warts.[56] In Ontario, the number of diagnoses in MSM in Ontario increased by approximately 6.3% in 2011 compared to 2008.[52] While incidence rates of HIV infection in Canada decreased in the late 1990s, the prevalence continues to increase – a consequence of the development of powerful anti-retroviral drugs that helped those living with HIV live longer.[57,58] It was estimated that, in 2008, 19% of people infected with HIV in Ontario were unaware of their status.[59] In 2008, there was also an increase in testing in MSM, by 25%, compared to 2003.[53] According to a recent fact sheet distributed by the Canadian Treatment Information Exchange (CATIE), HIV prevalence among gay men and other men who have sex with men can range, based on geography, from 3% to 24%.[60]

London, Ontario, located approximately two hours southwest of Toronto, is the largest and most populous city in Southwestern Ontario and the fourth largest metropolitan area in the province.[61] According to the Ontario HIV Epidemiologic Monitoring Unit, in 2011, Middlesex-London had the third highest cumulative incidence of HIV, behind Toronto and Ottawa.[52] Among GB-MSM, trends echo the ones mentioned above – for GB-MSM in Ontario, including London, there are yearly fluctuating patterns of increasing and decreasing HIV incidence estimates and the reasons for this are not entirely clear.[62]

Recent studies with large samples of MSM have been conducted in Ontario. A Toronto Pride Survey conducted in 2005 with a final sample of 947 men, found 40.6% of men reported at least one incident of unprotected anal intercourse (UAI) with or without ejaculation. UAI was more common with regular partners than with casual, but UAI was present in both. This study gathered significant findings in men engaging in "bareback" sex. "Barebacking" is a slang term to describe UAI. Compared to those reporting they did not take part, 40.8% of men in the bareback scene (13.3% of the total sample) reported UAI with casual partners without ejaculation, whereas only 9% of those not in the scene had reported UAI with casual partners.[63] A different study of MSM (self-identification as either MSM, gay, or bisexual) sampled from the 2005 and 2007 Toronto Pride festivals, yielded a sample of 1,017 men (542 men in 2005, and 475 in 2007), with 131 men indicating they were HIV positive, and 826 indicating they were HIV negative. In 2005 and 2007 groups, respectively, 14.7% and 16.0% of HIV negative men reported that they engaged in UAI with nonconcordant HIV status partners. Among the HIV positive participants, 37.5% and 37.7% engaged in UAI with nonconcordant partners, respectively.[64] In a US-based CBR study of

sexual behaviours in rural men, among men having intercourse with male partners, 19.4% had receptive UAI without a condom, and 21.3% had insertive UAI without a condom.[65]

The Lambda survey, a cross-sectional study of venues in Ottawa and Toronto during 2007, obtained information from 2,438 participants. The importance of UAI is indicated as an important factor in the HIV epidemic with 56.5% of the Toronto sample and 60.3% of the Ottawa sample reporting UAI (receptive or insertive) with at least one man in the previous six months. Roughly 47.1% of participants reported at least one episode of delayed condom application during receptive anal sex. Dried blood spots (DBS) were also collected to test for HIV, HCV and syphilis. Of those who provided a DBS (1,104 men), HIV prevalence in MSM was 11.8% in Ottawa, and 23.8% in Toronto.[29] It is important to note that these are venue-based samples and can not necessarily be generalized to Ontario's GB-MSM communities.

The Lambda survey is the Ontario arm of the wider M-Track surveillance program which monitors HIV prevalence and HIV-related risk behaviour in larger urban centres across the country.[29] According to their results, in Montreal, in 2005, 21% of MSM reported having UAI with a casual male partner at least once in the prior six months. These figures are slightly higher on the other side of the country, with 30% reporting this behaviour in Victoria in 2007, 31% in Vancouver in 2008.[29]

A recent study of HIV-related risk behaviour among people living with HIV or AIDS (PHAs), conducted in an HIV clinic in Seattle, Washington, indicated that 27% of MSM reported having non-concordant UAI in the previous year, despite the fact that 24% of MSM did not have sex with a potential partner because they were HIV positive and 31% reported that another man did not have sex with them because they were HIV positive.[66] In a project that sampled HIV-positive gay men in New York City and San Francisco, researchers found 51% had been involved in sexual experiences with other HIV-positive men and 62% of these had practiced UAI with their seroconcordant partners.[67] In a similar sample of HIV-positive men who have sex with men, also from New York City and San Francisco, 34% reported concordant and 41% reported discordant UAI in the past three months, with 26% reporting insertive UAI.[68]

In the BiSex Survey, a study that focused exclusively on bisexuality, over the previous year (1995), 26.8% of bisexual men (measure of self-identity and behaviour) who had sexual intercourse with at least one regular male partner reported unprotected intercourse.

Conversely, 14.8% of bisexual men who had sexual intercourse with at least one reported casual male partner reported unprotected intercourse. In this Ontario-based sample, it was found that men living in regions with HIV prevention programming had less frequent unprotected homosexual intercourse.[69]

More recently, two large-scale surveys collected data from GB-MSM across Canada. In 2011-2012, the Male Call telephone survey of GB-MSM (respondents were eligible if they had ever engaged in any kind of sex with a man) collected data from 1,234 men from across Canada. Of these, 67.5% had casual sex with a man within the prior 6 months. Over half (50.1%) of respondents reported "not always" using condoms for anal sex. Specifically looking at relationship status and condom use, men who were married or partnered to another man always used condoms 27.0% of the time, men who were married or partnered to a woman 60.7%, and single/divorced/widowed men 55.9% of the time.[70] The SexNow Survey, also conducted over 2011-2012, was an online survey of GB-MSM, collecting data from 8,607 men across Canada. Approximately 71% of Ontarian respondents indicated they had used a condom the last time they had anal sex, and almost 30% reported condomless anal sex during the past 12 months with a partner whose HIV status was unknown or opposite of their own status.[71]

2.3.2 Physical Health

The risk of developing cancers in gay and bisexual men has been shown to be high. In a literature review conducted by Dean et al., gay and bisexual men were indicated to be at higher risk of developing anal cancer, non-Hodgkin's lymphoma, and Hodgkin's disease, usually related to being HIV-positive.[24] In a recent pooled analysis of data from multiple studies involved in the International Head and Neck Cancer Epidemiology Consortium (n_{cases} = 5642; $n_{controls}$ = 6069; from Argentina, Australia, Brazil, Canada, Cuba, India, Italy, Spain, Poland, Puerto Rico, Russia and the USA), it was found that cancer of the base of the tongue was associated (Odds Ratio = 8.89; 95% CI = 2.14, 36.8) with a history of same-sex sexual contact (a measure of never or ever having had sexual contact with someone of the same sex) among men.[72] However, the HIV serostatus in these men was not considered in the analysis. In a sample of HIV-negative sexually-active MSM (n = 1,262; measured by self-reported receptive or insertive anal sex with one or more men during the previous year), all age groups had a higher prevalence of anal squamous intraepithelial lesions linked to HPV infection

(low-grade squamous intraepithelial lesions [LSILs] and high-grade squamous intraepithelial lesions [HSILs]) at 15% and 5% for LSILs and HSILs, respectively.[73] In HIV-positive MSM (measure of orientation not specified), risk for HSILs of the anus is estimated to be larger than in HIV-negative MSM even with the introduction of highly active antiretroviral therapy.[74] This has been supported more recently in a prospective analysis of HIV-positive and HIV-negative MSM (n = 6,972 from the Multicenter AIDS Cohort Study; self-identification and behavioural measures) - restricting to the years since HAART was available.[75] They found that anal cancer risk increased significantly with HIV infection (relative hazard = 4.7; 95% confidence interval = 1.3, 17).[75] Similarly, a recent study found high-grade intraepithelial neoplasia or squamous cell cancer in 47% of HIV-positive MSM (n = 159) and 26% of HIV-negative MSM (n = 160; measure of sexual orientation not specified; MSM referred to a single surgical practice for ablation of anal condylomata).[76] Excess rates of anal cancer in gay and bisexual-identified men compared to the general population have been attributed to increased rates of human papillomavirus (HPV) and anal squamous intraepithelial lesions (ASILs), both reputed anal cancer precursors.[43,44,73,77,78,79,80]

With the success of combination antiretroviral therapies for HIV-positive persons, certain malignancies have become increasingly prevalent among MSM, including anal cancers[75], nonmelatonamous skin cancer, and liver cancer, specifically in HIV-positive men.[81] In a study examining 5-year survival rates for non-Hodgkin's lymphoma and Hodgkin's disease, survival rates in self-identified HIV-positive gay men were lower than in the general population at 9.8% vs. 50.2% and 32.8% vs. 75.7%.[82] Additional reasons, other than comorbidity with HIV, are attributed to delays in detection and treatment, or barriers in accessing care or communication with health care providers.[24] Regardless of the reasons that lead to these conditions, these findings indicate the need to communicate and know a patient's life and sexual behaviour history for more effective disease detection and treatment.[82]

2.3.3 Mental Health

Despite decriminalization and de-listing of homosexuality as a psychiatric condition from the Diagnostic and Statistical Manual of Mental Disorders (DSM) in 1969 and 1973, respectively, mental health concerns for GB-MSM remain common. Many older gay men have lived through periods where homosexuality was illegal and considered a mental

disorder. In addition to similar mental health concerns as heterosexuals, managing stigma associated with being gay can cause additional stress resulting in mental health consequences.[83,84] This stress can begin at young age due to emotional traumas relating to homosexuality being experienced early on, especially in school settings in the form of bullying.[83,85] In a study of homophobic bullying, students (n = 7,376) who were questioning their sexual orientation or identified as gay, lesbian, or bisexual experienced the most bullying, the most homophobic victimization, the most drug use, with questioning students having higher mean levels of depression and suicidality compared to students who were not.[86] A recent survey conducted in partnership with EGALE Canada of over 3,600 students in Canadian high schools found over half of LGBTQ (self-identified) students reported being verbally harassed and one fifth reported physical harassment because of their sexual orientation.[87]

Several analyses have found that gay and bisexual men had higher prevalences of major depression, panic attacks, psychological distress, and feelings of powerlessness and despair than heterosexual men.[25,84,85,88,89] In a household probability sample of MSM (n = 2,881; behaviour measure) in four large American cities (San Francisco, New York, Los Angeles, Chicago), MSM were 2.7 times more likely to be in the at-risk group for distress and depression compared to the general adult population of men in the U.S.[90] This echoes similar findings from a New Zealand birth cohort (n = 1,007) that found bisexual and gay men (self-identified or as heterosexual and having had sexual experiences with someone of the same sex) tend to have higher rates of major depression disorder (Odds Ratio = 4.00; 95% Confidence Interval = 1.8, 9.3), generalized anxiety disorder (Odds Ratio = 2.8; 95% Confidence Interval = 1.2, 6.5), conduct disorders (Odds Ratio = 3.8; 95% Confidence Interval = 1.7, 8.7), suicide ideation (Odds Ratio = 5.4; 95% Confidence Interval = 2.4, 12.2), and suicide attempts (Odds Ratio = 6.2; 95% Confidence Interval = 2.7, 14.3).[91] More recently, an analysis of CCHS data also showed that gay and bisexual men had higher rates of mood or anxiety disorders (15.8%; 95% Confidence Interval = 12.0, 19.6; and 13.8%; 95% Confidence Interval = 8.5, 19.1, respectively) compared to heterosexual men (5.1%; 95% Confidence Interval = 4.8, 5.5).[25] These trends were also seen in a subsequent analysis of the 2007-2008 cycle of the CCHS which found higher odds of mood disorders in Canadian gay and bisexual males compared to heterosexual men.[92] In young gay-identified and MSM (n = 526; identity and behaviour measures), it was suggested that young MSM are at greater

risks of depression (18% classified as distressed; 21% classified as depressed) and suicidal ideation (10% had considered it in the past 12 months) and attempts (6% had ever attempted).[93] A recent analysis of 2001-2002 data from the National Longitudinal Study of Adolescent Health (n_{males} = 5,513) also found that young gay men (self-reported identity measure in scale format, ranging from 100% heterosexual to 100% homosexual) have higher odds of suicidal thoughts (Odds Ratio = 2.89; 95% Confidence Interval = 1.44, 5.78) than heterosexual men, but also that parental support tends to mediate this association.[94] In a large, population-based study of 3,648 men aged 17 to 39, completed using data from the NHANES, MSM (defined by gender of sex partner) had greater lifetime prevalence rates of suicide symptoms (Odds Ratio = 2.16; 95% Confidence Interval = 1.21, 3.83) than men reporting only female sex partners, but were not more likely to have exhibited affective disorders.[95] It has been speculated that affective disorders are more prevalent in older GB-MSM populations based on social stress theories. These theories suggest a more liberal social attitude towards homosexuality over past decades has alleviated stressors related to minority status, resulting in a decline in stress and related disorders.[22,96] The prevalence of psychiatric morbidity, defined by the revised version of the Clinical Interview Schedule, among gay men (behaviour measure) assessed via snowball sampling (n = 1,285) were high, at 42% and 49%, respectively.[97] Suicide continues to be a prominent mental health issue for GB-MSM. Lifetime elevated prevalence rates of suicide ideation and attempts in GB-MSM have been documented.[98,99,100,101,102,103,104,105,106] Canadian data from the 2003 cycle of the CCHS suggests that gay and bisexual men had much higher rates of life-time suicidality (Odds Ratio = 4.13; 95% Confidence Interval = 2.13, 8.01; and Odds Ratio = 6.32; 95% Confidence Interval = 2.08, 19.15, respectively).[25] A Danish study using death records suggested that gay men (identified by partner's gender) had a suicide mortality risk eight times higher (Risk Ratio = 8.19; 95% Confidence Interval = 5.48, 12.24) than heterosexual males.[107]

Analysing measures of psychological distress in a cross-sectional study from England and Wales, gay men (n = 656; identity and attraction measures) experienced higher levels of psychological distress (Risk Ratio = 1.24; 95% Confidence Interval = 1.07, 1.43) than heterosexual men (n = 505), with one quarter of gay men indicating deliberate self-harm compared to one in seven heterosexuals.[89] In a venue-based study, older gay men (n = 297; ages 60 to 91 years old; sexual orientation identity measure) experiencing negative feelings about being gay were more likely to exhibit suicidal feelings.[108] In the same sample, higher

self-esteem, a sense of social integration, and outside awareness of sexual orientation were associated with better mental health.[109]

In studies of addictions in GB-MSM, it has been suggested that tobacco and drug use in sexual minority men are higher than in the general population, leading to diseases and conditions attributed to these.[24,85,88] Historically, problem drinking has been suggested in gay and bisexual men at 30% compared to 10% in the general population.[110] These findings have since been refuted, with equivalent rates in homosexual (measured by behaviour) and heterosexual men.[111,112] Reasons for this are primarily due to convenience samples obtained from bar settings. In youth (n = 4,159), sexual orientation was significantly associated with cocaine use before the age of 13 (Odds Ratio = 6.10; 95% Confidence Interval = 2.45, 15.20).[47] Marijuana (Odds Ratio = 1.98; 95% Confidence Interval = 1.04, 4.09), alcohol (Odds Ratio = 1.82; 95% Confidence Interval = 1.03, 3.23), inhalant use (Odds Ratio = 1.30; 95% Confidence Interval = 1.05, 1.61) and smokeless tobacco use in the past thirty days (Odds Ratio = 1.38; 95% Confidence Interval = 1.20, 1.59) were also all associated with a lesbian, gay, or bisexual sexual orientation identity.[47]

The over-representation of eating disorders in gay men is another prominent mental health issue. In clinical samples, sexual orientation has been identified as a common predictor of eating disorders in patients.[24] In a study of adolescents (n = 788) in Minnesota, homosexual boys (measured by asking a 5-point scale question ranging from 100% homosexual to 100% heterosexual) aged 12 to 20 (n = 81), were more likely than heterosexuals to present with poor body image (27.8% vs. 12.0%), frequent dieting (8.9% vs. 5.5%), binge eating (25.0% vs. 10.6%), and purging behaviour (11.7% vs. 4.4%).[113] A recent study completed at Toronto Pride Festival (n = 383) measured prevalence of disordered eating at 13.6% in a sample of gay and bisexual men (measured by identity and having had sex with a man within the previous year).[114] For comparison, in a recent population-based study, prevalence estimates of anorexia nervosa, bulimia nervosa, and binge eating disorder were 0.3%, 0.5%, and 2.0% among men and 0.9%, 1.5%, and 3.5% among women, respectively.[115]

The GB-MSM community has been known for its focus on healthy bodies and healthy eating. In a venue-based probability sample of gay and bisexual men (n = 526; identity and behaviour measure) living in Los Angeles, younger men (18 years to 24 years old) were not at greater risk of negative health outcomes associated with diet, weight, and physical

activity.[93] A recent study using data from the 2005 California Health Interview Survey (n = 14,982) also found that sexual minority men (self-identity measure) had significantly lower prevalences of overweightness (44.3% vs. 33.6%) and obesity (22.6% vs. 15.7%) compared to straight men.[116] Also, an analysis of CCHS data from the 2003 cycle indicated that gay and bisexual men had lower rates (Odds Ratio = 0.43; 95% Confidence Interval = 0.33, 0.56; and Odds Ratio = 0.61; 95% Confidence Interval = 0.40, 0.93; respectively) of obesity and overweight body mass indexes (BMI).[25] This is also confirmed in a recent analysis of data from the Britain-based National Survey of Sexual Attitudes and Lifestyles (n = 11,161), which found that gay and bisexual (a combination measure of attraction and sexual behaviour) men weighed less and were shorter than heterosexual men.[117] In the recent Male Call Canadian telephone survey, the proportions of respondents who were underweight or overweight were comparable to the Canadian male population, however fewer respondents (18.5%) were classified as obese compared to the Canadian male population (26.0%), and more respondents were classified (37.3% versus 30.4% of Canadian males) as average weight.[70]

2.3.4 Syndemics

Recently, the use of "syndemics" has entered the discourse, mostly surrounding HIV and subsequent risk behaviour. Syndemics refers to the co-occurrence of multiple epidemics, which can interact synergistically and contribute to an excess burden of disease in a population.[118] Stall et al. refer to syndemics processes as the additive effects of multiple psychosocial health problems.[119] A recent analysis of the large Canadian sample of young gay and bisexual men from the SexNow Survey described these additive effects of psychosocial issues associated with an increase of risk of UAI in the prior 12 months (Odds Ratio – 1.95; 95% Confidence Interval = 1.39-2.75).[120] A separate cross-Canadian study of gay (n = 1,109) and bisexual men (n = 564) also found that, on average, these men reported over six self-perceived problems during the past 12 months.[121]

2.3.5 Resiliency

While much of the research cited herein takes a deficit-based approach, newer studies have focused on the strengths and resiliency of gay and bisexual men. Resilience is the "beneficial behavioural patterns, functional competence, and cultural capacities that

individuals, families, and communities utilize under adverse circumstances."[122] An overall acceptance of sexual orientation diversity, and personal identity acceptance, consolidation, and integration of one's sexual identity into one's larger world and relationships have all been identified as resilience traits.[21,123,124,125]

Examples of resiliency outcomes are becoming more numerous in the literature. For example, gay men quit smoking at high rates; have high exposure to substance use but low levels of problematic use; resolve heavy substance use over time; and have exhibited positive mobilizing responses to the AIDS epidemic and civil rights movements.[126] One drug that has become increasingly prominent in discourses of gay substance use is crystal methamphetamine. It has been suggested that gay men familiar with this drug may be able to limit use to specific occasions, thereby preventing some of the more serious physical and mental health consequences.[127] In an exploratory study on gay youth (n = 77; self-identity measure), many exhibited higher levels of self-esteem when compared with the general population.[128] Finally, the aforementioned California Health Interview Survey (see 2.3.3 Mental Health) indicated sexual minority men had significantly lower prevalence of overweight and obesity compared to straight men.[116]

2.3.6 Social Health

2.3.6.1 Social Exclusion

Social exclusion is "the alienation or disenfranchisement that certain individuals or groups experience within society."[9] In Canada, the term describes the inability of groups to be fully active in Canadian life due to inequalities accessing resources.[129] This is not a static concept, referring to a multi-dimensional process by which people are oppressed.[130,131] Socially excluded persons are ascribed little social value; they may be marginalized economically, politically and socially, and they cannot enjoy economic and social opportunities available to others including access to good health and health care.[9] Social exclusion may encompass every facet of an individual's life – social, sexual, emotional, political, financial, and physical. It manifests through an array of indicators including: income level; stability and quality of social networks; lack of political engagement or empowerment; and a lack of social supports.[132,133] Categorizations through which social exclusion can act include an individual or group's social class, race, sex, age, and sexual orientation.[9,129,134,135]

The LGBT2SQ Health Forum suggested that London-Middlesex communities frequently experience isolation and social exclusion from the broader public. The community itself lacks the public visibility it has in many other cities of similar size.[62] The LGBT2SQ Health Forum Report stated that social exclusion and isolation facilitate inequities in access to employment, adequate housing and social services, experiences of stigmatization, isolation from society, higher health risks and lower health status. Anxiety, depression, and suicide can also result.[62] Exclusion has pronounced psychological effects and negatively impacts health status.[136,137,138] The inability to access services to achieve good health can be a common result of socially exclusive practices.[130,139]

In racialized groups, social exclusion has been associated with unequal health service utilization and differential health status.[129] Social exclusion can affect sexual minorities differently than in separate heterosexual racialized groups (making an assumption that the two categories are, at times, mutually exclusive). A person's race or ethnic identity is more difficult to conceal than one's sexual orientation. Sexual orientation can, in most cases, be concealed and sexual orientation identities, behaviours, and attractions are not easily or quickly shared with immediate family members.[139] It is hypothesized from this that sexual minorities, therefore, are affected by social exclusion in unique ways. A recent study found that gay organizations and their members continued to exclude men of colour from leadership positions and gay establishments, and that these men of colour also experience homophobia within their racial and ethnic communities.[140] This was echoed in a recent qualitative study of 24 African, Caribbean and other Black gay men in Toronto which found that these men simultaneously experienced abandonment from both gay and Black communities due to homophobia and racism.[141]

In Canada, sexual minorities continue to be marginalized, excluded, and discriminated against.[142] As an intermediate process, social exclusion has been postulated to cause self-defeating behaviour. Those affected by social exclusion have been found to exhibit self-defeating behaviour, acting in ways likely to produce negative outcomes, such as taking irrational risks, choosing unhealthy behaviours, and procrastinating.[143] Combined with other factors, this has been suggested to lead to risk-taking related to HIV due to low self-esteem.[144] Self-esteem, while a popular explanation for transmission of HIV, should be considered among a host of other factors, including homophobia, sexism, poverty, or other social conditions.[145] The unique socialization of sexual minorities makes positive appraisals

from outgroup (i.e. heterosexuals) members an important facet of well-being, beyond the support provided by their own minority group.[139]

Positive responses to social exclusion include the construction of families of choice, incorporating friends, lovers, ex-lovers, biological relatives, and children–adopted, conceived in a previous heterosexual union or born after artificial insemination or surrogacy.[146] For local GB-MSM who have not migrated to larger urban centres (e.g. Toronto), familial resiliency can be important. Oswald defined two processes, intentionality and redefinition.[146] Intentionality is a strategy that gay people and their heterosexual loved ones use to create and sustain a sense of family within a societal context that stigmatizes homosexuality and fails to provide social or legal recognition for a variety of family network relationships.[146] Redefinition occurs when members of gay and lesbian family networks engage in processes by which they affirm the existence of gay and lesbian people and their relationships, including politicizing, naming, integrating gayness, and envisioning family.[146]

Social exclusion is a salient topic when contexts of HIV/AIDS are considered. Stigmas associated with being GB-MSM, social and health issues, including HIV, become more prominent.[84,147] A report on social exclusion from the Terrence Higgins Trust makes the suggestion that it contributes to the spread of HIV by making sexual health a low priority; through the denial of the importance of HIV and neglect of sexual health issues; and through the failure to address social inequalities relating to education, homophobia, racism, xenophobia, and drug use.[144] For people living with HIV/AIDS, social exclusion can contribute to ill health, through fear of HIV testing, difficulties in prioritizing health care needs, accessing appropriate health care or support services, and managing treatments.[144] HIV vulnerability has been found to depend on a number of factors, including a person's membership in sexual networks with higher HIV prevalence, low quality of health and social services, and higher-level factors such as laws, policies, culture, and social norms.[9]

2.3.6.2 Communication issues and community cohesion

A 2006 report produced by the Ontario Provincial Strategy on HIV/AIDS stated that gay and bisexual men of southwestern Ontario are "invisible" and difficult to reach, with no cohesive or central community organizations, resulting in a lack of social support and communication within the community.[148] The LGBT2SQ Health Forum identified a general lack of communication or of an information mechanism that profiles activities, resources,

supports, contacts, programs, services and other information of relevance to local community.[62] While recent events such as a Community Building Forum and the Health Forum were identified as positive steps, challenges remain in initiating meaningful dialogue, sharing resources, supporting healing from internalized and external homophobia, identifying and creating new resources, and coming together as a community.[62] Previous researchers indicated that gay men receive more social support from friends than their families.[149,150,151,152,153] In an exploratory study of 71 self-identified gay, lesbian, and bisexual men and women, aged 50 to 80, living in San Diego, California, gay-related community services were rated more adequate in meeting emotional needs in times of crisis than services geared at general groups.[154] Factors relating to social networks and social support include size, frequency of contacts, density of larger regional network, number and quality of confidantes, network composition, and perceived support.[155,156]

Within-group communication and social support are important predictors of mental and physical well-being.[157,158] Social networks are recognised as a setting where social support can be experienced and exchanged.[157] The sense of belonging in men has been associated with fewer physical symptoms, indicating that a key component is informal inter-personal relationships and a sense of connection to others.[157,159] Social networks and social support are recognised as important indicators of health and well-being, tied to lower mortality risk, less recovery time needed for disease, higher morale, and better mental health.[156,160-162] Social networks also play an important role in HIV risk management. A recent study of circuits in MSM (n = 947; sexual orientation measured by behaviour and gay identity) at Toronto Pride showed that men with casual partners who "barebacked" were more likely to be found in particular venues (bars, baths, parks); to be involved in "poz" (i.e. HIV positive) (Odds Ratio = 10.10), bear (subculture celebrating larger, hairier men) (Odds Ratio = 9.96), sadomasochistic (Odds Ratio = 4.17), leather (Odds Ratio = 3.24), and "party and play" (recreational drugs and sexual activities) scenes (Odds Ratio = 5.48); and to have had five or more partners in the last six months (Odds Ratio = 1.83, p = 0.012), compared to men who were not barebackers.[63]

Social support has been associated with lower depression and anxiety, higher self-esteem, stronger immune systems, lower incidence of coronary heart disease, better cardiovascular regulation, improved functioning of the endocrine and immune systems, and increased longevity and overall psychological well-being.[163,164,165,166,167,168] Further research has shown

that a lack of social support is associated with increased mortality risk, delays from recovery from disease, poor morale and poor mental health.[157]

In relation to HIV/AIDS, social support was a potential buffer for mental health concerns in HIV-positive youth.[169] In HIV-positive patients (n = 179; sexual orientation not measured), having emotional support was predictive of being a "good complier" in HIV medication adherence ($p < 0.05$).[170] Social support from the community in the form of a physical location to go to access information is also important for HIV-positive men. Bars and clubs provide opportunities for HIV-positive gay men (identity assumed–sample gathered from attendance at a health promotion event for gay men) to access health promotion material, information, instrumental support and emotional support.[156]

Greater social support and cohesion within a community facilitate the exchange of important health information. GB-MSM have specific information needs related to cancer, adolescent depression and suicide, adoption, sexual health and practices, HIV infection, surrogate parenting, mental health issues, and additional issues not mentioned thus far, such as intimate partner violence and loss, and health care proxy.[171] Information can reduce uncertainty by allowing the ability to distinguish among alternatives but can also increase uncertainty by creating more alternatives.[172] This can be especially true in people living with HIV/AIDS, facing different options for treatment. A social service or medical professional can be an important mediator between a patient or client and the ability to critically assess much of the conflicting information.[172]

Communication among GB-MSM and health care providers is exceptionally important. An open relationship with service providers is key in the delivery of health and wellness services. Being out with one's health care provider improves the chances of receiving appropriate and satisfactory health care and reduces barriers to access.[173] MSM often do not reveal their sexual practices or sexual orientation to their physician.[174] Disclosing one's sexual orientation identity is vital in addressing the health needs of GB-MSM.[20,175] Many gay men (n = 1,004; measured by venue attendance and self-identity) in a sample obtained from central London, England, did not feel comfortable speaking with general practitioners about their sexual health – only 29.5% from this sample had discussed safer sex with their general practitioner, with 16.6% indicating that it was not at all easy discussing this with them.[176] In a sample of HIV-positive MSM (n = 100) from south Florida, participants indicated a number of impediments to seeing a doctor. These included that doctors do not like to help

men with their sexual orientation (33%), that they needed to hide their sexual orientation when seeking help (40%), and that doctors do not like people with HIV/AIDS (20%).[177] In a qualitative study that examined coming-out experiences of gay men with their general practitioners and sexual health clinic staff, coming out in general practices tended to be followed by silence and noncommunication from the practitioner.[178] Communication difficulties are obstacles to accessing care, potentially leading to decreased adherence to physician advice and treatment plans.[24,174] Adequate communication helps reduce the impact of stress and alleviates depressive episodes.[85,90] Sexual orientation, being an obvious factor in health issues, is often not ascertained in clinical settings. Looking at the tolerance for GB-MSM in a sample of health care professionals (n = 402), there were low levels of knowledge and low levels of self-efficacy surrounding the ability to provide culturally-competent care based on diverse sexual orientation.[179] Roughly 35% of the sample indicating they had no confidence providing services for gay, lesbian, bisexual, transgender (GLBT) people.[179] A qualitative study of provision of mental health services in a rural area of New Mexico found that providers did not perceive any different mental health issues in non-heterosexuals compared to heterosexuals, potentially ignoring significant health issues.[180] For this particular thesis, this is relevant considering the vast rural areas of Middlesex County, surrounding London, Ontario.

Providers' unwillingness to acknowledge diverse sexual orientations and a client or patient's inability to speak about sexual orientation identities, behaviours, and attractions can result in pertinent health information being missed. This is especially relevant for older adult GB-MSM who continue to avoid disclosing their identities to service providers due to fear, exacerbating inequalities in health care provision for a North American population that is quickly aging.[181] A convenience sample of GLBT persons (n = 132) and heterosexuals (n = 187) living in eastern Washington State showed that most respondents (73.2% of LGBT-identified and 67.7% of heterosexuals) suspected that staff and residents of care facilities discriminate against LGBT people, with 34% of respondents indicating that they believe they would have to hide their sexual orientation if admitted to a care facility.[182] At the other end of the age spectrum, in an examination of health care provision in relation to sexual orientation in children and adolescents, it was suggested that gay youth may also avoid health care services to avoid disclosure of their sexual orientation.[83]

As we have seen, GB-MSM are, as a group, more prone to several health conditions. Sexual orientation disclosure increases appropriate disease screening and preventive health measures.[183] Despite this, education on sexual minorities in Canadian medical schools is rare or nonexistent – a recent study of 11 Canadian medical schools measured a median total of four hours (range: 0 - 13 hours) of preclinical and clinical training.[184,185] An absence in training leaves physicians with missing or incomplete knowledge to adequately care for patients.[24,186]

2.3.6.3 Internalized homonegativity and external experiences of homophobia

In segments of London's gay community, anecdotal evidence indicates that the underlying social climate is overwhelmingly conservative in nature, resulting in abnormally high numbers of accounts of external homophobic and internalized homonegative experiences. These impact London's GB-MSM's ability to prevent negative outcomes noted by previous researchers and outlined below.

External experiences of homophobia can be described as negative pressures and feelings an individual experiences from others in regards to their homosexuality. Kimmel describes homophobia as the "[a]ntipathy towards persons who are thought to be gay, lesbian, homosexual, or deviant from gender stereotypes in ways that suggest a same-sex sexual orientation."[187] Homophobic experiences are known to impact health services delivery. Medical school curricula are not required to include exploration of the intricate manners in which health concerns affect sexual minority communities.[24] Consequently, providers are less inclined to provide proper care and more inclined to deny LGB patients proper treatment.[24,62] Among patients, experiences of homophobia from providers can lead to unwillingness to reveal one's sexual orientation, resulting in important health concerns being ignored.[83] Embarrassment, anxiety, inappropriate reactions, direct rejection of the patient, hostility, harassment, excessive curiosity, pity, condescension, ostracism, refusal of treatment, detachment, avoidance of physical contact, or breach of confidentiality are all examples of homonegative experiences felt by GB-MSM community members from the medical community.[188] In a sample from 912 Latino MSM (self-identification as "non heterosexual") gathered through gay Latino venues, experiences of social discrimination (i.e. homophobic experiences such as having experienced violence as a child, to racist experiences of being harassed by police) were associated with psychological symptoms,

including low self-esteem and social isolation.[189] Experiences of homophobia are not only experienced by patients. Irwin et al. described experiences of discrimination reported by health service providers from coworkers, such as lack of recognition of their relationships and the threat and fear of discrimination, abuse, and ridicule.[190] Broadly, in a U.S.-based study using data from the General Social Survey and the National Death Index indicated that sexual minority populations tend to have shorter life expectancies in regions with higher levels of anti-gay prejudice (Ratio = 3.03; 95% Confidence Interval = 1.50, 6.13).[191]

Internalized homonegativity is the conscious and unconscious internalization of negative attitudes that gay, lesbian and bisexual people possess regarding homosexuality, "as a result of growing up and living in a society with a potent heterosexual bias."[187] *Internalized homophobia*, sometimes used to define this concept, is now considered less appropriate due to its emphasis on clinical fears and avoidance.[192] Internalized homonegativity is "a reaction to societal homonegativism that must be resolved for proper psychological integration of the individual's sexuality to occur."[193] Substance use, self blame-related coping and avoidance coping styles can be attributed to internalized homonegativity.[193] Internalized homonegativity has been tied to intrapersonal and interpersonal outcomes, including: distrust and loneliness, eating disorders, defense mechanisms, difficulties in intimate relationships, including instances of self-sabotaging and projection of poor self image onto a partner, high-risk sexual behaviours, depression, excessive dieting, bulimia, alcoholism, and suicide.[190,194,195,196,197] This construct has been associated with interpersonal relationships in couples that are in brief or long term relationships.[198] High-risk sexual behaviour associated with high degrees of internalized homonegativity include serodiscordant UAI, less disclosure of HIV-positive status, and lower self-efficacy in condom use leading to lower sexual comfort (defined as comfort with sexuality and one's body) in an analysis of 675 HIV-positive MSM from Seattle, Boston, Washington, New York, Los Angeles, and Houston.[196] Higher levels of internalized homonegativity were significantly associated with being African American and fully mediated the relationship between religious orientation and the propensity to seek conversion therapy in an internet sample of 206 gay and lesbian identified, same-sex attracted, or questioning individuals.[199] In another study, internalized homosexual stigma was a significant predictor (Adjusted Odds Ratio = 1.35, $p<0.01$) of depression in older (50 years old and above) lesbian, gay, and bisexual adults (n = 2,439).[200] And a study of Dutch sexual

minorities (n = 389; 118 gay men, 40 bisexual men) found higher internalized homonegativity predicted more overall mental health concerns.[201]

Internalized homonegativity is a significant obstacle to community-based HIV prevention. Effects of internalized homonegativity on gay and bisexual men's (n = 595) awareness of, participation in, and perceptions of programs offered by a community-based HIV prevention organization were a significant negative predictor of men's awareness of services offered by AIDS Service Organizations (β = - 0.17 in regression analysis).[202] In HIV-positive men (n = 142), greater IH, measured at a baseline time period, predicted higher levels of distress at follow-up appointments.[203]

2.4 Health care access and gay, bisexual, and other men who have sex with men

The availability of preventive and primary care services is positively related to improved health.[204,205] GB-MSM face obstacles such as fear of discrimination and stigma when accessing health care for themselves and their families.[206] The stressors they face in their daily lives may give rise to feelings of powerlessness and despair that limit health-seeking behaviours.[84,207] According to the Canadian Strategy on HIV/AIDS, equal access for gay men to appropriate health services has been a focus of concern, research and recommendations in Canada.[205]

A recent study examining health care utilization, and one of the most relevant to the population researched in this project, was undertaken using data from the Canadian Community Health Survey, combining the 2003 and 2005 cycles, and containing data from an estimated 3,123 people self-identifying as gay, lesbian, or bisexual.[208] Results indicated that gay men and bisexuals were more likely to consult mental health service providers (social workers, counsellors, psychologists), and bisexual men reported more unmet health care needs than heterosexuals (Odds Ratio = 1.46; 95% Confidence Interval = 1.02; 2.09).[208] Gay-identified men were twice as likely (Odds Ratio = 2.13; 95% Confidence Interval = 1.46; 3.11) to have consulted a psychologist within the previous 12 months.[208] In this particular data set, only sexual orientation identity was asked; gender or sex of partners was not.[209,210,211]

A study of Dutch patients (n = 9,684) in 104 general practices found that gay men (measured with one question asking about the participants' sexual preference) were more likely to access mental health care (Odds Ratio = 2.64; 95% Confidence Interval = 1.49,

4.69) than heterosexual men.[211] Control for HIV status did not affect results.[212] Additionally, the proportion of people with one or more chronic disease was higher in homosexual men compared to heterosexuals.[211] Likewise, in a study based on data from the National Health Interview Survey in the U.S. (n = 94,032), health care access (defined as having health insurance coverage, having a usual source of health care, and having accessed a health professional within the last 12 months) among men in same-sex relationships was equal to or greater than among men in opposite-sex relationships (self-reported sexual orientation not collected), with no attention paid to HIV status.[212] In the Dutch study, however, lower self-reported health was seen in homosexual men compared to heterosexuals.[211] In an analysis of data from the Adult Psychiatric Morbidity Survey in the United Kingdom found elevated mental health-related general practitioner consultations (Odds Ratio = 1.46; 95% Confidence Interval = 1.14, 1.86) and community care service use (Odds Ratio = 1.94; 95% Confidence Interval = 1.48, 1.88) over the prior year in non-heterosexuals (identity and sex partner gender measures).[213] In a population-based telephone survey of Massachusetts residents (n = 38,910), bisexuals were less likely to report having a regular provider than straight/heterosexuals, with only sexual orientation identity asked (OR = 0.40; 95 % Confidence Interval = 0.28, 0.58; adjusted for age).[214] There was no appreciable difference in having a regular provider between gay-identified and heterosexually-identified individuals.[215] A study of health care access and STI Screening in Massachusetts MSM (n = 126) found that bisexual respondents were less likely (OR = 4.66; $p < 0.001$) to have indicated to their health care provider that they engage in male-to-male-contact.[215] In a cohort of HIV-positive patients (n = 179) (the majority of them MSM - who were receiving medical care in 2000, when followed until 2005), 8% indicated they had no regular provider for their HIV-related care.[216] In another sample of MSM (n = 257; identified by behaviour and self-identification), those that identified as heterosexual versus gay or bisexual were 60% less likely to access a health care provider on a regular basis.[217]

In a study of LGB individuals and their siblings (n = 1,254), sexual orientation (self-reported identification measure) predicted use of psychotherapy and psychiatric medications.[99] Similar results were found in Cochran's study of over 2,000 adults aged 25 to 74, where service use and consultations with mental health providers were more frequent in minority sexual orientations.[88]

In the Sex Now survey, only 2% of respondents had no routine health care available to them. Additionally, roughly 47% of respondents in Ontario had disclosed their sexual orientation to their provider. Of these, 49% were over 30 years old, and 39% were under 30.[71]

As mentioned earlier, in 2008, it was estimated that 19% of people infected with HIV in Ontario were unaware of their status.[59] Compared to 2006, it was estimated that the number of HIV tests for MSM in 2011 increased by 33.6%.[52] The Sex Now Survey indicated, for Ontario, 48.4% of respondents had tested for HIV within the past 12 months.[71] Despite the availability of these data, there is little regional information available for MSM in Middlesex-London who have not tested for HIV recently. Factors that have been associated with HIV testing in GB-MSM in other regions are plentiful. Documented factors affecting HIV testing in GB-MSM include age and education[218]; fear of HIV[219]; gay community connection and attachment[218]; internalized homonegativity[220]; testing in a community setting[221]; sexual orientation identity[222] and disclosure[220]; and internet use[223]. One study of Australian MSM (n = 1770; identifying as gay, bisexual or queer, having any same-sex attraction or sex with a man in the last 5 years) found that, compared to men who were tested for HIV over 12 months ago, untested men were younger, less educated and had fewer gay friends.[218] A different study of Australian gay and bisexual identified men (n = 854 and n = 164, respectively) found that only bisexual men were less likely ($p < 0.001$) to have tested for HIV.[222] More relevant to Canadian GB-MSM a recent testing blitz conducted in Toronto and Ottawa identified anonymity and convenience as important factors to consider when GB-MSM were testing for HIV.[224]

2.5 Methodological issues related to research with gay, bisexual, and other men who have sex with men

2.5.1 Population size of gay, bisexual, and other men who have sex with men

Determining a population's size is required to calculate prevalence and incidence estimates for health-related outcomes specified groups. Methods for calculating the population size of gay, bisexual and other men who have sex with men, whether in size or as a proportion of the Canadian population, is not consistent across the literature. As mentioned in the previous section, there are too many ways in which sexual orientation can be measured (e.g. self-reported identity, sexual behaviour, sexual attraction). Further, when using sexual

behaviour as a component of this definition, it could potentially include lifetime sexual behaviour or behaviours from the past 6 months, the past year, the past five years, or any time frame, for that matter. Additionally, lingering stigma towards non-heterosexually identified individuals can potentially prevent accurate population size(s) from being determined.[225] Despite the complexities of assessing the size of this population, some have attempted to measure it in specific geographic regions.

The most relevant and recent estimate of the size of the GB-MSM population in the Canadian context, was completed with data from the Canadian Community Health Survey (CCHS), which covers the household population, aged 12 or older. This Canada-wide survey, conducted primarily via telephone (75% by telephone, 25% in person), has included a measure of sexual orientation since cycle 2.1.[208] The question asks how respondents identify, but responses include a component of sexual behaviour (e.g. asking whether the respondent considers him/herself homosexual, with a clarification that this having sexual relations with people of their own sex).[210] Combining cycles 2.1 (n = 135,573) and 3.1 (n = 132,947), 1.4% of men, aged 18 to 59, were gay-identified, and 0.7% of them were bisexual.[208]

2.5.2 Issues in generalizability, external validity with research on gay, bisexual, and other men who have sex with men

Literature related to health conditions, barriers, and facilitators in GB-MSM is prone to methodological issues such as the challenge associated with the sampling of sexual minority populations. No enumerable lists exist to obtain a representative sample of GB-MSM. Although many papers outline health outcomes for this population, these tend to be based on samples that yield potentially biased information based on the manner in which they were selected. This project took a broad recruitment approach to sampling GB-MSM to address some of these issues. Besides promoting our survey at particular locales and groups, we reached out to individuals potentially inaccessible at these, through smartphone apps and online social networking sites.

2.6 Rationale for this thesis research

Most Canadian health research on GB-MSM has taken place in Toronto, Vancouver, and Montreal. Socio-demographically, Canada's large metropolitan centres represent 15.7% of the Canadian population.[226] However, Statistics Canada estimates that 33.9% of Canadians

live in areas that are socio-demographically similar to London-Middlesex[226], potentially assisting in generalizing results to a broad population of GB-MSM.

Further, while the presentation of health care access might indicate increased levels of access in many instances, actual experiences with health care (i.e. cultural-competency) differ between studies, and research suggests that some providers receive little to no training on health issues related to GB-MSM and other sexual minorities.[185]

Moreover, most previous analyses make comparisons between groups, contrasting outcomes using a myriad of different categorizations of sexual orientation to compare to heterosexuals. The papers in this study explore the heterogeneity *within* GB-MSM – termed "intracategorical complexity" in intersectionality research.[227]

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CHAPTER 3

Access to a primary care provider for gay, bisexual, and other men who have sex with men: Results from the HiMMM Project

3.1 Introduction

Universality – where all provincial or territorial residents are entitled to insured health services – is one of five principles of the Canada Health Act legislating the Canadian health insurance system.[1] Access to family physicians - the main mode of primary care in Ontario, Canada - facilitates preventive care, prompt treatment, and management of chronic disease.[2] In Southwestern Ontario, individuals "unattached to a primary care provider" constitute between 7% and 11% of the population; this proportion is highest in London/Middlesex County.[3]

Published research suggests that gay, bisexual, and other men who have sex with men (GB-MSM) present in primary care with additional, distinct psychosocial and sexual health concerns compared to heterosexual men[4-6], emphasizing the importance of primary care. Health care access for sexual minority men has been researched outside of Canada[7-12], however, little is known for Canadian GB-MSM. The most applicable analysis found that, within the past year, Canadian gay men were *not* more likely to consult a family doctor or general practitioner compared to heterosexual men, but were more likely to have consulted a medical specialist (aOR: 1.40), nurse (aOR: 1.69), or alternative care provider (aOR: 1.89); bisexual men were more likely (aOR: 1.46) to report unmet health care needs.[13] Focusing on identifying any existing health care inequalities by sexual orientation using Canadian Community Health Study data, Tjepkema's analysis did not quantify other factors that may affect health care access for sexual minority men. Over-represented in existing and new HIV diagnoses, GB-MSM accounted for half of all new HIV infections in Canada in 2011.[14]

The advent and success of HIV antiretroviral therapies has increased life expectancies for those living with HIV[15], shifting HIV from life-threatening to largely chronic, presenting novel challenges for providers[16] since a higher prevalence of chronic conditions could lead to increased hospitalizations.[17] Consequently, certain malignancies have increased in HIV-positive GB-MSM.[18,19] HIV-positive and -negative GB-MSM are suggested to be at increased risk, compared to heterosexuals, for anal cancers and anal human papillomavirus infection[20,21], eating disorders and body image issues[22], and other mental health conditions[23]. Social exclusion (alienation or disenfranchisement that individuals or groups experience

within society[24]) has pronounced psychological effects, negatively impacting health.[25,26] Conversely, GB-MSM have also demonstrated resilience to adversity and interacting psychosocial health conditions, often called "syndemics".[27]

Most Canadian health research on GB-MSM has taken place in Toronto, Vancouver, and Montreal, with little to no research occurring in smaller, mid-sized cities. Socio-demographically, Canada's large metropolitan centres represent 15.7% of the Canadian population.[28] However, Statistics Canada estimates that 33.9% of Canadians live in areas that are socio-demographically similar to London-Middlesex.[28] Moreover, previous studies make comparisons *among* groups, contrasting outcomes using a myriad of different categorizations of sexual orientation to compare to heterosexuals. This study explores the socio-demographic heterogeneity *within* GB-MSM – termed "intracategorical complexity" in intersectionality research.[29] Specifically, this analysis explores factors associated with access to a primary care provider (PCP) for GB-MSM living in Middlesex County, Ontario, Canada, identifying subgroups where health care promotion efforts centred upon access should be directed.

3.2 Methods

3.2.1 The Health in Middlesex Men Matters (HiMMM) Project

Formed from concerns identified at a LGBT2SQ community health forum held in London, Ontario, Canada, HiMMM is a community-based partnership of local community members, allies and agencies examining health and health care access for GB-MSM living in Middlesex County-London, Ontario. The study design for this cross-sectional survey using a self-report questionnaire collected via convenience sample was reviewed and approved by the Research Ethics Board at The University of Western Ontario.

3.2.2 Sampling procedures

Eligibility criteria were: 1) 18 years or older; 2) living in Middlesex County, Ontario; and 3) identifying as gay, bisexual, or as a man who has had at least one sexual experience with another man or has had strong, continual sexual attractions to one man or men. Online questionnaires were completed in a custom-designed webpage. No personal identifiers were collected. Questionnaire completion was considered evidence of consent. Promotion occurred through online listservs, social network websites, smartphone applications, local agencies, and via informal communication among GB-MSM. Participants received a $10 gift card as a token gift for completing the questionnaire and, for each eligible person referred

completing the survey, earned a ticket entered into a prize draw. Data were collected from November 2011 to November 2012.

3.2.3 Measures

Questions and measures were reviewed, revised, pre-tested and pilot tested by HiMMM team members and additional community volunteers. Established guidelines were followed for survey design.[30,31]

Demographics and community-specific variables

Adapted from the Canadian Community Health Survey (CCHS), cycle 4.1[32] and other community surveys, demographics included age, ethno-racial background and cultural identity, area of residence, country of birth, education, employment status, household income, student status, marital/relationship status, area of residence, and sexual orientation identity.

Broad ethno-cultural categories were created from a check-all-that-apply question measuring ethnic/cultural identity. All identifying as Aboriginal, regardless of additional identities checked, formed one group. All identifying as White Canadian, American, or European, with no other identities checked, were labelled "Non-aboriginal white." Those not checking "Aboriginal," indicating another ethnocultural identity (in addition to potentially checking White Canadian, American, or European), were labelled "Non-aboriginal racialized." "Racialized" describes people of colour and is preferrable to "racial minority, visible minority, person of colour or non-white" since race is categorized as a social construct rather than perceived biological traits.[33]

Area of residence was assessed using the second digit of the forward sortation portion of the respondents' Canadian postal code. A second digit value of "0" indicates a wide-area rural region, and all others were categorized as "non-rural" (i.e. urban).[34] Relationship and marital status were combined to reflect those single, those married or living common-law with a man or woman, and those not married or common-law, but in monogamous or non-monogamous relationships. Mid-points from annual household income range responses were divided by the number of individuals supported on this income, answered in a subsequent question, to calculate household income per person. For "$100,000 +," the mid-point used was from the Survey of Labour and Income Dynamics, adjusted for inflation from the 2009-2010 value to the 2012 value.[35] Values were collapsed into five larger range categories.

Developed by HiMMM, social support levels received from lesbian, gay, bisexual, transgender (LGBT) communities were measured using a 5-point option ranging from "None" to "All."

Health and health services variables

Self-reported general health, perceived quality of local health care services, health insurance availability, and current attachment to a PCP were all adapted from the CCHS.[32] "Negative discriminatory experiences with a PCP" (check-all-that-apply), developed by HiMMM, was dichotomized for regression analyses as ever having had a negative experiences with a PCP. HIV status was categorized as HIV positive, HIV negative, or HIV status unknown, from respondent answers to the result of their last HIV test (if they had been tested).

Scale measures

Health Value, a four-item scale, measured the value an individual places on health.[36] Our sample's Cronbach's alpha value was 0.70 with mean score (which could range from 0 to 16) 11.1 and a standard deviation of 3.05.

The *Multidimensional Scale of Perceived Social Support* assessed social support from family, friends, and significant others (i.e. "special someone") with 12 items.[37] Subscale scores range from 1.00 to 7.00, and had means of 5.45 (standard deviation=1.41), 4.72 (standard deviation=1.69), and 5.43 (standard deviation=1.63), respectively. Internal reliability for subscales were 0.95, 0.95, and 0.96, respectively. Test-retest values from previous validations ranged from 0.72 to 0.85.[37]

3.2.4 Theoretical framework

The Behavioral Model of Health Services Use identifies predisposing (individual-level), enabling (making health services available to the individual), and need/illness (necessitating health services use) factors.[38] Gelberg's subsquent adaptation divides each category into traditional (affecting everyone) and vulnerable (affecting the vulnerable population being considered) domains.[39] Based on these, an exploratory theoretical model was developed to identify predictors of access to a PCP for local GB-MSM (Figure 3.1). Predictors were chosen based on literature review and community and research team discussion.

3.2.5 Statistical analyses

Analyses were conducted using SAS 9.3.1.[40] Socio-demographic frequencies and proportions of factors related to primary care provision were calculated. Variables included in conceptual models were analysed for multicollinearity using tolerance values and variance inflation factors. No multicollinearity was detected. Logistic and modified Poisson regression methods were used for regression analyses. Modified Poisson methods were used for final results over the more traditional logistic because they provide more valid results when outcomes are not rare.[41] First, crude associations between predictors and outcomes were calculated using modified Poisson. A logistic regression model was then fit with predisposing factors, using backward elimination to remove variables not significant at p = 0.30. This process was used since automated backward elimination procedures are not available for modified Poisson.[42] Liberal p-values were chosen over more traditional ones (i.e. p=0.05) to not prematurely eliminate important variables.[43] Retained variables were then fit using modified Poisson to obtain prevalence ratios (PR) with associated 95% confidence intervals and p-values. This process was used to produce models adding enabling and then need factors, with cut-off values of p=0.20 and p=0.15, respectively, decreasing as we approached the final model.

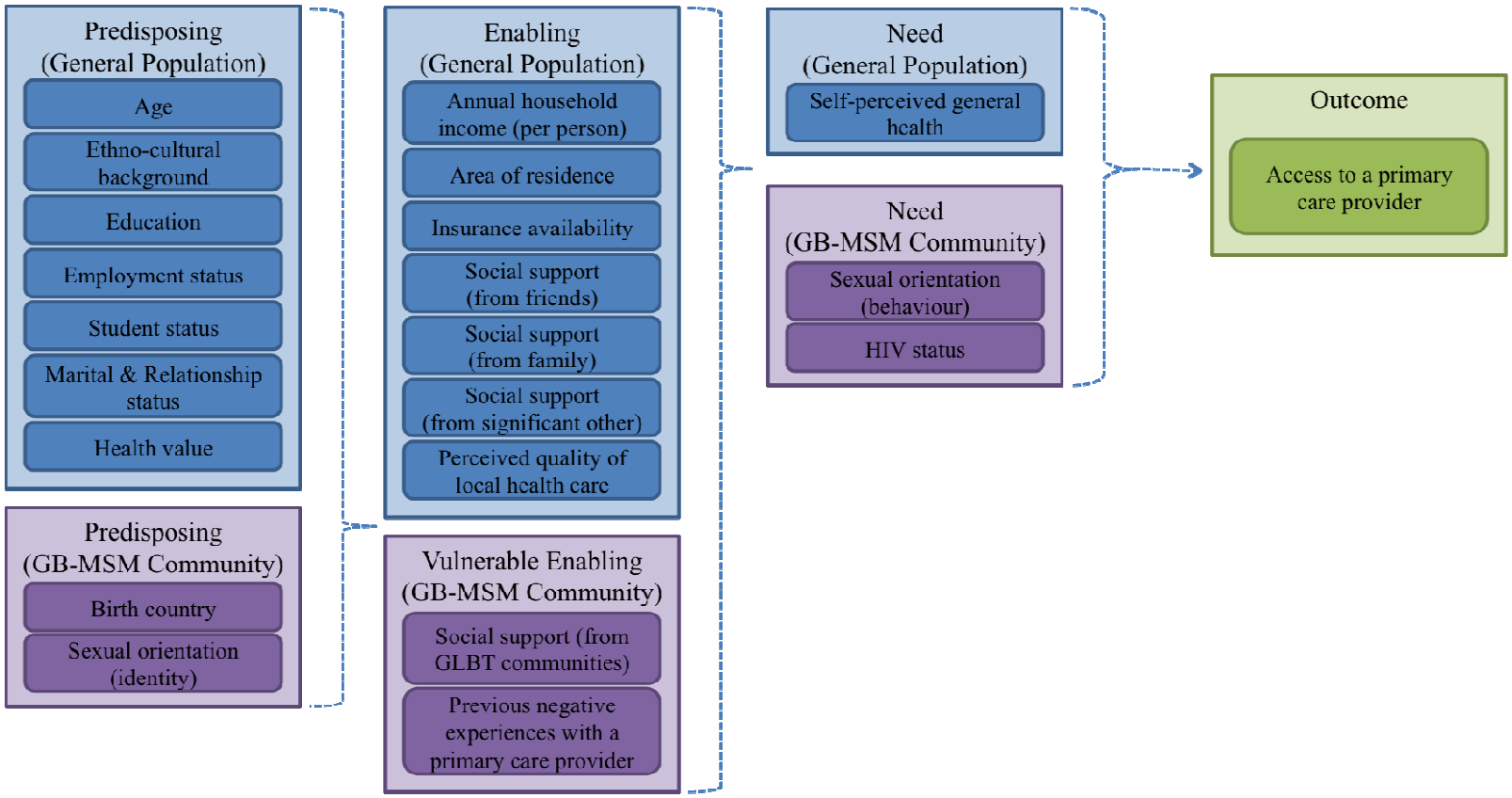

Figure 3.1 - Theoretical Model for Current Access to a Primary Care Provider for Gay, Bisexual, and other Men Who Have Sex With Men

3.3 Results

3.3.1 Sample characteristics

Over half of respondents (n = 202) were under 35 years old (54.5%). Most identified as white (87.1%), with fewer as Aboriginal (3.5%) or non-Aboriginal racialized (9.4%). The majority (91.6%) were born in Canada. Over half were postsecondary graduates (55.7%), with over a quarter currently attending school full-time (19.4%) or part-time (8.0%). Almost half (48.4%) had annual household income per person of less than $30,000. Many (47.3%) were single and not married, with about one quarter (27.4%) married or living common-law with a man. The remainder were not married and currently in a monogamous relationship (15.9%), not married and in a non-monogamous relationship (6.5%), or married or living common-law with a woman (3.0%). Most identified as "homosexual" (89.1%), with fewer as "bisexual" (9.4%). Table 3.1 summarizes additional socio-demographic characteristics.

Table 3.1 - Sample Demographics from the Health in Middlesex Men Matters Project Survey

	Sample distribution (n=202) n (%)
Age group	
18-24	48 (23.8)
25-34	62 (30.7)
35-44	30 (14.9)
45-54	39 (19.3)
55+	23 (11.4)
Ethno-cultural background	
Non-aboriginal white	176 (87.1)
Non-aboriginal racialized	19 (9.4)
Aboriginal	7 (3.5)
Ethnic or cultural identity indicated*	
White Can/Amer/Euro	180 (89.1)
Aboriginal	7 (3.5)
East/South/Southeast Asian	7 (3.5)
Latin American	5 (2.5)
Black Can/Amer/African/Caribb	4 (2.0)
Middle Eastern	3 (1.5)
Indo-Caribbean	3 (1.5)
Birth country	
Canada	185 (91.6)
Other	17 (8.4)
Education	
High school not completed	12 (6.0)
High school completed	20 (10.0)
Some postsecondary	57 (28.4)
Postsecondary graduate	112 (55.7)
Household Income/per person	
< $15,000	30 (15.6)
$15,000-$29,999	63 (32.8)
$30,000-$49,999	48 (25.0)
$50,000-$79,999	28 (14.6)

$80,000 +	23 (12.0)
Area of residence	
Urban	194 (97.0)
Non-urban	6 (3.0)
Employment status	
Full-time job	117 (58.2)
One part-time job	31 (15.4)
More than one part-time job	15 (7.5)
No job	38 (18.9)
Student status	
Not attending school	146 (72.6)
Attending school full-time	39 (19.4)
Attending school part-time	16 (8.0)
Marital status	
Unmarried	140 (69.7)
Married to a man	14 (7.0)
Living common-law with a man	41 (20.4)
Married to a woman	4 (2.0)
Living common-law with a woman	2 (1.0)
Relationship status	
Single, not dating	49 (24.4)
Single, dating	46 (22.9)
In a monogamous relationship	71 (35.3)
In a non-monogamous relationship	32 (15.9)
In a polyamorous relationship	3 (1.5)
Marital and Relationship status (combined)	
Single, not married	95 (47.3)
Married/Living common-law with a man	55 (27.4)
Married/Living common-law with a woman	6 (3.0)
In a monogamous relationship, not married	32 (15.9)
In a non-monogamous relationship, not married	13 (6.5)
Sexual orientation identity	
Homosexual	180 (89.1)
Bisexual	19 (9.4)
Don't know/Would rather not say	3 (1.5)
Heterosexual	0 (0.0)
Sexual orientation behaviour (sex with a man in the past 6 months)	
Yes	190 (94.5)
No	11 (5.5)

*Ethnic or cultural identity was assessed using a check-all-that-apply question, frequencies will not add up to 100%

Health and health service variables are summarized in Table 3.2. The majority had a regular PCP (86.5%). Most participants' self-reported health was excellent (26.9%) or very good (45.3%), with few reporting poor health (2.0%). Many indicated they were HIV-negative according to their last HIV test (71.8%), with 14.4% identifying as HIV-positive or indicating that their status was unknown (13.9%). Almost a third (29.4%) reported that a PCP assumed they were straight. Fewer had a PCP make assumptions about them or their health based on their sexual orientation (15.2%), or assume they had a lot of sex partners based on their sexual orientation (9.6%). A third (37.1%) reported at least one of the listed negative experiences with a PCP.

Table 3.2 - Health and Primary Care Variables from the Health in Middlesex Men Matters Project Survey

	Sample distribution n (%)
Self-reported general health	
Excellent	54 (26.9)
Very good	91 (45.3)
Good	40 (19.9)
Fair	12 (6.0)
Poor	4 (2.0)
Perceived quality of health care services in the community	
Excellent	58 (28.9)
Good	102 (50.8)
Fair	36 (17.9)
Poor	5 (2.5)
Perceived availability of health care services in the community	
Excellent	63 (31.3)
Good	95 (47.3)
Fair	34 (16.9)
Poor	9 (4.5)
HIV status	
Negative	145 (71.8)
Positive	29 (14.4)
Status unknown	28 (13.9)
Health insurance availability for basic medical expenses	
No	16 (8.0)
Yes	185 (92.0)
Has a primary care provider (PCP)	
No	27 (13.5)
Yes	173 (86.5)
Current type of PCP	
Family doctor	142 (82.1)
Walk-in clinic	13 (7.5)
Community health centre	7 (4.1)
Family health team	5 (2.9)
Nurse practitioner	1 (0.6)
Other	5 (2.9)
Any negative experiences with an PCP	
No	124 (62.9)
Yes	73 (37.1)

3.3.2 Predictors of having access to a primary care provider

Factors associated with access to a PCP, including results from the blockwise modelling process, are found in Table 3.3. Numerous unadjusted factors were significantly associated with having a PCP. With every 5-year increase in age, respondents were 2% (PR:1.02; 95% CI:1.01, 1.04) more likely to have a PCP. Compared to white participants, Aboriginal participants were 14% (PR:1.14; 95% CI: 1.08, 1.21) more likely to have access. Compared to students attending school full-time, part-time students were 18% (PR:1.18; 95% CI:1.03, 1.35) more likely to have a PCP. Those who were married or living common-law

with a woman were 18% (PR:1.18; 95% CI:1.08, 1.28) more likely to have access to a PCP than unmarried respondents. Bisexual men and those stating they did not know or would rather not say their sexual orientation were 11% (PR:1.11; 95% CI: 0.98, 1.24) and 17% (PR:1.17; 95% CI:1.10, 1.24) more likely to have access, compared to "homosexual" respondents. Those living in non-urban areas were 16% (PR: 1.16; 95% CI:1.10,1.23) more likely to have access to a PCP compared to those in urban areas. Social support from a significant other was positively associated (PR: 1.08 for every 1 standard deviation increase; 95% CI:1.01, 1.17) with having a PCP. Those in poor health were 13% (PR:1.13; 95% CI:1.02, 1.24) more likely to have access to a PCP compared to those in excellent health. Those receiving about half of their overall social support from the LGBT community were 26% (PR: 1.26; 95% CI:1.10, 1.44) more likely to have access to a PCP compared to those who received none.

As predisposing, enabling, and need factors were considered, ethno-cultural background, student status, and sexual orientation identity remained significant when predisposing factors were modelled together. As enabling factors were added, age and student status remained significant at the 0.05 level. Within the final model, increasing age and social support from a special someone were all associated with having access to a PCP. Social support from a special someone, crudely associated with the outcome, likely regained significance in the final model due to the backward elimination (at p=0.15) of Model 2 variables (ethno-cultural background, student status, negative experiences with a PCP).

Table 3.3 – Poisson regression results for access to a primary care provider: gay, bisexual and men who have sex with men in Middlesex County, Ontario, Canada

	Crude Associations		Model 1[a]		Model 2[b]		Model 3[c]	
PREDICTORS	**PR[d] (95% CI[e])**	**P-value**	**aPR[f] (95% CI[e])**	**P-value**	**aPR[g] (95% CI[e])**	**P-value**	**aPR[g] (95% CI[e])**	**P-value**
PREDISPOSING FACTORS								
Age		**0.010***		**0.028***		**0.035***		**0.023***
5-year increase	**1.02 (1.01, 1.04)***		**1.02 (1.00, 1.05)***		**1.02 (1.00, 1.04)***		**1.02 (1.00, 1.03)***	
Ethno-cultural background		**<0.001***		**0.037***		0.159		
Aboriginal	**1.14 (1.08,1.21)***		**1.14 (1.02, 1.26)***		1.09 (0.99, 1.20)			
Non-Aboriginal white	1.00		1.00		1.00			
Non-Aboriginal racialized	0.84 (0.64, 1.11)		0.85 (0.65, 1.11)		0.89 (0.66, 1.19)			
Education		0.777						
High school not complete	1.07 (0.88, 1.32)							
High school graduate	1.00 (0.82, 1.23)							
Some postsecondary	1.06 (0.94, 1.19)							
Postsecondary graduate	1.00							
Employment status		0.105						
Full-time	1.00							
+1 part-time	0.91 (0.70, 1.18)							
1 part-time	0.84 (0.68, 1.05)							
None	1.08 (0.97, 1.19)							
Student status		**<0.0001***		**0.0003***		**0.005***		
Attending school full-time	1.01 (0.87, 1.17)		1.09 (0.91, 1.30)		1.08 (0.91, 1.28)			
Attending school part-time	**1.18 (1.03, 1.35)***		**1.21 (1.10, 1.36)***		**1.19 (1.06, 1.32)***			
Not currently attending school	1.00		1.00		1.00			
Marital & relationship status		**<0.0001***						
Single	1.00							
Married to/Common-Law with a man	0.98 (0.85, 1.14)							
Married to/Common-Law with a woman	**1.18 (1.08, 1.28)***							
Monogamous relationship, not married	1.10 (0.97, 1.25)							
Non-monogamous relationship, not married	0.98 (0.75, 1.28)							
Health value (scale)		0.102		0.332				
1 standard deviation increase	1.04 (0.99,1.10)		1.03 (0.97, 1.08)					
Birth country		0.582						
Born in Canada	1.00							
Not born in Canada	0.93 (0.73, 1.19)							
Sexual orientation identity		**<0.0001***		**0.030***				
Homosexual	1.00		1.00					
Bisexual	1.11 (0.98, 1.24)		1.13 (0.98, 1.30)					
Don't know/Rather not say	**1.17 (1.10, 1.24)***		**1.21 (1.04, 1.41)***					
ENABLING FACTORS								
Household income (per person)		0.263						
< $15,000	0.87 (0.73, 1.05)							
$15,000-$29,999	0.88 (0.76, 1.01)							
$30,000-$49,999	0.93 (0.82, 1.07)							
$50,000-$79,999	0.86 (0.71, 1.04)							
$80,000 +	1.00							
Area of residence		**<0.0001***						
Urban	1.00							

Non-urban	**1.16 (1.10, 1.23)***							
Insurance availability		0.264						
Yes	1.00							
No	0.84 (0.61, 1.14)							
Social support (from friends)		0.184						
1 standard deviation increase	1.04 (0.98, 1.10)							
Social support (from family)		0.096						
1 standard deviation increase	1.05 (0.99, 1.11)							
Social support (from special person)		**0.028***				0.106		**0.043***
1 standard deviation increase	**1.08 (1.01, 1.17)***				1.06 (0.99, 1.15)		**1.08 (1.00, 1.17)***	
Perceived quality of local health care		0.234				0.352		0.167
Excellent	1.00				1.00		1.00	
Good	0.92 (0.82, 1.02)				0.94 (0.86, 1.03)		0.91 (0.83, 1.01)	
Fair	0.90 (0.76, 1.06)				0.91 (0.78, 1.06)		0.89 (0.77, 1.05)	
Poor	0.64 (0.31, 1.33)				0.75 (0.34, 1.64)		0.71 (0.33, 1.53)	
Social support (% from GLBT communities)		**<0.0001***						
All	0.83 (0.47, 1.50)							
More than half	1.06 (0.88, 1.27)							
About half	**1.26 (1.10, 1.44)***							
Less than half	1.12 (0.95, 1.32)							
None	1.00							
Previous negative experiences with a PCP		0.089				0.296		
Yes	0.90 (0.79, 1.02)				0.94 (0.83, 1.06)			
No	1.00				1.00			
NEED FACTORS								
Self-perceived general health		**<0.0001***						
Excellent	1.00							
Very good	0.95 (0.84, 1.09)							
Good	1.01 (0.88, 1.17)							
Fair	0.85 (0.60, 1.19)							
Poor	**1.13 (1.02, 1.24)***							
Sexual orientation behaviour (has had sex with a man in the past 6 months)		0.591						
Yes	1.00							
No	1.05 (0.87, 1.28)							
HIV status		0.589						
Positive	0.94 (0.79, 1.12)							
Negative	1.00							
Status unknown	0.92 (0.76, 1.12)							

[a] Model considered only predisposing variables, Nagelkerke's maximum rescaled R^2 for multivariable model - $R^2 = 0.1234$

[b] Model considered predisposing and enabling variables, Nagelkerke's maximum rescaled R^2 for multivariable model - $R^2 = 0.2044$

[c] Model considered predisposing, enabling, and need variables, Nagelkerke's maximum rescaled R^2 for multivariable model - $R^2 = 0.1431$

[d] Prevalence ratio

[e] Confidence Interval

[f] Adjusted prevalence ratio

[*] significant at the $\alpha = 0.05$ level

3.4 Discussion and Conclusions

While many in our sample had access to a PCP, as do most Ontarians[44], our results elucidate factors associated with primary care access among GB-MSM. Older age was associated with a greater likelihood of access to a PCP, highlighting the need to facilitate access for young GB-MSM, echoing the trend seen in broader population-based surveys where youth (18-24) and males in Ontario were less likely to have a family doctor.[2] LGBTQ youth are heterogeneous, facing similar challenges as heterosexuals, but present with complex health needs requiring basic, appropriate, high-quality, and accessible health services.[45-48] From a lifecourse perspective, stigma and discrimination associated with sexual orientation experienced during adolescent development can have long-lasting mental and physical health effects.[45] Younger GB-MSM are suggested to be at risk for wide-ranging mental and physical health problems[49], including eating disorders (50) and HIV.[51,52] A recent survey of heterosexual and LGBTQ-identified youth (13 to 18+) residing in Toronto indicated that 83% had not visited a provider for any sexual health-related reasons.[53] This necessitates providers being prepared to speak with youth about health issues relevant to GB-MSM in LGBT-friendly settings[54] and would denote the need to speak in youth settings (e.g. gay-straight alliances in schools, youth support groups) about GB-MSM health issues and the general importance of primary care.

Higher levels of social support (from a special person) were associated with having a PCP, crudely and in Model 3 (controlling for age and perceived quality of local health care). Having "about half" of overall social support coming from LGBT communities, compared to "none," was also associated with a greater likelihood of having a PCP at the crude level. Associations between perceived social support and having a PCP are clear. Our results suggest variety in the loci of received social support is also important. Social networks and support have direct effects on adherence to medical regimens and help-seeking behaviour.[55] In Andersen's framework, social relationships serve as enabling resources, facilitating or impeding health service use.[56] Uchino (2009) suggested general perceived social support (along with personality differences, self-esteem, feelings of control, and social skills) operates on a pathway to specific health behaviours (i.e. seeking out primary care) and subsequent health outcomes.[57] For GB-MSM, absences in social support, along with low self-esteem associated with minority-related stress, are associated with a high prevalence of self-destructive behaviours, including substance use, suicide, and sexual risk behaviour.[58]

Historically, sources of social support related to HIV/AIDS in gay men are varied. Help from friends or partners is clearly different from help received from family or organizations.[59] For sexual minority youth, social support from family, peers, and support services (i.e. gay-straight alliances) have differentially been associated with lower emotional distress and suicidality.[60,61] Parental and peer support is important in determining whether early life stress leads either to resilience or risk among sexual minorities.[62] Similarly, parental support has been found to be protective during the adolescent transition to young adulthood, partially mediating the association between gay identity and suicidal thoughts.[63] For older adults, living at a time when their sexual orientation and behaviour in the Diagnostic and Statistical Manual was classified as a mental illness and illegal, support from friends, rather than family, predicted a higher mental quality of life, and lower depression, anxiety and internalized homophobia.[64]

Several associations deserve further exploration, however, our sample size limits us from more definitive conclusions. Participants living in rural areas were more likely to have a PCP compared to those in non-rural areas. A study examining the urban-rural continuum and health care access in Canada states the literature is contradictory and inconclusive.[65] Small cities not adjacent to major cities were more likely to have a regular medical doctor, suggesting increased access in rural communities is explained by geographic maldistribution of physicians and greater availability of drop-in health clinics in urban areas.[65,66] LGBT health, especially for older adults, can be impacted by fears of being out in smaller communities[67,68] or to local providers.[69] Our results indicate better access for rural GB-MSM, but not necessarily guaranteeing patients are receiving culturally-relevant care. Also, those married to or living common-law with a woman were more likely to have a PCP compared to single men. While a small proportion (3.0%) fell into the former category, providers should be aware of documented similarities and differences in health outcomes in MSM married to women and bisexual men, whether defined by sexual behaviour or identity.[70,71] Our results also found students attending school part-time were more likely to have a PCP compared to those not attending school. Further analysis sought to examine whether part-time students were more likely employed or older yielded no significant results.

There are several strengths and limitations to this analysis. One strength is that the HiMMM Project is based on community-based research principles, exploring social determinants of health and factors relevant to general populations, community-specific

variables, and within-group intracategorical complexities. A limitation is that self-reported behaviour cannot be independently verified using online surveys. Moreover, as no enumerable lists exist to obtain representative samples of GB-MSM, findings are based on a cross-sectional convenience sample, which could have introduced unknown systematic biases for which we were unable to adjust. Despite this, many GB-MSM studies are based exclusively on venue-based surveys from gay pride festivals, bars or nightclubs, bathhouses, or heavily favour more community-involved individuals. Our broad-reaching promotional strategy helps assuage some of these concerns. Besides promoting our survey at particular locales and groups, we reached out to individuals potentially inaccessible at these, through smartphone apps and online social networking sites. The sample size we obtained was not sufficient to detect smaller effects and limited our ability to conduct more detailed subgroup analyses. One final study strength is that, unlike many previous studies conducted in major metropolitan regions, ours was conducted in a mid-sized city more socio-demographically representative of more regions in Canada where many GB-MSM reside.

Many health concerns relevant to GB-MSM populations are preventable[19] and should be addressed by health care providers.[72] Our results add to previous literature advocating for the inclusion or expansion of sexual orientation information in medical school curricula and training.[73-75] Moreover, this analysis suggests further investigation is needed into how distinctive different subgroups (i.e. intracategorical complexities) of sexual minorities access services. Further studies into the interaction between PCPs and patients should also be examined, including whether patients have come out to their PCP and whether patients communicate with PCPs about GB-MSM-related health issues. Our results indicate age and social support are key factors in whether GB-MSM have access to PCPs. The Ontario Ministry of Health and Long Term Care, Local Health Integration Networks, professional health organizations, and individual providers should compile lists of informal and professionally-provided local social supports offered to GB-MSM (especially for youth) and refer patients to them, as necessary. Conversely, to further facilitate equity in GB-MSM access to health services, when accepting new patients, providers should promote their services within different local agencies, venues, websites, and on smartphone apps that cater specifically to GB-MSM clients.

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CHAPTER 4

Sexual orientation disclosure and patient-centred care: results from a cross-sectional survey of men in Middlesex County, Ontario

4.1 Introduction

Patient-centered medicine requires that providers consider patients' desires for information, shared decision-making, and that they respond appropriately to patients' needs and unique life circumstances.[1] Care should integrate an understanding of the patient as a whole person: life history, personal and developmental issues, proximal (e.g. social support) and distal (e.g. community) contexts.[2]

Gay, bisexual, and other men who have sex with men (GB-MSM) are, as a group, more prone than heterosexual men to HIV[3]; sexually-transmitted infections[4]; anal HPV infection and cancers[5,6]; eating disorders and body image issues[7]; depression[8,9]; and anxiety.[10] Sexual orientation disclosure increases appropriate disease screening and preventive health measures.[11] Despite this, education on sexual minorities in Canadian medical schools is rare or nonexistent – a recent study of 11 Canadian medical schools measured a median total of four hours (range: 0 - 13 hours) of preclinical and clinical training.[12,13] An absence in training leaves physicians with missing or incomplete knowledge to accurately care for patients.[14,15] Homophobic experiences from past providers can also lead to patients' unwillingness to disclose to a current provider.[16] Gay and lesbian patients at all age levels have reported several unfavorable experiences with providers, including embarrassment, anxiety, inappropriate reactions, patient rejection, hostility, harassment, excessive curiosity, pity, condescension, ostracism, refusal of treatment, detachment, avoidance of physical contact, and breaches of confidentiality.[17] Middle-aged and older patients may have lived through periods of extreme homophobia, including times when atypical sexual behavior and orientations were illegal or considered a mental illness. Providers do not regularly discuss sexual orientation and associated health issues with sexually-active adolescents, nor do they believe they have the skills to do so.[18] All, regardless of sexual orientation, should receive culturally-relevant, appropriate patient-centered health care.[19]

This exploratory analysis of GB-MSM in Southwestern Ontario, Canada – examines factors associated with sexual orientation disclosure and communication with providers about GB-MSM health issues.

4.2 Methods

4.2.1 The Health in Middlesex Men Matters (HiMMM) Project

The Health in Middlesex Men Matters (HiMMM) Project – a partnership of community members, allies, and regional agencies – distributed an online, cross-sectional questionnaire to local GB-MSM. Reviewed, revised, pre-tested, and pilot-tested by HiMMM and GB-MSM community volunteers, the questionnaire was designed using established guidelines[20] and Dillman's Tailored Design Method.[21] The study protocol was approved by The University of Western Ontario's Research Ethics Board.

4.2.2 Sampling procedures

Eligible participants were: 18 years or older; lived in Middlesex County, Ontario; and identified as gay, bisexual, or as a man who has had one or more sexual experiences with another man; or has had strong and continual sexual attractions to one man or men. A convenience sample was employed to collect data, with promotion occurring through listservs, social network websites, smartphone applications, and informally among local GB-MSM. Monetary and lottery incentives were provided: a $10 gift card for completion and, for each referred person completing the survey, a ballot for a prize draw. Data collection occurred from November 2011 to November 2012.

4.2.3 Measures

Local community concerns[22], prior qualitative interviews, and requests for information by community members and agencies guided survey item inclusion.

Demographics

Adapted from the Canadian Community Health Survey (CCHS)[23] and community-based surveys, socio-demographic variables in this analysis included: age, ethnicity, education, student status, marital and relationship status, sexual orientation identity, birth country, and per person household income. Ethnicity was measured using a check-all-that-apply question, and coded into summary groups. Participants indicating Aboriginal identity formed one, all identifying as only White Canadian, American, and/or European formed a second, and the remainder the "Non-Aboriginal racialized" group. "Household income per person" was coded by dividing mid-points of range responses by the number of supported individuals. Sexual orientation based on sexual behaviour was coded based on whether the respondent had (oral/anal) sex with another man during the past 6 months.

Psychosocial measures

Internalized homonegativity, a short version (12 items) of a longer scale[24] contains three dimensions of "Public Identification as Gay," "Social Comfort With Gay Men," and "Sexual Comfort With Gay Men".[25] *Experiences of homophobia* has 11 items with elements associated with name-calling and violence experienced over a lifetime due to being gay/bisexual.[26] The *Multidimensional Scale of Perceived Social Support* has 12 items measuring social support from family, friends, and significant others.[27] The *Rosenberg Self Esteem Scale* contains 10 items measuring feelings the respondents have about themselves.[28]

Health and health services variables

Self-reported general health, perceived quality of local health care services, insurance, and whether respondents currently had a PCP were adapted from the CCHS.[23] The *Health Value Scale* measures the value an individual places on health.[29] *Communication*, 8 items from the *General Practitioners Assessment Questionnaire*, includes questions measuring how the PCP listens to the patient and puts him or her at ease.[30] HIV status was coded as HIV positive, negative, or status unknown, from the result of respondents' last HIV test (if they had been tested).

Current PCP's knowledge of respondents' sexual orientation and whether respondents talk to their PCP about GB-MSM health issues, our main outcome measures, and respondents' experiences with a PCP (check-all-that-apply) were developed by HiMMM. The last was dichotomized for regression analyses as "ever having a negative experience with a PCP."

4.2.4 Theoretical framework

The Behavioral Model of Health Services Use[31] guided analyses, outlining predisposing (individual characteristics), enabling (making services available to the individual), and need/illness (necessitating use of services) factors. Gelberg's adaptation separates these into traditional (affecting everyone) and vulnerable (affecting the vulnerable population/community being considered) domains.[32] Modelled variables were chosen based on literature reviews and community discussions. These models (Figure 5.1) incorporate community-specific measures to predict respondents: 1) having their PCP know their sexual orientation; and 2) talking to their PCP about GB-MSM-related health issues.

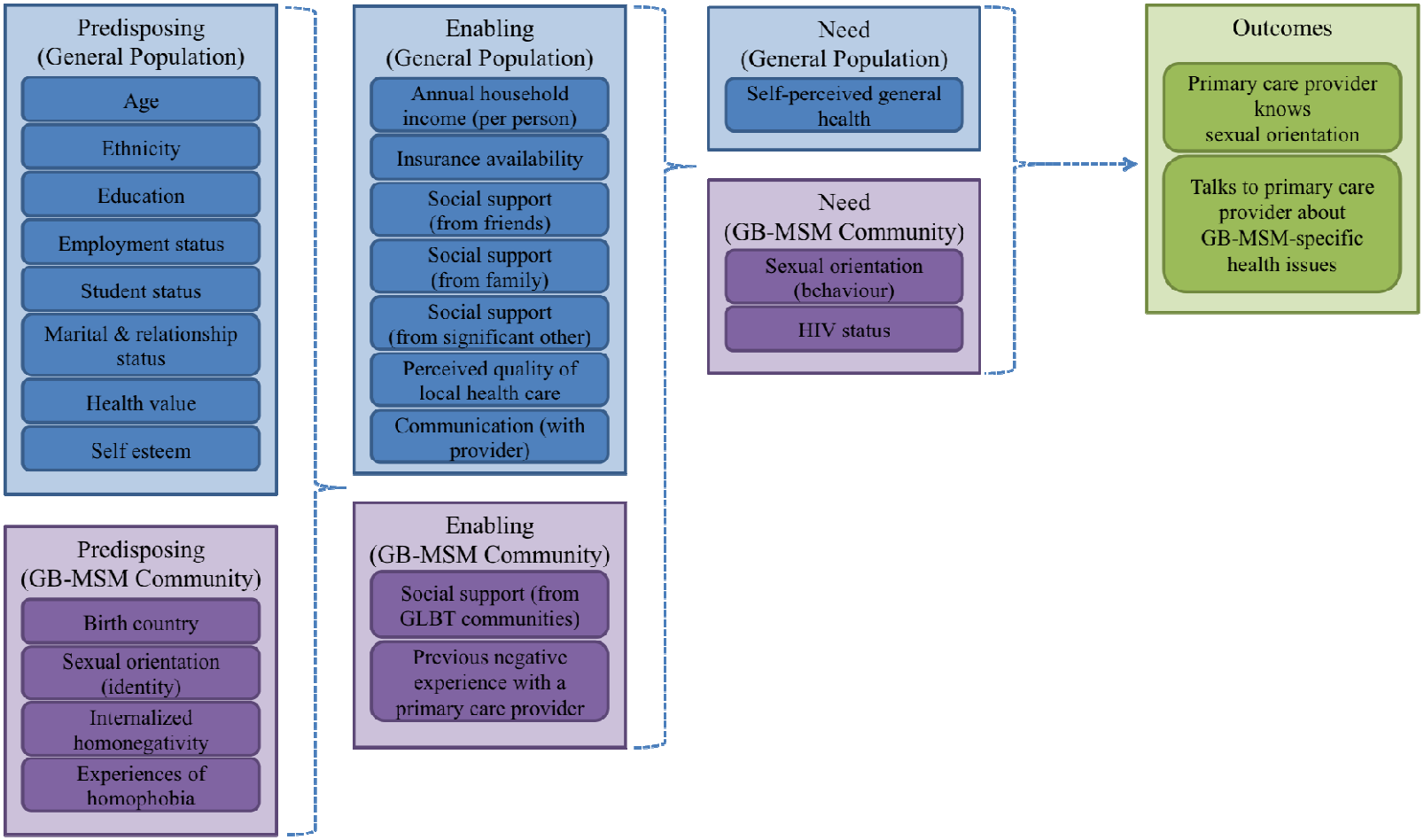

Figure 4.1 - Theoretical Model for Access to GB-MSM-related care by gay, bisexual, and other men who have sex with men

4.2.5 Statistical analyses

SAS version 9.3.1 was used for analyses.[33] Analyses were limited to participants with access to a primary care provider (n=173). Descriptive frequencies or means were calculated. Modified Poisson regression was used to calculate crude prevalence ratios, providing more valid estimates than odds ratios for non-rare outcomes.[34] A logistic regression model was then fit with predisposing factors (automated backward elimination procedures are not available for modified Poisson modelling[35]). This removed variables not significant at $p<0.30$. Retained variables were then fit using modified Poisson to obtain adjusted prevalence ratios. This process was repeated to model enabling factors ($p<0.20$), then need/illness factors ($p<0.15$). Liberal p-values were chosen (i.e. *not* p=0.05) to not prematurely eliminate important variables.[36] P-values and 95% confidence intervals were calculated for each crude and adjusted association.

4.3 Results

Socio-demographic, psychosocial, and health related variables are summarized in Tables 4.1, 4.2, and 4.3, respectively.

Table 4.1 - Demographics from the Health in Middlesex Men Matters Survey: sub-sample of gay, bisexual and men who have sex with men in London-Middlesex, Ontario with a primary care provider (n=173)

	n (%)
Age group	
18-24	40 (23.1)
25-34	51 (29.5)
35-44	27 (15.6)
45-54	34 (19.7)
55+	21 (12.1)
Ethno-racial group	
Non-aboriginal white	152 (87.9)
Non-aboriginal racialized	14 (8.1)
Aboriginal	7 (4.1)
Ethnic or cultural identity indicated*	
White Can/Amer/Euro	155 (89.6)
Aboriginal	7 (4.1)
East/South/Southeast Asian	4 (2.3)
Latin American	5 (2.9)
Black Can/Amer/African/Caribb	3 (1.7)
Middle Eastern	3 (1.7)
Indo-Caribbean	1 (0.6)
Birth country	
Canada	160 (92.5)
Other	13 (7.5)
Education	
High school not completed	10 (5.8)
High school completed	17 (9.9)
Some postsecondary	51 (29.7)
Postsecondary graduate	94 (54.7)
Household Income per person	

< $15,000	25 (15.2)
$15,000-$29,999	52 (31.7)
$30,000-$49,999	42 (25.6)
$50,000-$79,999	23 (14.0)
$80,000 +	22 (13.4)
Employment status	
Full-time job	102 (59.3)
One part-time job	12 (6.7)
More than one part-time job	23 (13.4)
No job	35 (20.4)
Student status	
Not attending school	123 (71.5)
Attending school full-time	16 (9.3)
Attending school part-time	33 (19.2)
Marital/Relationship status	
Single, not married	80 (46.5)
Married/Living common-law with a man	46 (26.7)
Married/Living common-law with a woman	6 (3.5)
In a monogamous relationship, not married	30 (17.4)
In a non-monogamous relationship, not married	10 (5.8)
Sexual orientation identity	
Homosexual	152 (87.9)
Bisexual	18 (10.4)
Don't know/Would rather not say	3 (1.7)
Heterosexual	0 (0.0)
Sexual orientation behaviour (sex with a man in the past 6 months)	
Yes	162 (94.2)
No	10 (5.8)

*Ethnic or cultural identity was assessed using a check-all-that-apply question, frequencies will not add up to 100%

Table 4.2 – Psychosocial information from the Health in Middlesex Men Matters Survey: subsample of gay, bisexual and men who have Sex with men in London-Middlesex, Ontario who have a primary care provider (n=173)

	n (%)
Social Support (% from GLBT Communities)	
All	4 (2.3)
More than half	38 (22.1)
About half	37 (21.5)
Less than half	50 (29.1)
None	43 (25.0)
SCALE MEASURES	
Social Support (from friends)	
Range (scale)	1 – 7
Range (responses)	1.0 – 7.0
Mean	5.45
Standard deviation	1.41
Cronbach's alpha	0.9549
Social Support (from family)	
Range (scale)	1 – 7
Range (responses)	1.0 – 7.0
Mean	4.72
Standard deviation	1.69
Cronbach's alpha	0.9564
Social Support (from significant other(s))	
Range (scale)	1 – 7
Range (responses)	1.0 – 7.0
Mean	5.43
Standard deviation	1.63
Cronbach's alpha	0.89
Internalized Homonegativity	
Range (scale)	1 – 7
Range (responses)	1.2 – 6.3
Mean	3.07
Standard deviation	0.89

Cronbach's alpha	0.7984
Experiences of Homophobia	
Range (scale)	0 – 33
Range (responses)	0.0 – 33.0
Mean	10.76
Standard deviation	6.07
Cronbach's alpha	0.7951

Table 4.3 - Health and primary care provision information from the Health in Middlesex Men Matters Survey: sub-sample of gay, Bisexual and Men who have Sex with Men in London-Middlesex, Ontario who have a primary care provider (n=173)

	n (%)
Self-reported general health	
Excellent	47 (27.3)
Very good	76 (44.2)
Good	36 (20.9)
Fair	9 (5.2)
Poor	4 (2.3)
Perceived quality of health care services in the community	
Excellent	52 (30.2)
Good	87 (50.6)
Fair	30 (17.4)
Poor	3 (1.7)
HIV status	
Negative	127 (73.4)
Positive	24 (13.9)
Status unknown	22 (12.7)
Health insurance availability for basic medical expenses	
Yes	161 (93.6)
No	11 (6.4)
Current PCP knows about their sexual orientation	
Yes	123 (71.5)
No	49 (28.5)
Talks to their current PCP about health issues specific to being GB-MSM	
Yes	77 (44.5)
No	96 (55.5)
Experiences with a PCP (ever)*	
PCP made negative comments or gestures about GLBT people	9 (5.3)
PCP made negative comments or gestures related to gender, race, religion, culture, ethnicity	5 (3.0)
PCP belittled or made fun of respondent for being GB-MSM	5 (3.0)
PCP refused to see or ended care because of respondent's sexual orientation	3 (1.8)
PCP refused to see or ended care because of respondent's gender, race, religion, culture, or ethnicity	1 (0.6)
PCP refused to discuss or address health concerns related to being GB-MSM	4 (2.4)
PCP made assumptions about respondent or their health based on their sexual orientation	25 (14.8)
PCP assumed they were straight/heterosexual	46 (27.2)
PCP assumed respondent had a lot of sex partners based on their sexual orientation	15 (8.9)
Any negative experiences with an PCP	
No	110 (65.1)
Yes	59 (34.9)
SCALE MEASURES	
Health value scale	
Range (scale)	0 – 16
Range (responses)	3.0 – 16.0
Mean	11.19
Standard deviation	3.07
Cronbach's alpha	0.6999
Patient assessment of provider communication	
Range (scale)	16.7 – 100.0
Range (responses)	29.2 – 100.0
Mean	75.90

Standard deviation	18.25
Cronbach's alpha	0.9571

*Experiences with a primary care provider were part of a check-all-that-apply question, frequencies will not add up to 100%

4.3.1 Predictors of respondents reporting PCP knows their sexual orientation

Variables' crude and modelled associations with a PCP knowing respondents' sexual orientation are summarized in Table 4.4. PCPs of respondents' attending school full-time (compared to non-students), respondents married to or living common-law with a man (compared to "unmarried"), and HIV-positive respondents (compared to HIV-negative), were more likely to know respondents' sexual orientations. Higher *Internalized Homonegativity* scores were associated with a significantly lesser likelihood. Increasing *Experiences of Homophobia* and *Communication* scores were significantly associated with PCPs knowing participants' sexual orientation. Compared to those receiving "about half" of their social support from GLBT communities, PCPs of those receiving "more than half" or "none" were more likely to know respondents' sexual orientation. Those with a prior negative experience with a PCP were less likely to have their current PCP know their sexual orientation.

As predisposing, enabling, and need factors were considered, marital/relationship status and experiences of homophobia remained significant when only predisposing factors were modelled, retaining the directions of association seen in the crude analysis. After including enabling factors, self-esteem, experiences of homophobia, social support from friends and a significant other, perceived quality of local health care, and communication with providers were significant at p=0.05. Increasing levels of self-esteem, social support (significant other) and provider communication were associated with a greater likelihood of a PCP knowing the respondents' sexual orientation, however, increasing social support (friends) was associated with a lesser likelihood. Those rating the quality of local health care as poor were more likely to have their PCP know. With need/illness factors added, marital and relationship status regained significance in the direction of association seen in previous steps. Self-esteem, experiences of homophobia, social support from friends and a significant other, perceived quality of local health care, and communication with providers were significant at p=0.05, retaining the directions of association seen previously. HIV status was significant, those with status unknown were less likely to have disclosed to their PCP compared to HIV-negative participants.

Table 4.4 – Poisson regression results for predicting whether the primary care provider knows about their sexual orientation: gay, bisexual and men who have sex with men in Middlesex County, Ontario, Canada

	Crude Associations		Model 1[a] $R^{2\,d} = 0.2070$		Model 2[b] $R^{2\,d} = 0.5025$		Final Model[c] $R^{2\,d} = 0.4612$	
PREDICTORS	**PR[e] (95% CI[f])**	**P-value**	**aPR (95% CI[g])**	**P-value**	**aPR (95% CI)**	**P-value**	**aPR (95% CI)**	**P-value**
PREDISPOSING FACTORS								
Age		0.151						
5 year increase	1.03 (0.99, 1.06)							
Ethnicity		0.853						
Aboriginal	0.99 (0.61, 1.60)							
Non-Aboriginal white	1.00							
Non-Aboriginal racialized	0.89 (0.60, 1.33)							
Education		0.417						
High school not complete	0.85 (0.50, 1.43)							
High school graduate	0.83 (0.55, 1.26)							
Some postsecondary	1.11 (0.91, 1.34)							
Postsecondary graduate	1.00							
Employment status		0.771						
Full-time	1.00							
+1 part-time	1.03 (0.73, 1.46)							
1 part-time	0.84 (0.59, 1.19)							
None	1.01 (0.80, 1.28)							
Student status		0.084		0.322		0.456		0.634
Attending school full-time	**0.68 (0.48, 0.95)***		0.77 (0.83,1.11)		0.83 (0.60,1.15)		0.87 (0.64, 1.19)	
Attending school part-time	0.98 (0.73, 1.33)		1.03 (0.76, 1.41)		0.91 (0.68, 1.22)		0.93 (0.69, 1.25)	
Not currently attending school	1.00		1.00		1.00		1.00	
Marital & relationship status		**<0.0001***		**0.019***		0.066		**0.033***
Single	1.00		1.00		1.00		1.00	
Married to/Common-Law with a man	**1.48 (1.24, 1.76)***		**1.31 (1.08, 1.58)**		1.18 (0.98, 1.43)		1.19 (0.98, 1.43)	
Married to/Common-Law with a woman	0.77 (0.34, 1.75)		1.00 (0.40, 2.49)		0.75 (0.25, 2.30)		0.72 (0.24, 2.21)	
Unmarried, in a monogamous relationship	0.98 (0.71, 1.35)		1.00 (0.74, 1.36)		0.89 (0.66, 1.20)		0.87 (0.65, 1.15)	
Unmarried, in a non-monogamous relationship	0.77 (0.41, 1.47)		0.71 (0.37, 1.37)		0.60 (0.27, 1.30)		0.56 (0.25, 1.25)	
Health value scale		0.843						
1 standard deviation increase	0.99 (0.90, 1.09)							
Self esteem		0.100		0.101		**0.020***		**0.028***
1 standard deviation increase	1.08 (0.98, 1.19)		1.08 (0.99, 1.18)		**1.12 (1.02, 1.23)***		**1.12 (1.01, 1.23)***	
Birth country		0.472						
Born in Canada	1.00							
Born outside of Canada	0.85 (0.55, 1.32)							
Sexual orientation identity		0.083		0.431		0.213		0.238
Homosexual	1.00		1.00		1.00		1.00	
Bisexual	**0.52 (0.29, 0.93)***		0.68 (0.38, 1.22)		0.59 (0.33, 1.07)		0.60 (0.33, 1.09)	
Don't know/Rather not say	0.88 (0.39, 1.98)		1.01 (0.55, 1.84)		1.09 (0.58, 2.04)		1.07 (0.62, 1.87)	
Internalized homonegativity		**0.041***		0.150		0.266		0.225
1 standard deviation increase	**0.90 (0.81, 1.00)***		0.93 (0.83, 1.03)		0.95 (0.86, 1.04)		0.94 (0.85, 1.04)	
Experiences of homophobia		**0.008***		**0.002***		**0.002***		**0.005***
1 standard deviation increase	**1.13 (1.03, 1.23)***		**1.17 (1.06, 1.28)***		**1.17 (1.06, 1.30)***		**1.17 (1.05, 1.30)***	

ENABLING FACTORS								
Household income (per person)		0.506						
< $15,000	0.94 (0.62, 1.41)							
$15,000-$29,999	1.06 (0.76, 1.48)							
$30,000-$49,999	0.98 (0.68, 1.40)							
$50,000-$79,999	1.21 (0.86, 1.70)							
$80,000 +	1.00							
Insurance availability		0.309						
Yes	1.00							
No	0.75 (0.44, 1.30)							
Social support (from friends)		0.772				**0.038***		**0.043***
1 standard deviation increase	1.01 (0.92, 1.11)				**0.84 (0.72, 0.99)***		**0.85 (0.72, 1.00)***	
Social support (from family)		0.697						
1 standard deviation increase	1.02 (0.93, 1.12)							
Social support (from significant other)		0.059				**0.033***		**0.024***
1 standard deviation increase	1.13 (1.00, 1.27)				**1.23 (1.02, 1.50)***		**1.24 (1.03, 1.50)***	
Perceived quality of local health care		0.292				**0.011***		**0.015***
Excellent	1.00				1.00		1.00	
Good	0.99 (0.79, 1.25)				1.08 (0.88, 1.33)		1.07 (0.87, 1.32)	
Fair	1.20 (0.95, 1.53)				**1.52 (1.16, 1.99)***		**1.46 (1.13, 1.89)***	
Poor	0.96 (0.42, 2.19)				1.67 (0.90, 3.11)*		1.63 (0.89, 2.99)	
Communication (with providers)		**0.005***				**<0.0001***		**<0.0001***
1 standard deviation increase	**1.17 (1.05, 1.31)***				**1.25 (1.12, 1.39)***		**1.24 (1.13, 1.39)***	
Social support (% from GLBT communities)		**0.038***						
All	1.46 (0.75, 2.79)							
More than half	**1.64 (1.16, 2.31)***							
About half	1.00							
Less than half	1.32 (0.92, 1.91)							
None	**1.58 (1.12, 2.23)***							
Previous negative experience with a PCP		**0.018***						
Yes	**0.75 (0.59, 0.95)***							
No	1.00							
NEED FACTORS								
Self-perceived general health		0.439						
Excellent	1.00							
Very good	1.02 (0.81, 1.29)							
Good	0.98 (0.76, 1.27)							
Fair	1.26 (0.96, 1.65)							
Poor	0.71 (0.26, 1.91)							
Sexual orientation behaviour (has had sex with a man in the past 6 months)		0.924						
Yes	1.00							
No	0.98 (0.65, 1.49)							
HIV status		**0.018***						0.0443
Positive	**1.21 (1.01, 1.46)***						1.08 (0.87, 1.36)	
Negative	1.00						1.00	
Status unknown	0.69 (0.45, 1.07)						**0.68 (0.49, 0.95)***	

[a] Model including only predisposing variables

[b] Model including predisposing and enabling variables
[c] Model including predisposing, enabling, and need variables
[d] Nagelkerke's maximum rescaled R^2 for multivariable model (logistic)
[e] Prevalence ratio
[f] Confidence Interval
[g] Adjusted prevalence ratio
[*]significant at the $\alpha = 0.05$ level

4.3.2 Predictors of talking to PCP about GB-MSM-related health issues

Variables' associations with respondents talking to current PCPs about GB-MSM health issues are found in Table 4.5. Compared to unmarried men, respondents married to or living common-law with a man were more likely talk to their current PCPs about GB-MSM health issues. Increasing *Internalized Homonegativity* scores were associated with a lesser likelihood of talking to PCPs about GB-MSM health issues. An increase on the *Experiences of Homophobia* scale was associated with a greater likelihood. Increasing scores on the *Significant Other Social Support* subscale and the *Communication* scale were associated with a greater likelihood of talking to a PCP. Those receiving all their social support from GLBT communities were more likely to talk about GB-MSM health issues compared to those receiving about half. Those with a negative experience with PCPs were less likely to talk to their PCPs about GB-MSM health issues.

After backward elimination, retained significant predisposing variables were *Experiences of Homophobia* and *Internalized Homonegativity*, with the same direction of effect seen in crude analyses. Adding enabling factors, *Experiences of Homophobia*, *Internalized Homonegativity*, *Communication* with PCPs, and negative experiences with a PCP were significant at p=0.05, again retaining the same direction of association as seen in crude analyses. These factors retained significance when need/illness factors were included.

Table 4.5 - Poisson regression results for predicting whether respondent talks to PCP about GB-MSM related health issues: gay, bisexual and men who have sex with men in Middlesex County, Ontario, Canada

	Crude Associations (95% CI)		Model 1[a] $R^{2\,d}$ = 0.1710		Model 2[b] $R^{2\,d}$ = 0.4523		Final Model[c] $R^{2\,d}$ = 0.3949	
PREDICTORS	**PR[e] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**
PREDISPOSING FACTORS								
Age		0.273		0.234				
5 year increase	1.03 (0.98, 1.09)		1.03 (0.98, 1.09)					
Ethnicity		0.539						
Aboriginal	0.93 (0.39, 2.23)							
Non-Aboriginal white	1.00							
Non-Aboriginal racialized	0.62 (0.27, 1.45)							
Education		0.507						
High school not complete	0.99 (0.45, 2.20)							
High school graduate	1.16 (0.66, 2.04)							
Some postsecondary	1.31 (0.92, 1.87)							
Postsecondary graduate	1.00							
Employment status		0.983						
Full-time	1.00							
+1 part-time	0.94 (0.47, 1.91)							
1 part-time	1.08 (0.67, 1.75)							
None	1.04 (0.68, 1.58)							
Student		0.752						
Attending school full-time	0.87 (0.54, 1.38)							
Attending school part-time	1.10 (0.65, 1.86)							
Not currently attending school	1.00							
Marital & relationship status		**0.024***						
Single	1.00							
Married to/Common-Law with a man	**1.68 (1.17, 2.41)***							
Married to/Common-Law with a woman	0.44 (0.07, 2.72)							
Unmarried, in a monogamous relationship	0.98 (0.56, 1.69)							
Unmarried, in a non-monogamous relationship	1.33 (0.67, 2.64)							
Health value scale		0.977						
1 standard deviation increase	1.00 (0.84, 1.18)							
Self esteem		0.935						
1 standard deviation increase	0.99 (0.84, 1.18)							
Born in Canada		0.900						
Yes	1.00							
No	1.04 (0.56, 1.92)							
Sexual orientation identity		0.129		0.268		0.300		
Homosexual	1.00		1.00		1.00			
Bisexual	**0.35 (0.12, 0.99)***		0.45 (0.17, 1.19)		0.53 (0.21, 1.36)			
Don't know/Rather not say	0.69 (0.14, 3.47)		0.80 (0.18, 3.64)		1.55 (0.44, 5.47)			
Internalized homonegativity		**0.001***		**0.0004***		**0.035***		**0.011***
1 standard deviation increase	**0.77 (0.65, 0.90)***		**0.75 (0.64, 0.88)***		**0.85 (0.72, 0.99)***		**0.82 (0.71, 0.96)***	
Experiences of Homophobia		**0.004***		**0.0004***		**<0.0001***		**<0.0001***
5 point increase	**1.24 (1.07, 1.44)***		**1.30 (1.12, 1.50)***		**1.42 (1.24, 1.64)***		**1.44 (1.25, 1.65)***	
ENABLING FACTORS								
Household income (per person)		0.841						
< $15,000	1.17 (0.61, 2.24)							
$15,000-$29,999	1.22 (0.69, 2.16)							

$30,000-$49,999	0.99 (0.53, 1.84)							
$50,000-$79,999	0.96 (0.47, 1.96)							
$80,000 +	1.00							
Insurance availability		0.589						
Yes	1.00							
No	0.80 (0.36, 1.78)							
Social support (from friends)		0.141						
1 standard deviation increase	1.16 (0.95, 1.42)							
Social support (from family)		0.805						
1 standard deviation increase	1.02 (0.86, 1.21)							
Social support (from significant other)		**0.023***				0.074		0.064
1 standard deviation increase	**1.30 (1.04, 1.64)**				1.23 (0.98, 1.55)		1.24 (0.99, 1.57)	
Perceived quality of local health care		0.567						
Excellent	1.00							
Good	0.77 (0.54, 1.12)							
Fair	0.89 (0.57, 1.43)							
Poor	0.64 (0.13, 3.25)							
Communication (with providers)		**<0.0001***				**0.002***		**0.004***
1 standard deviation increase	**1.48 (1.23, 1.79)**				**1.32 (1.11, 1.57)***		**1.30 (1.09, 1.55)***	
Social support (% from LGBT communities)		0.222						
All	**2.13 (1.04, 4.37)***							
More than half	1.50 (0.88, 2.55)							
About half	1.00							
Less than half	1.31 (0.77, 2.23)							
None	1.13 (0.63, 2.00)							
Negative experiences with a PCP		**0.001***				**0.011***		**0.007***
Yes	**0.46 (0.29, 0.73)***				**0.53 (0.33, 0.86)***		**0.52 (0.33, 0.84)***	
No	1.00				1.00		1.00	
NEED FACTORS								
Self-perceived general health		0.063						
Excellent	1.00							
Very good	**0.62 (0.43, 0.89)***							
Good	**0.59 (0.36, 0.95)***							
Fair	0.72 (0.34, 1.55)							
Poor	0.81 (0.30, 2.22)							
Sexual orientation behaviour (has had sex with a man in the past 6 months)		0.188						
Yes	1.00							
No	0.43 (0.12, 1.51)							
HIV status		0.176						
Positive	1.32 (0.90, 1.96)							
Negative	1.00							
Status unknown	0.72 (0.38, 1.37)							

[a] Model including only predisposing variables
[b] Model including predisposing and enabling variables
[c] Model including predisposing, enabling, and need variables
[d] Nagelkerke's maximum rescaled R^2 for multivariable model (logistic)
[e] Prevalence ratio
[f] Confidence Interval
[g] Adjusted prevalence ratio
[*] significant at the $\alpha = 0.05$ level

4.4 Interpretation

Sexual orientation disclosure is vital to addressing GB-MSM health needs[37], however, some GB-MSM do not reveal sexual practices or sexual orientation to their physician.[38] Negative prior experiences (also listed in Table 2) with a PCP and increasing internalized homonegativity were significantly associated with a lesser likelihood of talking about GB-MSM-related health issues. Sexual orientation microaggressions (brief, commonplace, daily verbal indignities –intentional and unintentional – that communicate hostile, derogatory slights and insults toward sexual minority groups[39]) result in lower self-esteem and increased negative feelings and difficulties about sexual orientation identity (i.e. internalized homonegativity).[40] Internalized homonegativity operates on this pathway where intentional or unintentional negative messaging regarding a patient's sexual orientation can be internalized by patients, leading to lower self-esteem, a decreased willingness to disclose sexual orientation to providers and others. Failure to disclose leads to a lesser likelihood of providers obtaining important patient health information to properly inform care, subsequently leaving patients with a sense of not having received adequate and culturally-relevant care.

Coming out in general practices can result in better patient-provider communication.[41] In addition to hesitance in disclosing, some GB-MSM do not feel comfortable speaking with general practitioners about sexual health.[42] Complications in establishing rapport and communication with GB-MSM patients create an obstacle in provision of care, potentially leading to decreased adherence to physician advice and treatment plans.[14] Our results found higher (i.e. better) communication scores were associated with a greater likelihood of PCPs knowing a respondent's orientation, and talking to them about GB-MSM health. An enhanced GB-MSM patient-provider relationship, based on shared decision-making, increased communication, and an understanding of the patient as a whole person, could help supersede the effects of prior negative experiences, whether these occurred in health care settings or not, reducing hesitation in disclosing sexual orientation and/or talking to providers about GB-MSM health issues.

Increasing experiences of homophobia were associated with a greater likelihood of PCPs knowing respondents' sexual orientation, and talking to providers about GB-MSM health. Considering our outcomes' significant associations with higher levels of internalized homonegativity, this, at first, might seem surprising, but could likely be explained by how

"out" the respondent is (not measured in our survey) and through "resilience." Higher levels of "outness" could be associated with greater likelihoods of homophobic experiences. Research shows that GB-MSM who were verbally harassed received more services than those who were not.[43] As seen in youth, being out to more people within one's support network reduces the severity of sexual identity-related distress.[44] Typically described in HIV risk contexts, "resilience" is the process of overcoming negative effects of risk exposure, coping successfully with traumatic experiences, and avoiding negative trajectories associated with risk[45], a positive adaptation to adversity and risk.[46] A resilience framework, applied to this results, outlines a process whereby increasing homophobic experiences result in GB-MSM positively adapting in primary care settings – a greater willingness to disclose and talk openly about GB-MSM health – what is called "stigma competence".[47,48]

At the crude level, participants married to or living common-law with a man were also more likely to have PCPs know their sexual orientation, compared to single men. Marriage itself is not a panacea for better health, however, one mechanism to improved health in married couples is greater financial stability[49,50] and social support.[51] In the United States, same-sex male civil unions have been associated with lower HIV- and STD-related risk behaviour, suggesting societal and legal recognition impact health by maintaining lower risk behaviours.[49,52] Participants who are common-law with or married to another man, by virtue of time, have likely disclosed to friends and/or family, making the decision to come out to a health care provider less stressful. A study of factors influencing disclosure to providers posits that, among LGBT older adults, coupled participants also appear to disclose more often as a means of emphasizing their right to make health care decisions for each other.[53]

4.4.1 Study strengths and limitations

HiMMM was conducted using community-based research principles, which includes the use of community-relevant variables and outcomes for analysis. Data were collected via convenience sample, and thus biases are unknown and cannot be adjusted. Most Canadian research on GB-MSM has been drawn from venue-based survey data or disproportionately favours more community-involved individuals. HiMMM's promotion was broad-reaching, directed towards individuals at traditional locations, but also included promotion through smartphone apps and online social networking sites. Unfortunately, conducting an online survey using this strategy means calculating a response rate is not possible. Our sample size

limited the power to detect smaller effects and to conduct more detailed subgroup analyses. This study is one of few in Canada using data collected solely outside a large metropolitan city, where more related studies are conducted and health services tailored to GB-MSM communities are more prevalent and available. This ignores the divergent experiences of GB-MSM living in mid-sized cities and rural areas. The socio-demographic composition of metropolitan centres in Canada represents only 15.65% of the population.[54] Statistics Canada estimates that socio-demographically, London-Middlesex is similar to 33.85% of the Canadian population[54], allowing our results to be potentially relevant to a larger proportion of the Canadian population. Finally, our study was cross-sectional, limiting our ability to infer causality.

4.4.2 Conclusions

The health of GB-MSM, including GB-MSM's disclosure of sexual orientation and communication about their health needs to providers, should be understood in a context that considers stress, social support, internalized negative messages about sexual orientation, gender role socialization, health effects of identity development[47], and societal homophobia.[55] Adverse health outcomes in GB-MSM are preventable[56] and providers should receive the training and education to address these to ensure they are aware of essential patient health information to skilfully deliver care.[57] Our results add to literature calling for medical school curricula and training to include, at minimum, the health of sexual orientation minorities.[12,18,58] Training providers about health issues specific to these communities is important, but just as critical is building a foundation on how to speak with GB-MSM patients non-judgmentally.[55,59] Detailed training into patient-centred communication with sexual orientation minority groups should supplement current instruction.[60] Accompanying the call for more in-depth education, additional training for current providers about LGBT health is available as continuing medical education, with sessions accredited by the College of Family Physicians of Canada easily accessible through organizations such as Rainbow Health Ontario.[61] Training should be not only for providers, but also extend to other clinic staff (e.g. administration staff, nurses, etc.). Together with these, the presence of materials in waiting rooms inclusive of all sexual minorities can have positive impacts on providers' relationships with GB-MSM.[62] Broader research into resilience in GB-MSM groups should be used to develop "assets-based interventions that build on community support".[55] Finally, this exploratory analysis should be used to generate research questions for future research,

including: how levels of “outness” in Canadian GB-MSM are related to disclosure in (and access to) health care services; and strategies current providers utilize to facilitate sexual orientation disclosure in primary settings.

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CHAPTER 5

Mental health service use for gay, bisexual, and other men who have sex with men living in Middlesex County, Ontario, Canada: an exploratory analysis

5.1 Introduction

The mental health of sexual minority men (e.g. gay, bisexual, and other men who have sex with men, or "GB-MSM") in Canada manifests itself differently compared to heterosexual men. Results from the 2003 cycle of the population-based Canadian Community Health Survey (CCHS) found gay and bisexual men had higher levels of mood/anxiety disorders and greater histories of lifetime suicidality compared to heterosexual men[1], mirroring the evidence summarized by Cochran et al. and a recent meta-analysis.[2,3] These trends were also seen in a subsequent analysis of the 2007-2008 cycle of the CCHS which found higher odds of mood disorders in Canadian gay and bisexual males compared to heterosexual men.[4] Despite these trends, it is important to note that homosexuality itself is not indicative of health pathology[5], and some of these differences can be explained by broader, systemic stigmas experienced by these groups.[6]

Compared to heterosexual men, Canadian GB-MSM also differ in use of mental health services. Combined CCHS results from 2003 and 2005 cycles indicate that, during the prior 12 months, gay and bisexual men in Canada were more likely to consult mental health service providers (e.g. social workers, counsellors, psychologists), and bisexual men reported more unmet health needs compared to heterosexual men[7], echoing findings from other countries.[8-11]

Higher levels of mental health concerns and utilization are often explained via minority stress frameworks. Minority stress is the psychosocial stress resulting from minority status.[6] Processes of minority stress include objective discrimination events, expectations of rejection, and internalization of negative societal attitudes.[12] Adverse mental health outcomes related to minority stress in sexual minority groups, compared to heterosexuals, can be seen in non-Canadian studies, in countries with varying levels of social acceptance and structural-level protections for these groups.[13] For example, Diaz et al. found social discrimination was associated with suicidal ideation in gay and bisexual Latino men in the United States.[14] Fredriksen-Goldsen indicated internalized homosexual stigma was a significant predictor of depression in older lesbian, gay, and bisexual adults.[15] Kuyper and Fokkema's study of Dutch sexual minorities found higher internalized homonegativity predicted more overall

mental health concerns.[16] This has led to some positing that, despite legal and policy protections for sexual minority groups in Canada, there are still spaces in which stigma towards these groups remains, and may have increased - places such as schools.[17]

Despite these studies, there is a dearth of similar, community-relevant information for Canadian GB-MSM. Acceptance of sexual minority groups in Canada at policy levels has evolved considerably in the past 50 years, beginning with the decriminalization of homosexuality in 1969.[18] In 1996, the Canadian Human Rights Act added sexual orientation as a prohibited ground of discrimination[19] and, in 2005, the Civil Marriage Act legalized same-sex marriage across the country.[20] Internationally, in 1973, the American Psychiatric Association declassified homosexuality as a mental disorder within the *Diagnostic and Statistical Manual of Mental Disorders*.[21] Notwithstanding, social stigma in Canada remains prevalent. For example, EGALE Canada's recent survey of Canadian school students found over half of LGBTQ self-identified students reported verbal harassment, and over a quarter reported physical harassment, both due to their sexual orientation.[22]

Canadian GB-MSM's greater likelihoods of experiencing mental health concerns, reporting unmet health care needs, and utilizing services compared to heterosexuals denotes the need for further exploratory research. Few studies of GB-MSM in Canada have focused on GB-MSM outside metropolitan regions, where concentrations of community members and services aimed at sexual minorities differ substantially from other areas. Demographically, Canada's metropolitan centres (i.e. Toronto, Vancouver, or Montreal) contain 15.65% of Canada's population. However, Statistics Canada estimates that 33.9% of the population resides in mid-size cities with average proportions of immigrants and Aboriginal residents, a peer group that includes Middlesex-London.[23] This paper explores demographic, socio-behavioural, and community-relevant factors associated with mental health service utilization in the past 12 months for GB-MSM living in Middlesex County, and discusses implications for mental health service provision and community-based interventions.

5.2 Methods

5.2.1 The Health in Middlesex Men Matters (HiMMM) Project

Formed based on concerns identified at a local lesbian, gay, bisexual, transgender, two-spirit, queer (LGBT2SQ) community health forum, HiMMM is a community-based research project investigating health care access for local GB-MSM in Middlesex County, Ontario,

Canada. Specifically, community health forum discussions identified three themes: 1) homophobia; 2) isolation and social exclusion, and; 3) communication.[24] HiMMM is a partnership of local community members, allies, agencies, and academics. The study protocol was approved by the Research Ethics Board at The University of Western Ontario.

5.2.2 Theoretical Framework

A conceptual framework was developed using an adaptation of the Behavioral Model of Health Services Use[32], categorizing traditional (affecting everyone) and community-relevant variables into predisposing (individual characteristics), enabling (making health services available to the individual), and need/illness (necessitating the use of health services) classifications.[33] Factors were included based on literature reviews and community discussions. The theoretical model of factors affecting mental health service use within the past 12 months can be seen in Figure 5.1.

5.2.3 Study sample

The cross-sectional questionnaires were completed online in English in 2011 and 2012 by 202 participants. Participants were eligible if they: 1) were 18 years or older; 2) lived in Middlesex County, Ontario; and 3) identified either as gay, bisexual, or as a man who has either had one or more sexual experiences with another man or has had strong and continual sexual attraction(s) to one man or men. To collect data for this convenience sample, online listservs, social network websites and smartphone applications were used for promotion, as was informal communication between local men. The questionnaire took approximately 34 minutes to complete. Participants received a $10 gift card for finishing their questionnaire and were entered into a draw for additional prizes for each additional person who they recruited.

5.2.4 Measures

Questionnaire items were reviewed, revised, pre-tested and pilot tested by local GB-MSM volunteers and HiMMM team members. Survey items centered on LGBT2SQ community health forum themes, findings from qualitative semi-structured interviews, and additional information requested by community members and project-affiliated agencies. Conventional survey design guidelines[25,26] were followed.

Adapted from the CCHS, cycle 4.1[27] and other community-based surveys, demographics included age, ethno-racial background and cultural identity, country of birth, education,

household income, employment status, student status, marital and relationship status, and sexual orientation identity.

Ethnicity questions were created through consultations with local multi-cultural education and support services agencies and used "check-all-that-apply" response options. Those identifying as Aboriginal, regardless of additional identities checked, formed one group. All identifying as white Canadian, American, or European, with no other identities checked, formed the "Non-Aboriginal white" group. Others not checking the "Aboriginal" option, but indicating another identity – which could have also included the white Canadian, American, or European category – formed the "Non-Aboriginal racialized" group. Household income per person was calculated using mid-points to range responses from a household income question, dividing these by the number of individuals supported.

Self-reported mental health, insurance availability for mental health services, mental health service use within the past 12 months, and whether respondents currently had a primary care provider were adapted from the CCHS.[27] Questions capturing social support from LGBT communities, whether respondents ever had any negative discriminatory experiences with a mental health service provider (MHSP), whether they had been told they had a mental health condition by a provider, and whether respondents had histories of being trans (transgender), were all developed by the HiMMM Project. HIV status was adapted from Canada's M-Track questionnaire.[28] Degree of religiosity and spirituality in childhood and currently were assessed using Liker scales and a "current vs. childhood level of religiosity/spirituality" variable was coded by subtracting these two variables.

Attitudes toward seeking professional psychological help (Cronbach's $\alpha = 0.95$) was measured using statements related to receiving counseling and mental health services.[29] *Experiences of homophobia* (Cronbach's $\alpha = 0.83$) were measured using a scale that included items such as lifetime experiences of name-calling and violence due to being gay/bisexual (14). The *Multidimensional Scale of Perceived Social Support* was used to measure social support from family (Cronbach's $\alpha = 0.95$), friends (Cronbach's $\alpha = 0.95$), and significant others (Cronbach's $\alpha = 0.96$).[30] *Internalized homonegativity* (Cronbach's $\alpha = 0.80$) was measured using a short scale consisting of three dimensions of "public identification as gay," "social comfort with gay men," and "sexual comfort with gay men".[31] Scale measures are summarized in Table 5.3.

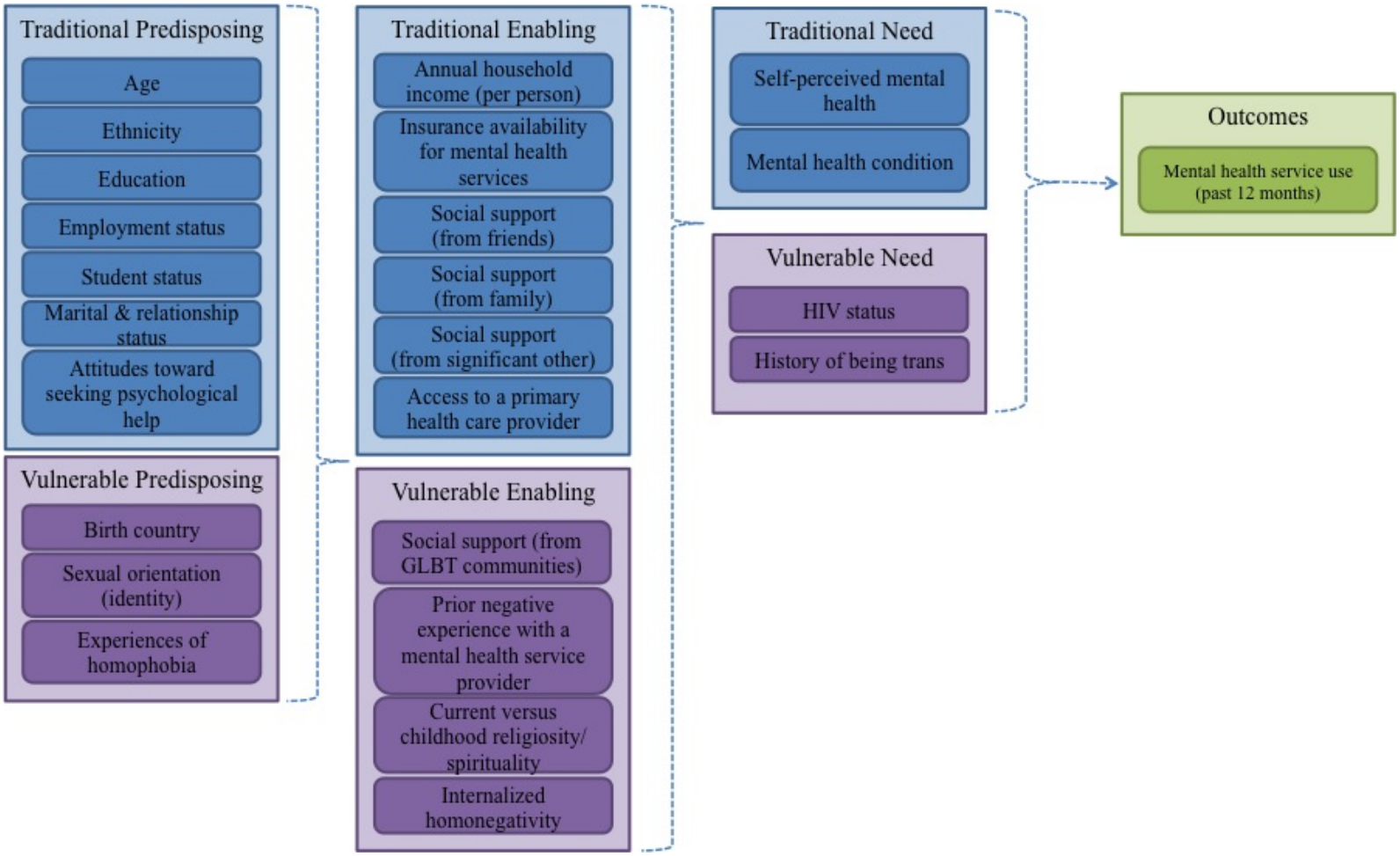

Figure 5.1: Theoretical Model for Mental Health Service Utilization within the past 12 months by Gay, Bisexual, and other Men Who Have Sex With Men living in Middlesex County, Ontario

5.2.5 Data Analysis

Data analyses were conducted using SAS Version 9.3.1.[34] Analyses were limited to respondents who answered the survey item used as an outcome variable (n=201). Descriptive statistics – socio-demographic frequencies and sample proportions of mental health and psychosocial factors – were calculated. Variables to be included in regression models were analyzed for multicollinearity using calculated tolerance values and variance inflation factors. There was no evidence of multicollinearity. Prevalence ratios for crude associations were calculated using a modified Poisson regression method. Modified Poisson regression was used rather than the more-common of logistic regression to produce prevalence ratios to provide more valid results than odds ratios, since our outcome is not rare.[35] Since automated backward elimination procedures are not available for modified Poisson models[36], a blockwise sequence of logistic and modified Poisson models was fit. Crude associations between predictors and outcomes were first calculated using modified Poisson. Subsequently, a logistic regression model was fit with only predisposing factors, with backward elimination used for removal of variables not significant at the p=0.30. A liberal p-value was chosen so as to not prematurely eliminate variables known to be important.[37] Preserved variables were then fit in a modified Poisson model to obtain prevalence ratios with associated 95% confidence intervals. The same process was used to fit models with Enabling and Need Factors, with critical cut-point values of p = 0.20 and p = 0.15.

5.3 Results

5.3.1 Descriptive results

Demographic characteristics are summarized in Table 5.1. More than half of respondents with available outcome data were under 35 years of age (54.7%). Most identified as white (87.1%), 9.4% non-Aboriginal racialized and 3.5% Aboriginal. Most were postsecondary graduates (55.5%), and over one quarter were currently attending school, 8.0% part-time and 19.5% full-time. Almost half (47.0%) were single and not married, and 27.5% were married or living common-law with another man. Fewer were not married and in monogamous relationships (16.0%) and 6.5% were in non-monogamous relationships.

Table 5.1 - Sample Demographics from the Health in Middlesex Men Matters Survey: Gay, Bisexual and Men who have Sex with Men in London-Middlesex, Ontario

	Sample distribution (n=201) n (%)
Age group	
18-24	48 (23.8%)
25-34	62 (30.9%)
35-44	30 (14.9%)
45-54	38 (18.9%)
55+	23 (11.4%)
Ethno-racial group	
Non-aboriginal white	175 (87.1%)
Non-aboriginal racialized	19 (9.4%)
Aboriginal	7 (3.5%)
Ethnic or cultural identity indicated*	
White Canadian/American/European	179 (89.1%)
Aboriginal	7 (3.5%)
East/South/Southeast Asian	7 (3.5%)
Latin American	5 (2.5%)
Black Canadian/American/African/Caribbean	4 (2.0%)
Middle Eastern	3 (1.5%)
Indo-Caribbean	3 (1.5%)
Country of birth	
Canada	184 (91.5%)
Other	17 (8.5%)
Education	
High school not completed	12 (6.0%)
High school completed	20 (10.0%)
Some postsecondary	57 (28.5%)
Postsecondary graduate	111 (55.5%)
Household Income/per person	
< $15,000	30 (15.7%)
$15,000-$29,999	63 (33.0%)
$30,000-$49,999	48 (25.1%)
$50,000-$79,999	27 (14.1%)
$80,000 +	23 (12.0%)
Employment status	
Full-time job	116 (58.0%)
More than one part-time job	15 (7.5%)
One part-time job	31 (15.5%)
No job	38 (19.0%)
Student status	
Not attending school	145 (72.5%)
Attending school part-time	16 (8.0%)
Attending school full-time	39 (19.5%)
Marital/Relationship status	
Single, not married	94 (47.0%)
Married/Living common-law with a man	55 (27.5%)
Married/Living common-law with a woman	6 (3.0%)
In a monogamous relationship, not married	32 (16.0%)
In a non-monogamous relationship, not married	13 (6.5%)
Sexual orientation identity	
Homosexual	179 (89.1%)
Bisexual	19 (9.4%)
Don't know/Would rather not say	3 (1.5%)

*Ethnic or cultural identity was assessed using a check-all-that-apply question, frequencies will not add up to 100%

Health and psychosocial variable frequencies are listed in Table 5.2. Many self-reported their mental health as "very good" (39.0%) or "excellent" (23.0%), with 4.0% indicating "poor" mental health. Most considered themselves less (44.6%) or equally (33.3%) religious or spiritual compared to their childhood. Only 3.0% indicated they received *all* of their overall social support from LGBT communities, with the majority receiving less than half (28.1%) or none (27.1%). Most had a primary care provider (86.9%), and 14.4% indicated they were HIV-positive. Over one third indicated they had been told by a provider they had depression (34.2%), with almost a third indicating they had been told they had anxiety (29.0%), followed by fewer participants denoting they had been told they had a stress-related disorder (13.2%), insomnia (7.9%), or addictions (6.3%). Some participants indicated they had a MHSP assume they were straight/heterosexual (15.7%) or made assumptions about them or their health based on their sexual orientation (8.6%). Scale measure descriptive statistics are outlined in Table 5.3.

Table 5.2 - Mental health and psychosocial variables from the Health in Middlesex Men Matters Survey: Gay, Bisexual and Men who have Sex with Men in London-Middlesex, Ontario

	Sample distribution (n=201) n (%)
Self-perceived mental health	
Excellent	45 (23.0)
Very Good	78 (39.0)
Good	41 (20.5)
Fair	27 (13.5)
Poor	8 (4.0)
Insurance availability for mental health services	
Yes	125 (62.5)
No	75 (37.5)
Has a primary care provider	
Yes	173 (86.9)
No	26 (13.1)
Used mental health services within the past 12 months	
Yes	72 (35.8)
No	129 (64.1)
Childhood level of religiosity or spirituality	
Not at all	51 (25.5)
A bit	34 (17.0)
Somewhat	42 (21.0)
Fairly	28 (14.0)
Quite	25 (12.5)
Extremely	20 (10.0)
Current level of religiosity or spirituality	
Not at all	83 (41.7)
A bit	39 (19.6)
Somewhat	29 (14.6)
Fairly	24 (12.1)
Quite	15 (7.5)

Extremely	9 (4.5)
Current versus childhood religiosity or spirituality	
Less	87 (44.6)
Equal	65 (33.3)
More	43 (22.1)
HIV status	
HIV positive	29 (14.4)
HIV negative	145 (72.1)
HIV status unknown	27 (13.4)
Social support from LGBT communities	
All	6 (3.0)
More than half	46 (23.1)
About half	37 (18.6)
Less than half	56 (28.1)
None	54 (27.1)
Been told they have the following mental health condition by a health care provider*	
Addictions	12 (6.4)
Adjustment disorder	6 (3.2)
Anxiety	55 (29.1)
Attachment disorder	5 (2.7)
Attention deficit disorder	8 (4.2)
Attention deficit hyperactivity disorder	7 (3.7)
Bipolar disorder	11 (5.8)
Borderline personality disorder	6 (3.2)
Depression	65 (34.4)
Dissociative identity disorder	2 (1.1)
Eating disorder	9 (4.8)
Insomnia	15 (8.0)
Obsessive compulsive disorder	9 (4.8)
Paranoia	4 (2.1)
Psychosis	4 (2.1)
Schizophrenia	4 (2.1)
Stress-related disorder	25 (13.2)
Other mental health condition	2 (1.1)
Prior experiences with a mental health service provider (MHSP), ever*	
MHSP made negative comments or gestures about GLBT people	9 (4.6)
MHSP made negative comments or gestures related to gender, race, religion, culture, ethnicity	4 (2.0)
MHSP belittled or made fun of respondent for being GB-MSM	6 (3.0)
MHSP refused to see or ended care because of respondent's sexual orientation	5 (2.5)
MHSP refused to see or ended care because of respondent's gender, race, religion, culture, or ethnicity	2 (1.0)
MHSP refused to discuss or address health concerns related to being GB-MSM	7 (3.6)
MHSP made assumptions about respondent or their health based on their sexual orientation	17 (8.6)
MHSP assumed they were straight/heterosexual	31 (15.7)
MHSP assumed respondent had a lot of sex partners based on their sexual orientation	9 (4.6)
History of being trans	
Yes	5 (2.5)
No	194 (97.5)

*Experiences with a mental health service provider were part of a check-all-that-apply question, frequencies will not add up to 100%

Table 5.3 – Summary of scale variables from the Health in Middlesex Men Matters Survey: gay, bisexual and men who have sex with men in London-Middlesex, Ontario

Scale Variable	Range (scale)	Range (responses)	Mean	Standard Deviation
Social support (from friends)	1 – 7	1.0 – 7.0	5.48	1.3756
Social support (from family)	1 – 7	1.0 – 7.0	4.74	1.6694
Social support (from significant other(s))	1 – 7	1.0 – 7.0	5.45	1.6014
Internalized homonegativity	1 – 7	1.2 – 6.3	3.04	0.8984
Experiences of homophobia	0 – 33	0 – 33.0	11.22	6.5256
Attitudes toward seeking psychological help	0 - 15	0 – 15.0	6.86	2.6226

5.3.2 Modelling mental health service use within the past 12 months

Crude associations from the blockwise regression modelling process of factors associated with using mental health services within the past 12 months are summarized in Table 5.4.

Crude associations

In unadjusted analysis, several factors were significantly associated with utilizing mental health services within the past 12 months. Compared to those not currently attending school, those attending school part-time were 85% more likely (PR: 1.85; 95% CI: 1.19,2.88) to have used mental health services. With every standard deviation increase on the *Attitudes toward receiving professional psychological help* scale, participants were 21% more likely (PR: 1.21; 95%CI: 1.03, 1.42) to have utilized services. With every one standard deviation increase on the *Experiences of homophobia* scale, respondents were 30% more likely (PR: 1.30; 95%CI: 1.12, 1.52) to have utilized services within the past 12 months. An increase of one standard deviation in social support from friends (PR: 0.78; 95%CI: 0.67, 0.92) and family (PR: 0.82; 95%CI: 0.69, 0.96) were both associated with a lesser likelihood of accessing mental health services. Prior negative experience with a MHSP was associated with an 80% greater likelihood of utilizing mental health services (PR: 1.80; 95%CI: 1.25,2.60). Those more religious or spiritual currently compared to their childhood were more likely (PR: 2.01; 95%CI: 1.23,3.30) to utilize mental health services. Respondents with "poor" (PR: 8.05; 95%CI: 3.38,19.18), "fair" (PR: 6.47; 95%CI: 2.73,15.34), or "good" (PR: 5.16; 95%CI: 2.16,12.33) self-reported mental health were all more likely to access services within the past 12 months, compared to those indicating "excellent" mental health. Participants indicating they were HIV-positive were 85% more likely (PR: 1.85; 95%CI: 1.25,2.72) to have used mental health services.

Predisposing Model

Using the p=0.30 cut-off in the logistic backward elimination stage, birth country, employment status, *Attitudes toward receiving professional psychological help*, and *Experiences of homophobia* were retained, with birth country and experiences of homophobia significant at p<0.05. While *Experiences of homophobia* retained the direction seen in the crude association, birth country was newly significant at p<0.05, with those born outside Canada were 84% less likely (aPR:0.16; 95%CI: 0.03,0.96) to have utilized mental health services within the prior 12 months, compared to those born in Canada.

Predisposing and Enabling model

After adding Enabling factors to those retained in the prior step, birth country, employment status, household income, insurance availability for mental health services, social support from friends, access to a primary care provider, prior negative experience with a MHSP, current versus childhood religiosity or spirituality (controlling for childhood religiosity or spirituality), and internalized homonegativity were all retained (p=0.20 cut-off). In this model, birth country retained the direction of association seen in the prior level. The statistically significant directions for prior negative experiences with a MHSP, current versus childhood religiosity or spirituality, social support from friends, and *Internalized Homonegativity* remained the same as those seen at crude levels. Those with household per person incomes of less than $15,000 per year were 75% more likely (aPR: 2.75; 95%CI: 1.25,6.08) to have accessed mental health services compared to those with household incomes of "$30,000-$49,999" per person. Those without a primary care provider were 57% less likely (aPR:0.43; 95%CI: 0.23,0.78) to have used mental health services within the past 12 months.

Predisposing, Enabling, and Need model

With the addition of Need variables to the previous model, birth country, household income, access to a primary care provider, prior negative experiences with a MHSP, current versus childhood level of religiosity or spirituality, *Internalized Homonegativity*, self-perceived mental health, and respondents having ever been told they have a mental health condition remained in the third model (p=0.15 cut-off). Birth country, household income per person, and prior negative experiences with a MHSP were no longer significant at p=0.05. Access to a primary care provider, current versus childhood religiosity or spirituality, and *Internalized Homonegativity* retained the direction of association seen in the previous model,

whereas the direction for self-perceived mental health and respondents being told they have a mental health condition were both similar to those seen at crude levels.

In the backward elimination step, using logistic regression, the addition of all levels of predictors resulted in a Nagelkerke maximum rescaled R^2 value of 0.5533, a strong increase from the first step (Predisposing variables only) value 0.1651, indicating the variables provide a somewhat strong explanatory power for our outcome.

Table 5.4 – Poisson regression results for predicting mental health service utilization within the past 12 months: gay, bisexual and men who have sex with men in Middlesex County, Ontario, Canada

	Crude Associations (95% CI)		Model 1[a] $R^{2\,d}$ = 0.1651		Model 2[b] $R^{2\,d}$ = 0.3940		Final Model[c] $R^{2\,d}$ =0.5533	
PREDICTORS	**PR[e] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**
PREDISPOSING FACTORS								
Age		0.879						
5 year increase	1.00 (0.94, 1.07)							
Ethnicity		0.654						
Aboriginal	1.17 (0.49, 2.82)							
Non-Aboriginal white	1.00							
Non-Aboriginal racialized	0.72 (0.33, 1.57)							
Birth Country		0.054		**0.045***		**0.0004***		0.099
Canada	1.00		1.00		1.00		1.00	
Other	0.15 (0.02, 1.03)		**0.16 (0.03, 0.96)***		**0.11 (0.03, 0.37)***		0.24 (0.04, 1.30)	
Education		0.366						
High school not complete	1.09 (0.47, 2.54)							
High school graduate	1.31 (0.71, 2.39)							
Some postsecondary	1.43 (0.95, 2.15)							
Postsecondary graduate	1.00							
Employment status		0.201		0.170		0.688		
Full-time	1.00		1.00		1.00			
> 1 part-time	0.86 (0.36, 2.08)		1.27 (0.78, 2.08)		0.75 (0.32, 1.76)			
1 part-time	1.35 (0.82, 2.22)		0.73 (0.31, 1.67)		1.20 (0.66, 2.20)			
None	1.53 (0.99, 2.35)		1.50 (0.97, 2.31)		1.15 (0.72, 1.82)			
Student		**0.015***						
Attending school full-time	0.91 (0.54, 1.54)							
Attending school part-time	**1.85 (1.19, 2.88)***							
Not currently attending school	1.00							
Marital & relationship status		0.704						
Single	1.00							
Married to/Common-Law with a man	0.81 (0.50, 1.29)							
Married to/Common-Law with a woman	0.44 (0.07, 2.65)							
Unmarried, in a monogamous relationship	0.98 (0.59, 1.64)							
Unmarried, in a non-monogamous relationship	1.21 (0.64, 2.29)							
Attitude towards seeking psychological help		**0.018***		0.085				
1 standard deviation increase	**1.21 (1.03, 1.42)***		1.17 (0.98, 1.39)					
Sexual orientation identity		0.489						
Homosexual	1.00							
Bisexual	1.37 (0.82, 2.29)							
Rather not say	0.96 (0.19, 4.83)							
Experiences of Homophobia		**0.001***		**0.004***				
1 standard deviation increase	**1.30 (1.12, 1.52)***		**1.25 (1.07, 1.46)***					
ENABLING FACTORS								
Annual household income (per person)		0.163				**0.027***		0.445

< $15,000	1.60 (0.92, 2.78)				**2.75 (1.25, 6.08)***		1.91 (0.87, 4.19)	
$15,000-$29,999	1.27 (0.76, 2.13)				2.12 (0.94, 4.80)		2.05 (0.95, 4.41)	
$30,000-$49,999	1.00				1.00		1.00	
$50,000-$79,999	0.83 (0.39, 1.78)				1.63 (0.70, 3.79)		1.64 (0.75, 3.58)	
$80,000 +	0.70 (0.29, 1.68)				0.96 (0.35, 2.64)		1.62 (0.57, 4.55)	
Insurance availability for mental health services		0.097				0.103		
Yes	1.00				1.00			
No	0.70 (0.46, 1.07)				0.70 (0.46, 1.07)			
Social support (from friends)		**0.002***				**0.027***		
1 standard deviation increase	**0.78 (0.68. 0.92)***				**0.81 (0.67,0.98)***			
Social support (from family)		**0.016***						
1 standard deviation increase	**0.82 (0.69, 0.96)***							
Social support (from significant other)		0.601						
1 standard deviation increase	0.95 (0.80, 1.14)							
Access to primary care provider		0.324				**0.006***		**0.031***
Yes	1.00				1.00		1.00	
No	0.72 (0.37, 1.39)				**0.43 (0.23, 0.78)***		**0.53 (0.30, 0.94)***	
Social support (% from GLBT communities)		0.875						
All	0.41 (0.07, 2.57)							
More than half	0.86 (0.49, 1.50)							
About half	1.00							
Less than half	0.84 (0.49, 1.43)							
None	0.91 (0.54, 1.54)							
Prior negative experience with a MHSP		**0.002***				**0.012***		0.313
Yes	**1.80 (1.25, 2.60)***				**1.72 (1.13, 2.61)***		1.25 (0.81, 1.92)	
No	1.00				1.00		1.00	
Current versus childhood religiosity/spirituality		**0.005***				**0.0001***		**0.004***
Less presently	1.08 (0.62, 1.87)				0.82 (0.47, 1.45)		0.91 (0.58, 1.44)	
Equally	1.00				1.00		1.00	
More presently	**2.01 (1.23, 3.30)***				**2.11 (1.33, 3.33)***		**1.91 (1.22, 3.00)***	
Internalized homonegativity		**0.002***				**0.007***		**0.003***
1 standard deviation increase	**1.29 (1.09, 1.52)***				**1.35 (1.09, 1.68)***		**1.35 (1.12, 1.62)***	
NEED FACTORS								
Self-perceived mental health		**<0.0001***						**0.001***
Excellent	1.00						1.00	
Very good	2.12 (0.84, 5.33)						1.82 (0.77, 4.33)	
Good	**5.16 (2.16, 12.33)***						**3.40 (1.51, 7.63)***	
Fair	**6.47 (2.73, 15.34)***						**3.29 (1.43, 7.58)***	
Poor	**8.05 (3.38, 19.18)***						**4.64 (2.05, 10.52)***	
Respondent been told they have mental health condition		**<0.0001***						**0.005***
Yes	**4.39 (2.68, 7.20)***						**2.12 (1.26, 3.56)***	
No	1.00						1.00	
HIV Status		**0.007***						
HIV positive	**1.85 (1.25, 2.72)***							
HIV negative	1.00							
HIV status unknown	1.05 (0.59, 1.89)							
History of being trans		0.833						

Yes No	1.12 (0.38, 3.35) 1.00							

[a] Model including only predisposing variables
[b] Model including predisposing and enabling variables
[c] Model including predisposing, enabling, and need variables
[d] Nagelkerke's maximum rescaled R^2 for multivariable model (logistic)
[e] Prevalence ratio
[f] Confidence Interval
[g] Adjusted prevalence ratio
[*] significant at the $\alpha = 0.05$ level

5.4 Discussion and Conclusions

This exploratory analysis identifies socio-demographic and community-relevant factors to consider when delivering mental health services with GB-MSM and emphasizes a need to develop tailored community-level interventions to address issues facing these communities.[38] Results should be interpreted in the context of the Canadian environment granting equal rights to sexual minorities at structural levels that do not necessarily translate fully to acceptance and inclusion at community and individual levels, where homophobic experiences remain prevalent.

We found higher levels of internalized homonegativity (at all stages of the modelling process) and (at the crude and predisposing level) experiences of homophobia were both individually associated with increased likelihoods of using mental health services within the past 12 months. Experiences of homophobia did not remain significant after the inclusion of enabling variables, including internalized homonegativity, prior negative experience with a mental health provider, which, combined, could provide more explanatory power to predict mental health service use as compared to the singular scale variable of lifetime experiences of homophobia. Internalized homonegativity – the negative perceptions of homosexuality internalized by sexual minority individuals - has been linked to mental health outcomes such as depression, dysthymia, and likelihood of being in therapy.[39] Stigmatizing experiences, (e.g. verbal harassment), have also previously been associated with increased need for, and use of health and social services.[40,41] Countries with equal rights laws for, and greater acceptance of sexual minorities tend to have lower levels of overall internalized homonegativity.[42] Greater service utilization in our results, despite these experiences, could demonstrate resilience for the GB-MSM in our sample. Resilience comprises the "beneficial behavioural patterns, functional competence, and cultural capacities that individuals, families, and communities utilize under adverse circumstances".[43] This resilient inner strength should be considered a vital counteracting force of minority stress, as outlined by Meyer.[6] Our results show a willingness to access mental health services perhaps because of and despite higher levels of homophobic experiences and internalized stigma.

What steps can mental health and social service providers take to better meet the needs of their GB-MSM clients in the face of this homophobia? They can understand and integrate into their practices an understanding of minority stress; how internalized homonegativity, homophobia, and heterosexism affect sexual minority men[5], and how these fit into this

framework to cause potential adverse mental health outcomes.[11] Providers should also be aware of and understand terminology related to, and used by sexual minority groups.[44] Avoiding interventions reinforcing internalized homonegativity, an awareness of remarks that could be interpreted as homophobic or heterosexist, and the use of inclusive language and appropriate questions to enable men to disclose sexual orientation comfortably and without apprehension are also advised.[5,44] All the while, gay clients should be viewed through a lens that recognizes their sexuality and orientation as one part of a whole.[5,45,46] Additionally, natural strengths and resilience of GB-MSM could be harnessed by providers, examples of which have been abundantly noted in scientific and historical literature.[47] An overall acceptance of sexual orientation diversity, and personal identity acceptance, consolidation, and integration of one's sexual identity into one's larger world and relationships have all been identified as resilience traits.[5,48-50] Finally, providers can assist at a community level to design programs to reduce homophobia and support the development of sexual identity, such as in school-based interventions (e.g. gay-straight alliances, non-discrimination policies and anti-bullying campaigns)[51] to positively contribute to the well-being of young GB-MSM.

Additionally, we found a higher level of current religiosity (versus childhood levels) was associated with a greater likelihood of accessing a mental health professional within the past 12 months, compared to those with no difference in childhood and present levels. Religiosity has been closely linked to overt experiences of homophobia and internalized homonegativity. While our sample size does not allow us to make any comparisons between specific religious denominations, some implications can be noted. Faith groups less accepting of sexual minorities can lead men to experience rejection or feel unwelcomed.[52] Negativity in religion can lead to marginalization and other minority stressors, creating internal conflicts leading to psychological distress in GB-MSM.[52] Wilkerson (2012) noted specifically that Christian GB-MSM experience struggles when attempting to merge sexual and religious identities, due to their incompatibilities.[53] Conversely, belonging to a religion that affirms and accepts sexual minorities can contribute to resilience in GB-MSM, including those living with HIV/AIDS, leading to health-promoting behaviours.[52,53] More modernized, urbanized, post-materialistically-oriented countries with less religious influence tend to be more accepting towards homosexuality.[42,54] In addition to understanding the policy climate as it relates to sexual minorities, when working with GB-MSM clients, mental health providers should

recognize religious influences and potential associations with internalized homonegativity.[55] Providers should not advocate for GB-MSM to abandon their religion or beliefs, but connect men with religious LGBT organizations that can assist in integrating religiosity and sexuality, offering social support in a faith context, and encourage GB-MSM to challenge thoughts related to shame.[53] Due to the cross-sectional nature of our data, additional interpretations are possible. Conversely, it is possible that those with more mental health challenges may seek more than one source of help for solutions (e.g. overcoming feelings of internalized homonegativity and integrating religious and sexual orientation identities), turning to both religion and more formal mental health services as sources for support.

This exploratory analysis also suggests that those born outside of Canada were much less likely to access mental health services within the past 12 months as compared to Canadian-born GB-MSM. Access to and utilization of health services for some immigrant groups are different compared to Canadian-born patients, which can have repercussions for preventive care.[56] One interpretation of our results would suggest GB-MSM born outside of Canada have less need for mental health services. Some studies have found that, in Canadian immigrants, mental health conditions are less common, initially upon immigration. A review of Canadian studies that used population-level data found new immigrants had lower levels of mental health concerns, but these levels increase to ones similar to Canadian-born persons over time.[57] This is primarily explained by the "healthy immigrant effect," which is a function of immigration selection process (both self-selection and Canadian immigration policy).[58] Reasons for not accessing mental health services could include fundamental barriers related to immigrants and mental health services. These include differences in language[56] and culture,[59] and immigrants not seeing themselves as an immediate priority.[56] Further, there are specific issues that apply specifically to LGBT newcomers. LGBT newcomers experience additional, unique forms of stigma, including intersecting levels of homophobia and racism.[5,60] The implications for mental health and social service providers in this instance are clear and include adopting broader understandings of GB-MSM newcomers' experiences and what sexual orientation means for different ethno-cultural backgrounds, having LGBT-friendly professional interpreters available, and a mutual sharing of resources between LGBT-friendly mental health services and agencies serving newcomer populations.[5,59]

One additional finding found respondents without access to a primary care provider, at the enabling and need modelling stages, were less likely to have accessed mental health services within the past 12 months. Primary care can be a gateway for patients to additional services. This finding is likely explained by nature of primary care in Ontario, where primary care settings are usually the first point of contact for individuals seeking help for mental health issues.[61] Further, there has been a progressive shift in service provision in Ontario towards family health teams comprised of interdisciplinary teams (including mental health workers and social workers) in one setting,[62] which could explain the association seen here.

These results should be considered alongside their strengths and limitations. First, our data were collected outside of the larger metropolitan cities, where most studies of GB-MSM have been conducted. Since experiences of minority stress are "informed by geographic variations in rurality, religious climate, or discriminatory policies,"[63] our study adds a new, non-metropolitan perspective to the published research. Historically, research with GB-MSM has been conducted through sampling at "gay" venues. Our strategy of survey promotion directed efforts towards more traditional venues, but also used smartphone apps and web-based social networks for promotion. Unfortunately, this method also does not allow for calculation of a response rate for the questionnaire. Further, the nature of a convenience sample can potentially result in unknown biases that cannot be adjusted for statistically. Due to the cross-sectional nature of our data, we are also not able to identify any causal associations, as it is not always clear which factors precede others. Lastly, the sample size we obtained restricts the power to identify more precise effects and to undertake further subgroup analyses, such as an examination of specific religious denominations.

Our results highlight some of the unique community-relevant factors that affect mental health service utilization for GB-MSM and suggest implications for mental health service provision and tailored interventions that incorporate these factors. Stigma, whether experienced and/or internalized, has tremendous impacts on health and health care utilization. Future research should examine the unique experiences of homophobia, internalized homonegativity, and religion for Canadian GB-MSM, using a lifecourse perspective to examine how these change over time. Despite protections at legislative levels, stigma can manifest at other levels, in communities, in work, family, or school environments[42] and should be addressed by mental health professionals to ensure equitability and positive mental health development in Canadian GB-MSM.

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CHAPTER 6

HIV testing service utilization in gay, bisexual, and other men who have sex with men living in an average Canadian city

6.1 Introduction

After over 30 years of prevention efforts, Canadian gay, bisexual, and other men who have sex with men (GB-MSM) remain disproportionately affected by HIV. High incidence and prevalence rates persist amidst widely available and growing efficiency in HIV testing methods. Two thirds of positive HIV tests results in adult males in 2012 in Canada (65.1%) and in the province of Ontario (64.5%) in 2011 were classified under "MSM" exposure categories.[1,2] Regionally, in Southwestern Ontario, 48.3% of all HIV diagnoses in 2011 were in MSM.[2]

HIV testing is a fundamental public health strategy to prevent HIV infection.[3] The Public Health Agency of Canada recommends HIV testing within three to six months of engaging in high-risk activity (e.g. unprotected anal sex with someone known to be HIV positive)[4] and the Centers for Disease Control in the United States recommend *all* sexually active GB-MSM test annually.[5] In Ontario, HIV testing is available to most at no cost, with results available within two weeks, or through point-of-care testing with immediate results.[6] Tests can be requested through any doctor, nurse practitioner, or midwife in Ontario, or can be completed anonymously at dozens of specialized testing sites.[6]

Despite the testing availability and ongoing HIV epidemic, in 2008, 19% of HIV-positive MSM Ontarians were estimated to be unaware they were positive.[7] Late diagnosis of HIV can cause serious health complications, increasing health care costs.[8] Promoting early, regular testing in groups at higher risk helps prevent transmission from those unaware of their status and consequently more likely to unknowingly transmit the virus.[9] Early detection leads to timely treatment and care[10], reduces morbidity[11] and mortality[4], and can decrease subsequent HIV-related sexual risk behaviour[12] through reinforcement of regular negative testing.[13]

Documented factors associated with less HIV testing in GB-MSM include younger age and less formal education[14]; greater fear of HIV[15]; less gay community connection and social attachment[14]; higher levels of internalized homonegativity[16]; not having tested

in a community setting[17]; identifying as bisexual rather than gay[18] and not disclosing same sex attractions[16]; and increased use of social networking websites[19].

In Canada, few studies have examined HIV testing in GB-MSM residing outside the largest metropolitan areas, where testing services serving GB-MSM communities are notably different. Demographically, these large metropolitan centres are similar to 15.65% of Canada's population.[20] However, Statistics Canada estimates that the largest group of Canadians (33.85%) live in mid-size cities surrounding rural areas with average proportions of immigrants and Aboriginal residents.[20] Middlesex-London, the region of this particular study, is part of this "peer group."[20] This paper investigates demographic and socio-behavioural factors associated with not accessing HIV testing services in Middlesex County, and explores descriptive reasons for this, discussing implications for HIV testing promotion.

6.2 Methods

The Health in Middlesex Men Matters (HiMMM) Project, a partnership of GB-MSM community members, allies, organizations, and researchers examined factors associated with health service access, including HIV testing.

6.2.1 Study sample

Eligible participants: 1) were 18 years or older; 2) lived in Middlesex County; and 3) identified as gay, bisexual, or as a man who has had one or more sexual experiences with another man, or has had strong and continual sexual attractions to one man or men.

6.2.2 Data collection

Using survey design guidelines,[21,22] a cross-sectional questionnaire was designed, and then pre-tested and pilot-tested by HiMMM and GB-MSM community members. To collect data for this convenience sample, online listservs, social network websites and smartphone applications were used for promotion, as was informal communication between local men. Participants (n=202) completed the online questionnaire in 2011 and 2012, and received a $10 token on completion, with a chance to win prizes if other eligible participants were referred. For this analysis, the sample was restricted to HIV-negative or HIV-status unknown respondents with any sexual activity over their lifetime (n = 171).

6.2.3 Theoretical framework

A conceptual model was developed using Gelberg's elucidation of Andersen's Behavioral Model of Health Services Use.[23] Predisposing (individual characteristics), enabling (making health services available), and need/illness (necessitating the use of health services) factors were further classified into traditional (affecting everyone) and vulnerable factors (affecting the vulnerable population being studied), chosen based on community and research team discussions and literature reviews (Figure 6.1).

6.2.4 Measures

Demographics

Questionnaire items on age, ethnicity, education, student status, marital and relationship status, sexual orientation identity, birth country, and household income were adapted from the Canadian Community Health Survey (CCHS).[24] Ethnicity was determined from a check-all-that-apply question. Those checking "Aboriginal" formed one category. Participants identifying as white Canadian, American, and/or European – with no others checked – formed another. Those indicating identities other than "white Canadian, American, or European", but not checking "Aboriginal", formed a "non-Aboriginal racialized" category. Combining responses to relationship and marital status items, participants were classified as single; married or living common-law with a man, or woman; or not married or common-law, but in monogamous or non-monogamous relationships. Midpoints of range responses to annual household income[25], adjusted for inflation from 2009-2010 values to 2012 values, were divided by the number of individuals supported to establish annual household income per person.

Health and sexual variables

Items on insurance availability and access to a primary care provider (PCP) were adapted from the CCHS.[24] Negative experiences with a PCP were captured with a check-all-that-apply item developed by HiMMM and then dichotomized for regression to indicate ever having a negative experience with a PCP. Items on HIV-related sexual risk, testing, HIV status, and reasons for not testing were adapted from Canada's M-Track questionnaire.[26] HIV status was coded as positive, negative, or unknown. Dates of respondents' last tests were subtracted from questionnaire completion dates to identify whether testing occurred in the past six months. Reasons for not testing were collected

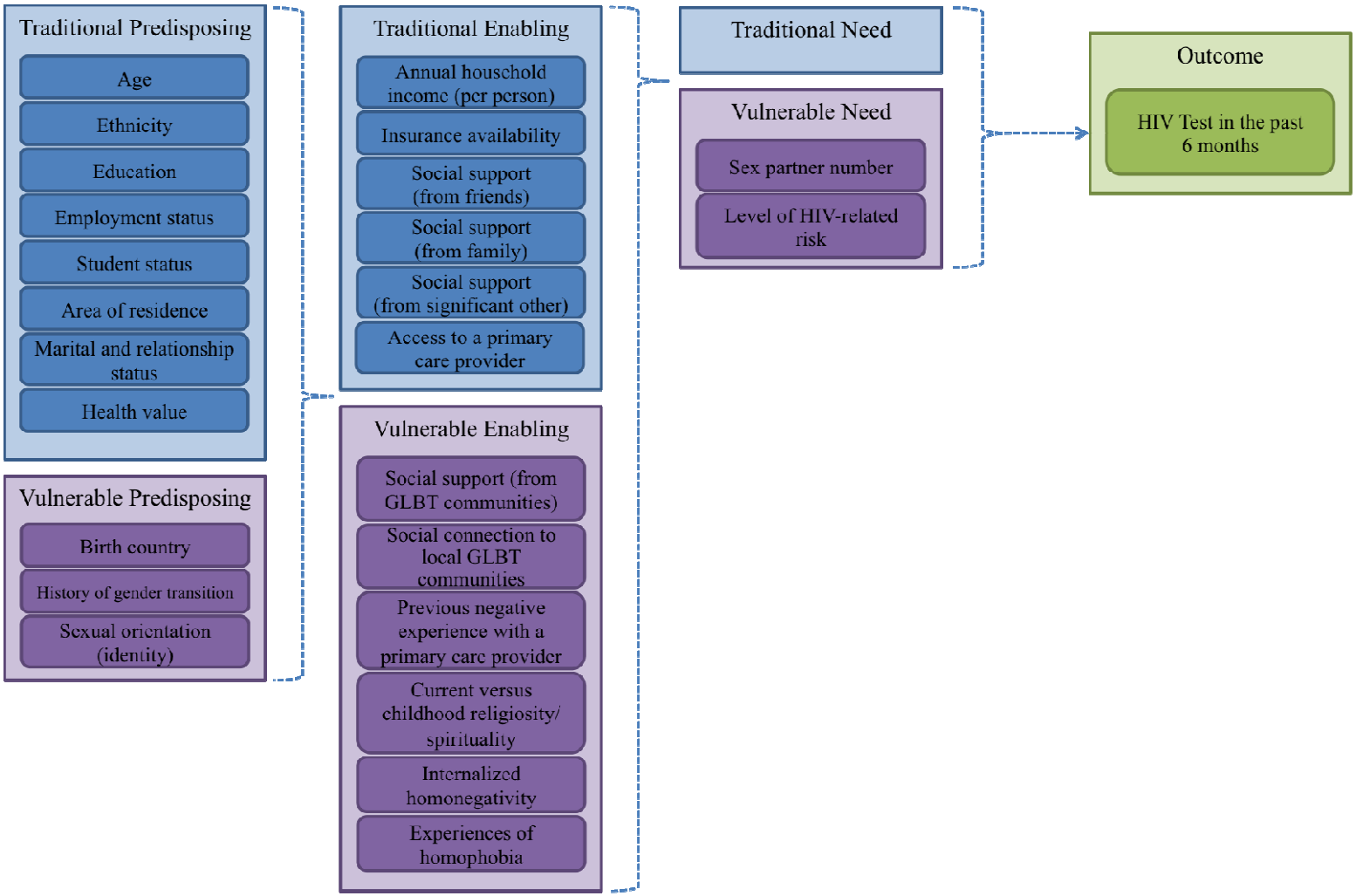

Figure 6.1: Theoretical model for utilization of HIV testing services within the past 6 months by gay, bisexual, and other men who have sex with men living in Middlesex County, Ontario

using a "check-all-that-apply" response option. Variables describing sexual behaviour within the past six months (oral, anal or vaginal sex; barrier use; partner HIV status) were used to create a composite measure of HIV-related sexual risk, defined as any unprotected anal sex outside of an HIV-concordant monogamous relationship.

Scale measures

The importance placed on health was measured using the *Health Value Scale*.[27] A short *Internalized Homonegativity Scale* combined three dimensions of "Public Identification as Gay," "social comfort with gay men," and "sexual comfort with gay men" measured this construct.[28] Diaz's *Experiences of Homophobia Scale* was used to assess a range of interpersonal homophobia experiences.[29] Social support from family, friends, and significant others was measured using the *Multidimensional Scale of Perceived Social Support*.[30]

6.2.5 Statistical Analysis

Analyses were conducted using SAS 9.3.1.[31] Analyses were limited to participants indicating they had sex at least once over their lifetime and who had an HIV status of unknown or negative. Frequencies of socio-demographic, health-related, and HIV testing access variables were calculated. Based on tolerance values and variance inflation factors, no multicollinearity was found in regression analyses. Regression models were built using logistic and modified Poisson methods. The latter is preferable for calculating valid prevalence ratios when outcomes are not rare.[32] Crude associations were calculated using modified Poisson. Backward elimination procedures using logistic regression were first performed for variable elimination since these procedures were not available for modified Poisson.[33] Elimination removed predisposing variables not significant at $p < 0.30$. Retained variables were fit using modified Poisson to calculate adjusted prevalence ratios. Enabling, then need/illness factors were modelled sequentially, with respective cut-points of p=0.20 and p=0.15. Higher p-values were chosen over traditional ones (i.e. p=0.05) to avoid eliminating important variables.[34] For crude associations and associations of retained model variables, p-values and 95% confidence intervals were calculated.

6.3 Results

6.3.1 Demographic characteristics

Demographic characteristics are summarized in Table 6.1. Three quarters of respondents were under 45 years old (73.1%). Most were classified as white (86.6%), with 9.4% non-Aboriginal racialized and 4.1% Aboriginal. Most had post-secondary degrees (58.5%), and 8.2% were currently attending school part-time, and 21.1% full-time. Almost half (45.9%) were single and not married, and 28.2% were married or living common-law with another man. Fewer were not married and in monogamous relationships (15.9%) or in non-monogamous relationships (6.5%).

Table 6.1 - Sample demographics from the Health in Middlesex Men Matters Survey: gay, bisexual and men who have sex with men in London-Middlesex, Ontario

	Subsample of those having had sex at least once over lifetime (n=171) n (%)
Age group	
18-24	45 (26.3)
25-34	56 (32.8)
35-44	24 (14.0)
45-54	28 (16.4)
55+	18 (10.5)
Ethno-racial group	
Non-Aboriginal white	148 (86.6)
Non-Aboriginal racialized	16 (9.4)
Aboriginal	7 (4.1)
Ethnic or cultural identity indicated*	
White Can/Amer/Euro	154 (90.1)
Aboriginal	7 (4.1)
East/South/Southeast Asian	6 (3.5)
Latin American	4 (2.3)
Black Can/Amer/African/Caribb	4 (2.3)
Middle Eastern	2 (1.2)
Indo-Caribbean	3 (1.8)
Birth country	
Canada	156 (91.2)
Other	15 (8.8)
Education	
High school not completed	8 (4.7)
High school completed	14 (8.2)
Some postsecondary	49 (28.7)
Postsecondary graduate	100 (58.5)
Household Income/per person	
< $15,000	27 (16.4)
$15,000-$29,999	49 (29.7)
$30,000-$49,999	44 (26.7)
$50,000-$79,999	24 (14.6)
$80,000 +	21 (12.7)
Employment status	
Full-time job	107 (62.6)
More than one part-time job	14 (8.2)
One part-time job	22 (12.9)

No job	28 (16.4)
Area of residence	
Non-rural	166 (97.6)
Rural	4 (2.4)
Student status	
Not attending school	121 (70.8)
Attending school full-time	36 (21.1)
Attending school part-time	14 (8.2)
Marital/Relationship status	
Single, not married	78 (45.9)
Married/Living common-law with a man	48 (28.2)
Married/Living common-law with a woman	6 (3.5)
In a monogamous relationship, not married	27 (15.9)
In a non-monogamous relationship, not married	11 (6.5)
Sexual orientation identity	
Homosexual	153 (89.5)
Bisexual	17 (9.9)
Don't know/Rather not say	1 (0.6)

*Ethnic or cultural identity was assessed using a check-all-that-apply question, frequencies will not add up to 100%

6.3.2 Health and sexual behaviour variables

Health and sexual behaviour variables are summarized in Table 6.2. Many had a PCP (87.0%) and 37.1% had prior negative experiences with a PCP. Most participants considered themselves less (44.3%) or equally (35.9%) religious or spiritual compared to their childhood. The majority felt a social connection to LGBT communities (51.7%) with 25.3% indicating they received more than half of their overall social support from LGBT communities. Almost two thirds (64.1%) had fewer than six sex partners during the past six months, and 4.9% had over 20. With regard to contextualized level of HIV risk, 73.7% had low or negligible risk with 21.6% having higher risk. Scale measures are summarized in Table 6.3.

Table 6.2 - Health, sexual, and psychosocial variables from the Health in Middlesex Men Matters Survey: gay, bisexual and men who have sex with men in London-Middlesex, Ontario

	Subsample of those having had sex at least once over lifetime (n=171) n (%)
Has a primary care provider (PCP)	
Yes	147 (87.0)
No	22 (13.0)
Previous negative experiences with a PCP	
Yes	62 (37.1)
No	105 (62.9)

Current versus childhood religiosity & spirituality	
Less	74 (44.3)
Equal	60 (35.9)
More	33 (19.8)
Social connection to LGBT communities	
1 Not at all connected	22 (12.9)
2	15 (8.8)
3	9 (5.3)
4 Neutral	36 (21.2)
5	42 (24.7)
6	24 (14.1)
7 Very connected	22 (12.9)
Social support from LGBT communities	
All	5 (2.9)
More than half	38 (22.4)
About half	34 (20.0)
Less than half	52 (30.6)
None	41 (24.1)
HIV test in the past 6 months	
Yes	63 (36.8)
No	108 (63.2)
Sex partners in the past 6 months	
0	6 (3.7)
1	47 (28.7)
2-5	52 (31.7)
6-10	36 (22.0)
11-20	15 (9.2)
>20	8 (4.9)
Level of HIV risk (contextualized)	
No risk	8 (4.7)
Low/Negligible Risk	126 (73.7)
High risk	37 (21.6)

Table 6.3 – Summary of scale variables for subsample of gay, bisexual, and other men who have sex with men who have ever been sexually active

Scale Variable	Range (scale)	Range (responses)	Mean	Standard Deviation	Cronbach's alpha
Social Support (from friends)	1 – 7	1.0 – 7.0	5.58	1.33	0.9501
Social Support (from family)	1 – 7	1.0 – 7.0	4.86	1.59	0.9461
Social Support (from significant other(s))	1 – 7	1.0 – 7.0	5.52	1.59	0.9601
Internalized Homonegativity	1 – 7	1.2 – 6.3	2.98	0.91	0.8065
Experiences of Homophobia	0 – 33	0 – 33.0	10.64	6.23	0.8156
Health Value	0 to 16	3.0 to 16.0	11.16	3.06	0.7113

6.3.3 Predictors of not accessing HIV testing services within the past six months

Results of the blockwise regression modelling process of factors associated with being untested within the past six months are summarized in Table 6.4. Predisposing factors significantly associated with being untested were age, employment status, marital & relationship status, sexual orientation identity, social support from friends, social connection to LGBT communities, current versus childhood religiosity/spirituality, and

level of HIV-related risk. With every five-year age increase, respondents were 7% (PR: 1.07; 95% CI: 1.04, 1.10) more likely to be untested. Compared to those having completed postsecondary education, high school graduates were 59% (PR: 0.41; 95% CI: 0.18, 0.94) less likely to be untested. Those with no jobs were 49% (PR: 1.49; 95% CI: 1.22, 1.83) more likely to be untested compared to those with full-time jobs. Compared to single participants, those married to or living common-law with another man were 47% (PR: 1.47; 95%CI: 1.16, 1.88) more likely to be untested. Those who were unsure or would rather not indicate their sexual orientation identity were 61% (PR: 1.61; 95%CI: 1.42, 1.82) more likely to be untested within the past 6 months. Participants with more social support from friends (PR: 0.90; 95%CI: 0.82, 0.99) and more social connection to LGBT communities (PR: 0.92; 95%CI: 0.87, 0.97) were less likely to be untested. Those with less current religiosity or spirituality compared to their childhood (compared to those with equal levels) were 42% less likely (PR: 0.58; 95%CI: 0.43, 0.78) to be untested, controlling for baseline religiosity/spirituality levels. And compared to those with no level of HIV risk, those with low/negligible risk and high risk levels were 40% (PR: 0.60; 95% CI: 0.52, 0.69) and 35% (PR: 0.65; 95% CI: 0.51, 0.82) less likely, respectively, to be untested.

Using the p=0.30 cut-off in the logistic backward elimination stage, age, education, employment, and health value remained, with the first three retaining the directions seen in the crude associations. Adding enabling factors, age, education, employment, health value, insurance availability, social support from friends and significant others, social connection to LGBT communities, current versus childhood religiosity or spirituality, and experiences of homophobia were retained (p=0.20 cut-off). In the predisposing-enabling model, education, employment status, social connection to LGBT communities, and current versus childhood religiosity or spirituality retained the direction and significance seen in the crude associations. After the inclusion of “need” variables, none remained in the final step (p=0.15 cut-off). The third model included all factors from the enabling step, less the insurance available, with the same variables retaining significance.

Table 6.4 – Poisson regression results for predicting not having accessed HIV testing within the past 6 months: gay, bisexual and men who have sex with men in Middlesex County, Ontario, Canada

	Crude Associations (95% CI)		Model 1[a] $R^{2\,d}$ = 0.1696		Model 2[b] $R^{2\,d}$ = 0.4389		Final Model[c] $R^{2\,d}$ = 0.4021	
PREDICTORS	**PR[e] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**	**aPR[g] (95% CI[f])**	**P-value**
PREDISPOSING FACTORS								
Age		**<0.0001**		**0.024***		0.091		0.090
5 year increase	1.07 (1.04, 1.10)		**1.04 (1.01, 1.08)***		1.03 (1.00, 1.07)		1.03 (1.00, 1.07)	
Ethnicity		0.949						
Aboriginal	0.90 (0.47, 1.73)							
Non-Aboriginal white	1.00							
Non-Aboriginal racialized	0.98 (0.66, 1.47)							
Birth Country		0.068						
Canada	1.00							
Other	1.30 (0.98, 1.72)							
Education		0.091		**0.021***		**0.027***		**0.028***
High school not complete	1.07 (0.70, 1.63)		0.81 (0.50, 1.33)		0.92 (0.59, 1.43)		0.91 (0.59, 1.42)	
High school graduate	**0.41 (0.18, 0.94)***		**0.36 (0.17, 0.74)***		**0.32 (0.15, 0.71)***		**0.32 (0.15, 0.72)***	
Some postsecondary	0.82 (0.62, 1.07)		0.80 (0.62, 1.03)		0.84 (0.66, 1.07)		0.84 (0.66, 1.06)	
Postsecondary graduate	1.00		1.00		1.00		1.00	
Employment status		**0.0002***		**0.002***		**0.006***		**0.005***
Full-time	1.00		1.00		1.00		1.00	
> 1 part-time	0.96 (0.59, 1.54)		0.97 (0.64, 1.49)		0.96 (0.65, 1.42)		0.97 (0.66, 1.43)	
1 part-time	0.84 (0.54, 1.31)		0.93 (0.61, 1.41)		0.87 (0.57, 1.33)		0.87 (0.57, 1.32)	
None	**1.49 (1.22, 1.83)***		**1.61 (1.25, 2.08)***		**1.56 (1.18, 2.07)***		**1.57 (1.19, 2.07)***	
Student status		0.208						
Attending school full-time	0.78 (0.56, 1.09)							
Attending school part-time	0.74 (0.43, 1.26)							
Not currently attending school	1.00							
Area of residence		0.641						
Non-rural	1.00							
Rural	0.79 (0.29, 2.12)							
Marital & relationship status		**0.017***						
Single	1.00							
Married to/Common-Law with a man	**1.47 (1.16, 1.88)***							
Married to/Common-Law with a woman	0.91 (0.40, 2.07)							
Unmarried, in a monogamous relationship	1.14 (0.80, 1.62)							
Unmarried, in a non-monogamous relationship	0.99 (0.56, 1.76)							
Health value scale		0.915		0.060		0.055		0.055
1 standard deviation increase	1.01 (0.90, 1.13)		0.89 (0.79, 1.01)		0.89 (0.79, 1.00)		0.89 (0.79, 1.00)	
History of transitioning gender		0.894						
Yes	0.95 (0.46, 1.97)							

No	1.00							
Sexual orientation identity		**<0.0001***						
Homosexual	1.00							
Bisexual	1.14 (0.82, 1.58)							
Rather not say	**1.61 (1.42, 1.82)***							
ENABLING FACTORS								
Annual household income (per person)		0.725						
< $15,000	0.91 (0.60, 1.37)							
$15,000-$29,999	1.13 (0.84, 1.53)							
$30,000-$49,999	1.00							
$50,000-$79,999	1.02 (0.69, 1.50)							
$80,000 +	1.16 (0.81, 1.67)							
Insurance availability		0.650				0.783		
Yes	1.00				1.00			
No	0.90 (0.56, 1.43)				0.86 (0.74, 1.01)			
Social support (from friends)		**0.035***				0.061		0.058
1 standard deviation increase	**0.90 (0.82, 0.99)***				0.86 (0.74, 1.01)		0.86 (0.74, 1.01)	
Social support (from family)		0.786						
1 standard deviation increase	1.02 (0.91, 1.14)							
Social support (from significant other)		0.228				0.074		0.075
1 standard deviation increase	1.08 (0.95, 1.23)				1.16 (0.99, 1.36)		1.16 (0.99, 1.36)	
Social support (% from GLBT communities)		0.789						
More than half to All	1.12 (0.81, 1.53)							
About half	1.00							
Less than half to None	1.07 (0.74, 1.54)							
Social connection to GLBT communities		**0.003***				**0.004***		**0.004***
1 pt increase on Likert scale	**0.92 (0.87, 0.97)***				**0.92 (0.87, 0.97)***		**0.92 (0.87, 0.97)***	
Access to primary care provider (PCP)		0.923						
Yes	1.00							
No	1.02 (0.72, 1.43)							
Prior negative experience with a PCP		0.747						
Yes	0.96 (0.75, 1.23)							
No	1.00							
Current versus childhood religiosity/spirituality		**0.0002***				**0.017***		**0.017***
Less presently	**0.58 (0.43, 0.78)***				**0.69 (0.52, 0.91)***		**0.69 (0.52, 0.91)***	
Equally	1.00				1.00		1.00	
More presently	1.14 (0.91, 1.42)				1.04 (0.84, 1.28)		1.04 (0.84, 1.29)	
Internalized homonegativity		0.090						
1 standard deviation increase	1.09 (0.99, 1.21)							
Experiences of Homophobia		0.088				0.281		0.287
1 standard deviation increase	0.89 (0.79, 1.02)				0.94 (0.85, 1.05)		0.94 (0.85, 1.05)	
NEED FACTORS								
Sex partner number, past 6 months		0.296						

Per 5 partner increase	0.95 (0.87, 1.04)							
Level of HIV-related risk within the past 6 months		**<0.0001***						
No risk	1.00							
Low/negligible risk	**0.60 (0.52, 0.69)***							
High risk	**0.65 (0.51, 0.82)***							

[a] Model including only predisposing variables
[b] Model including predisposing and enabling variables
[c] Model including predisposing, enabling, and need variables
[d] Nagelkerke's maximum rescaled R^2 for multivariable model (logistic)
[e] Prevalence ratio
[f] Confidence Interval
[g] Adjusted prevalence ratio
[*] significant at the $\alpha = 0.05$ level

6.3.4 Reasons for not accessing HIV testing services within the past two years

Limited to respondents not accessing testing with the past two years, common reasons for not testing included feeling at low risk for HIV (69.2%), always having safer sex (51.9%), not having had sex with an infected person (28.9%), and being in relationships (15.5%). Some of the lesser cited reasons included not having a doctor (3.9%), feeling it did not matter if they were infected because of their age (1.9%), and not knowing anyone with HIV or AIDS, so they are not worried (1.9%). Reasons for not accessing HIV testing services within the past 2 years are summarized in Table 6.5.

Table 6.5 – Stated reasons for not testing for HIV in the past 2 years: gay, bisexual, and other men who have sex with men living in Middlesex County, Ontario

	Subgroup of those that have not accessed HIV testing services for the past 2 years (n=58) n (%)
Reasons	
At low risk for HIV	36 (69.2)
Always have safer sex	27 (51.9)
Think they are HIV-negative	20 (38.5)
Did not have sex with an infected person	15 (28.9)
Want to be tested, but just haven't done it yet	14 (26.9)
Could affect their relationships	11 (21.2)
In a relationship	9 (15.5)
Worried about being discriminated against	8 (15.4)
Do not want to know	7 (13.5)
Never thought about it	5 (9.6)
Worried about the impact on their sex life	5 (9.6)
Are healthy so they don't need to be tested	5 (9.6)
Afraid of needles	5 (9.6)
Do not know where to get the test	5 (9.6)
Afraid of having their name reported	5 (9.6)
Could affect their career or insurance	5 (9.6)
Could not deal with knowing they were infected	4 (7.7)
If they tested positive, nothing can be done	3 (5.8)
Do not think they can get HIV	2 (3.9)
Don't have a doctor	2 (3.9)
Doesn't matter if they're infected because of their age	1 (1.9)
Don't know anyone with HIV or AIDS so they are not worried	1 (1.9)

6.4 Discussion

Corroborating previous findings from other areas[35,36], we found a lesser likelihood of being untested with increasing social connection to LGBT communities in both unadjusted and adjusted analyses. Connection to GB-MSM community increases exposure to HIV prevention, education, and testing in spaces such as bathhouses, gay bars, and events.[37] While physical spaces have historically been effective modes to reach some GB-MSM, engagement with GB-MSM needs to evolve to match the changing social nature of the community. It has been suggested that levels of GB-MSM's connection to the gay community is declining and internet[38] and smart-phone apps[39] are increasingly being used to connect with sex partners, presenting challenges to engaging with GB-MSM for HIV monitoring and research.[40] A flexible, multi-pronged approach to testing promotion is important in mid-sized cities and other areas where few dedicated physical spaces for GB-MSM exist. Successes of multimedia campaigns promoting testing are limited.[41] Due to increasing use of technologies, it may be necessary for prevention and testing workers to maintain a full-time presence on social networking, chat websites, and smart phone applications, and develop evaluable and effective testing interventions.[19] For example, automatic text-message reminders could be helpful since many of our participants not tested in the past two years indicated they wanted to test, but had not done so yet.[42]

Our results also suggest a relationship between religious/spiritual levels (deviation from childhood levels) and being untested. Compared to those with no change, those with reduced current levels were less likely to be untested in the past six months; this relationship held for actual testing prevalences (unadjusted), and after controlling for other variables. The relationship between religiosity, spirituality, HIV, and homophobia is complex. Requesting an HIV test, for some, can be considered an admission of homosexuality.[43] Adherence to religions less accepting of sexual minorities can lead men to experience rejection or feel unwelcomed.[44] Negative messages about homosexuality from faith groups can contribute to feelings of marginalization, minority stress, and other stigmas (e.g. HIV stigma), creating internal conflicts leading to psychological distress for religious GB-MSM.[45-46] HIV stigma in older adults living with HIV has been associated with an inability to access support from their religious congregation.[47] Another study found some people living with HIV/AIDS alienated from, or forced to change congregations due to HIV stigma.[48] Conversely, religion can be a source of strength for gay men, including those living with HIV, and several gay-

positive churches exist which better serve the needs of sexual and gender minorities.[44] For some faiths, sex education and HIV testing are equated with sexuality, falling into what is considered secular areas.[49] This highlights the importance of reconciling differences between religious principles, homosexuality, and HIV in religious organizations[50] and in GB-MSM. A strategy to promote testing in faith groups and religious GB-MSM could include meeting with local faith leaders, offering them education, and encouraging them to discuss HIV prevention and local testing locations with congregations,[50] situating prevention as a health issue rather than a moral one.[45]

We also found that, compared to single men, men married to or living common-law with another man were more likely to be untested, a result consistent with other research.[10,51,52] However, this association was not observed after controlling for other socio-demographic variables, suggesting that it could be accounted for by older age or higher education among partnered men, for example. Nevertheless, it may be helpful to encourage testing through couples-based counseling and testing for HIV for GB-MSM.[10]

In addition to LGBT community connection and current religiosity/spirituality, two other factors were associated with being untested in both unadjusted and adjusted analyses that raise some questions that should be pursued in future research. Those who were unemployed were 57% more likely to be untested than were those employed full-time. Also, those who had completed high school were 68% less likely to be untested as those with post-secondary degrees, which contrasts with prior research indicating those with less formal education are less likely to be tested.[14]

As with all research, our study has notable strengths and limitations. Our analysis provides a new perspective in using data collected outside the largest cities. Similarly, much of the GB-MSM research in Canada has used venue-based samples, favouring community-involved men. Promotion for our survey was more expansive, simultaneously directed at GB-MSM at traditional venues, on smartphone apps, and on web-based social networks. This strategy, however, meant that response rate calculations were not possible. Our sample was a convenience sample, potentially resulting in unknown biases, and cross-sectional, limiting our ability to determine causal associations. Finally, our sample size limited the power to detect smaller effects and to conduct subgroup analyses.

Promoting HIV testing with Canadian GB-MSM should be done with consideration of the policy landscape. In the Canadian context, human rights protections exist for sexual

minorities and free testing is available (including anonymous testing). However, there are harsh, often unclear laws criminalizing HIV nondisclosure that could impact testing practices.[53] Significant increases in HIV testing are needed to reduce the incidence of HIV infections in GB-MSM.[54] Our results provide some direction for HIV testing promotion with GB-MSM in regions with similar social context. While continuing with broad-reaching promotion, HIV testing organizations can link promotion efforts directly with GB-MSM HIV prevention workers to further normalize testing.[41] As social spaces change, promotion should evolve to reach GB-MSM subgroups where they meet (physical and virtual). Likewise, physical and electronic communications can be used for reminders of locations and availability of different testing services (i.e. anonymous, point-of-care). Expansion of these to include couples-based options may encourage testing among this group. More region-specific research in Canada would broaden our understanding of testing, elucidating regional variation in regards to GB-MSM communities, and identifying additional needs. Studies with larger samples could effectively identify subgroups that would benefit from directed testing promotion, and could explain some of the effects which remain unclear in this analysis (e.g. education, employment). Moreover, the relationship between different religious or faith groups, spirituality, and HIV stigma within GB-MSM should be further studied to explore the role these play in Canada's rights milieu for sexual and gender minorities. Adapting testing promotion to a changing community and diversifying efforts can have long-lasting impacts in changing attitudes about, and promoting normalization of HIV testing in GB-MSM.

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CHAPTER SEVEN

Discussion and Future Directions

7.1 Introduction

The primary purpose of this thesis was to investigate the use of health care services by gay, bisexual, and other men who have sex with men living in Middlesex County, Ontario. This followed the LGBT2SQ Health Forum held on November 23, 2006 that identified three notable themes in relation to access to services: 1) homonegativity—external and internal; 2) isolation and social exclusion, and 3) communication. It was found that when LGBT2SQ persons interfaced with the health care system in the region, frequent experiences of overt and covert homonegativity occur, from systemic and individual perspectives.[1] Specifically, this thesis explored variables associated with: access to a regular primary care provider; whether one's provider knew their sexual orientation and whether they spoke to their provider about health issues related to being GB-MSM; utilization of mental health services within the past 12 months; and not accessing HIV testing services within the prior 6 months. In addition to socio-demographic characteristics, this thesis also assessed whether specific community-relevant variables such as internalized homonegativity and external experiences of homophobia played a role in these outcomes. The results of these analyses are intended to provide information for prevention programming, service delivery and additional research projects in Middlesex County, Ontario, and more broadly.

7.2 Summary of key findings

The literature review performed in Chapter 2 elucidated the unique health outcomes experienced by GB-MSM in Canada and elsewhere. This thesis moved beyond simple identification of health "problems" to identify factors associated with health care access for GB-MSM and suggests ways to ensure equity in access for all GB-MSM.

7.2.1 Access to regular primary care

Chapter 3 was an exploratory analysis intended to identify factors associated with access to a primary care provider (PCP), focusing on the demographic heterogeneity that might exist within the GB-MSM sample, which contrasts to previous research that simply compares GB-MSM to heterosexual men.[2,3]

Our sample had a high number of individuals with access to a PCP (86.5%), closely matching the high proportion of persons in Ontario with access.[4] We found that higher age was associated with a greater likelihood of access to a PCP, which would suggest a need to help in facilitative access for younger GB-MSM, since this group is suggested to be at risk for a number of mental and physical health problems.[2] Since similar research had not been conducted in Ontario, this result was compared to results from a study using data from a population-based survey that found that those who were less likely to have a family doctor were younger and male.[6] Additionally, our results are parallel to findings regarding access obtained from a survey of LGBTQ-identified youth residing in Toronto that found 83% had not visited a provider for any sexual health-related reason.[7]

A higher level of social support from a special person (i.e. a significant other) was also associated with a greater likelihood of having access to a PCP, as was having "about half" of overall social support coming from LGBT communities, compared to none, which would suggest that social support plays an important role in access to health services. This is consistent with many studies' results that find social networks and support have direct effects on adherence to medical regimens and help-seeking behaviour.[8] Our results regarding social support also complement the literature that has found absences in social support to be linked with a higher prevalence of self-destructive behaviours, substance use, suicide, and sexual risk behaviour.[9]

This analysis found several additional factors that were associated with a greater likelihood of access to a PCP, however our sample size limits us from making more definitive statements regarding our findings. One of the factors increasing likelihood of access included living in a rural area (compared to living in non-rural areas). The literature regarding the urban-rural continuum of care is contradictory.[10] Our results, however, are likely explained by a regional geographic maldistribution of physicians, where small cities not adjacent to major cities are more likely to have a regular medical doctor, and also explained by a greater availability of drop-in health clinics in urban areas.[10,11] Additional factors that deserve further exploration in future studies include that those married to or living common-law with a woman were more likely to have a PCP compared to single men, and that students attending school part-time were more likely to have a PCP compared to those not attending school. Additional research into the long-term effects of legalizing same-

sex marriage, and a broader lifecourse perspective would help elucidate and make further sense of these findings.

7.2.2 Sexual orientation disclosure and patient-centred care

The fourth chapter contained two larger analyses, identifying socio-demographic, psycho-social, and community-specific factors associated with: 1) sexual orientation disclosure, and 2) communication with a PCP about GB-MSM related health issues. The chapter also describes the frequency of discriminatory events felt by GB-MSM in our sample.

The results of this analysis indicated that having any negative prior experiences with a PCP and higher internalized homonegativity were both associated with a lesser likelihood of talking to a provider about GB-MSM health issues. While internalized homonegativity itself had not been studied as a factor related to talking to a provider about GB-MSM health issues, several other studies have examined the construct in relation to other issues. Internalized homonegativity has previously been tied to intrapersonal and interpersonal outcomes, including: distrust and loneliness, eating disorders, defense mechanisms, difficulties in intimate relationships, including instances of self-sabotaging and projection of poor self image onto a partner, high-risk sexual behaviours, depression, excessive dieting, bulimia, alcoholism, and suicide.[12-16]

Coming out in general practice is thought to result in better patient-provider communication.[17] While no prior research has examined this as a factor in primary care settings and GB-MSM groups, we found higher communication scores were associated with a greater likelihood of participants' PCP knowing their sexual orientation and talking to their PCP about GB-MSM-related health issues.

Further, more frequent experiences of homophobia were associated with a greater likelihood of PCPs knowing respondents' sexual orientation and talking to providers about GB-MSM health. This is similar to prior findings that indicated GB-MSM who were verbally harassed received more services than those who were not.[18] This finding lends support to the "resilience" framework that has often been used to explain health outcomes in GB-MSM, whereby increasing homophobic experiences result in a positive adaptation in primary care settings - namely, a greater willingness to disclose sexual orientation and talk openly about

GB-MSM.[19] An alternative explanation is that those who are more "out" experience more homophobia. Unfortunately, level of "outness" was not measured for our particular study.

Finally, compared to single men, participants who were married to or living common-law with a man were also more likely to have PCPs know their orientation. While marriage does not solely explain the pathway towards better health, this finding is in line with previous results from a sample of older LGBT adults that found coupled participants appeared to disclose more often in health care settings as a means of emphasizing their right to make health care decisions for each other.[20] Similarly, obtaining primary care from a family doctor, connected via a partner with current access could also lead more readily to being "outed" to a provider.

7.2.3 Mental health service use

Exploring factors associated with accessing mental health services within the past 12 months (Chapter 5), we found several factors associated with this outcome. This topic has been more frequently explored than those in the prior two chapters.

Within this analysis, we found higher levels of internalized homonegativity and experiences of homophobia were both associated with increased likelihoods of using mental health services within the past 12 months. This is consistent with prior findings that indicate stigmatizing experiences are associated with increased need for, and use of health and social services.[18,21] Considering the effects internalized homonegativity and experiences of homophobia had in our previous analysis on sexual orientation disclosure and discussing GB-MSM-related care, these findings indicate some fundamental differences between primary care and mental health service use. Potentially, issues of sexual orientation identity are more readily discussed with a mental health provider versus a PCP.

A higher level of current religiosity or spirituality (versus childhood levels), compared to no change between the two time periods, was also associated with a greater likelihood of accessing a mental health provider. Religiosity and experiences of homophobia and internalized homonegativity have been linked in prior studies. Some Christian GB-MSM experience struggles when attempting to merge sexual and religious identities due to inherent incompatibilities.[22] Generally, faith groups less accepting of sexual minorities can lead to GB-MSM experiencing rejection or feeling unwelcomed,[23] potentially resulting in psychological distress which could require help-seeking. Conversely, it is possible that those

with mental health challenges may seek more than one source of help for solutions, turning both to religion and more formal mental health services for support.

Results also indicate that those born outside of Canada were less likely to access mental health services within the past 12 months as compared to Canadian-born GB-MSM, which is consistent with the literature suggesting different experiences for immigrant groups related to access and use of health services. One interpretation of this result could be that immigrant GB-MSM might have lower levels of health concerns compared to Canadian-born GB-MSM. This can be seen in a general population level analysis that found new immigrants had lower levels of mental health concerns, but that the levels increased to similar levels as Canadian-born respondents over time.[24] Reasons for not accessing mental health services could include barriers related to language, culture, and also immigrants not seeing themselves as an immediate priority. Further, cross-cultural differences in how mental health and illness are conceptualized can significantly affect whether or not individuals access services.[25]

7.2.4 HIV testing

In our last results chapter looking at factors associated with not having tested for HIV within the past 6 months, we found a lesser likelihood of being untested with more social connection to LGBT communities. This follows similar previous analyses that found connection to GB-MSM community tends to increase exposure to HIV prevention, education, and testing in spaces such as bathhouses, gay bars, and events.[26]

Additionally, compared to single men, men married to, or living common-law with another man were more likely to be untested, which also is similar to prior research conducted in the United States that found lower testing levels among couples.[27-29] This contrasts with the previously-mentioned finding that, compared to single men, participants who were married to or living common-law with a man were more likely to have PCPs know their orientation. This could indicate a discrepancy in sexual health discussions and offers of testing between GB-MSM patients and providers.

We also found a relationship between religiosity/spirituality, with those with lower levels of current religiosity versus childhood levels less likely to be untested within the past 6 months, compared to those with equal current and childhood levels. As mentioned in the results for Chapter 5, being part of religions less accepting of sexual minorities can result in experiences of rejection for GB-MSM.[23] Some GB-MSM with conflicting religious values

might feel that the act of requesting an HIV test can be an admission of homosexuality itself, as seen in previous rural-based studies.[30]

7.2.5 The Andersen-Gelberg Behavioral Model for Vulnerable Populations

This thesis utilized the Behavioural Model for Vulnerable Populations to conceptualize analyses prior to data collection.[31] Developed in the late 1960s, the Behavioral Model of Health Services Use, evolved over the past four decades and has been applied to multiple populations, grouping predictors into three categories– predisposing, enabling, and need factors.[32] To practically apply this model to different groups, the Behavioral Model was adapted for use in vulnerable populations by Gelberg et al. by splitting each of these aforementioned categories into two sections– the traditional and the vulnerable domain.[33] The vulnerable domain is important when studying specific sub-populations as there are certain factors only or especially relevant to these particular groups. This model was primarily chosen due to its extensive and long-standing use in health services research, having been cited by hundreds in analyses, as well as due to the research team's familiarity with the model.

Overall, for the exploratory nature of this thesis, the Gelberg-Andersen framework allowed us to investigate a large number of predictive variables and provided a useful starting point for discussions with the research team regarding variable inclusion. While Andersen's original model has undergone numerous revisions and, at some points, would have been more rigid in dictating the inclusion of explanatory variables, this particular adaptation allowed us the flexibility to tailor our models not only towards each objective, but to add factors related to the population under study (i.e. GB-MSM). As evidenced by the multiple significant findings and, to a lesser extent, the larger R^2 values obtained in Chapters 4, 5, and 6, this framework allowed us to examine multiple factors in different predisposing, enabling, and need sets. Additionally, the framework allows for the identification of community-relevant variables that will have specific implications for promotion of health services for GB-MSM, locally and more broadly.

While useful in terms of its flexibility, the Gelberg-Andersen Model lacks established guidelines regarding statistical methods that could be used with the model. Overall statistical approaches taken by researchers have differed widely across studies and have included the use of chi-square tests, logistic regression, and path analysis. Despite this wide use of

different methods, little to no commentary related to the usefulness of these methods has been made with regards to statistical methods and this model. For example, one reA cross-comparison of methods would be useful for researchers in the future. Further, while some research has utilized similar stepwise processes to consider variables, more discussion related to the order of variable consideration could be undertaken. Our approach in the previous four manuscripts first considered predisposing variables, then enabling, then need factors. This decision was based on the logic that need factors are, by definition, most directly related to health service use and access and would, therefore, be more likely to be statistically significantly associated with the outcome, and should be considered last, after more distal factors have been entered. Further, the use of this model in similar analyses with larger samples could take into consideration interactions among covariates could potentially provide more complex results that would serve as evidence for promotion of services for GB-MSM.

7.3 Implications of findings

As indicated in Chapter 5, the structural level protections for GB-MSM and other sexual minority groups enacted in Canada over the past 50 years have evolved considerably. These include: the decriminalization of "homosexuality" in 1969[34]; the 1973 American Psychiatric Association declassification of "homosexuality" as a mental disorder from the *Diagnostic and Statistical Manual of Mental Disorders*[35];the inclusion of "sexual orientation" as a prohibited grounds for discrimination in 1996[36]; and, in 2005, the Civil Marriage Act, which legalized same-sex marriage.[37] It is important to note that, while historically important, structural level protections can take time to permeate to other levels, as seen in some of our results, in other studies (i.e. EGALE's study of verbal and physical harassment of LGBTQ self-identified students[34]), and through local occurrences such as the assault of a local gay man as he was holding his partner's hand while he walked home.[39]

7.3.1 Potential implications for program development and service delivery

While structural protections are available for sexual minority men, there remains an incongruence between these protections and experiences related to health care for GB-MSM. Further, stigmas can continue to manifest at the community level, at work, in families, or in

school environments.[40] Health issues related to GB-MSM populations can be prevented[41] and should be addressed by any service provider.

Our results call for, at minimum, the inclusion and expansion of sexual orientation information in medical school curricula and subsequent continuing medical education,[42-44] and an extension of this training to other clinic staff (e.g. administration staff, nurses, etc.). Training should include information about how sexual orientation relates to health and disease; how health and disease outcomes for GB-MSM might be different among subgroups, diverging at different intersections of identity (i.e. gay versus bisexual men), social position, processes of oppression or privilege, and policies or institutional practices[45]; and how to speak with GB-MSM patients non-judgmentally.[46,47] Providers should view gay clients through a lens that recognizes their sexuality and orientation as one part of a whole[48-50] and learn about the stressors and internalized negative messages related to sexual orientation, and the role societal homophobia can play in GB-MSM health.[47,50]

Additionally, our results emphasize the need for more integration between health service providers and community social supports. With social support playing such a crucial role for access to health services, The Ontario Ministry of Health and Long Term Care, Local Health Integration Networks, professional health organizations, and individual providers can position themselves to refer GB-MSM to informal and professionally-provided social support services. Similarly, these agencies can promote providers accepting new patients within different agencies, venues, websites, and smarphone apps that cater to GB-MSM. Conversely, a concerted effort on the part of community-based agencies to create formal networks of providers who are affirming for sexual minority men would ensure there is effort being done at all levels to ensure equity in service access.

While acknowledging that health outcomes and health care use and access can manifest differently for GB-MSM, providers should harness the natural strengths and resilience of GB-MSM, rather than focus primarily on a deficit- or disease-oriented approach.[51] Further, providers can assist at a community-level (e.g. in schools) in designing programs that help to reduce homophobia and positively contribute to the development and well-being of young GB-MSM.

A finding that showed significance in both Chapters 5 and 6 was the role that religiosity and spirituality played in accessing mental health service use and HIV testing services. Providers can play an important role in helping to reconcile some of the effects that

religion/spirituality can have on health and health care access. For GB-MSM who are affiliated with religions less affirming of their sexuality, providers should first understand many GB-MSM patients may have had prior negative experiences that could be gleaned within a welcoming environment with direct, honest inquiry. Further, providers should not advocate for GB-MSM to abandon their religion or beliefs, but could potentially connect men with religious LGBT organizations that can assist in integrating religiosity and sexuality, offering social support in a faith context, and encourage GB-MSM to challenge thoughts related to shame.[22]

In addition to these aforementioned suggestions for primary care and mental health service providers, some additional implications were stated in Chapter 6 for HIV testing service provision. Significant increases in HIV testing are warranted to reduce the incidence of HIV infections in GB-MSM.[52] HIV testing organizations should link promotion efforts directly with GB-MSM HIV prevention workers to continually normalize testing.[53] Further, concentrated efforts to reach GB-MSM where they meet, whether in physical or virtual spaces, are also warranted. Similarly, technological interventions should be developed that allow for frequent reminders of locations and availability of different testing services (i.e. anonymous, point-of-care). With marriage playing a role in the use of HIV testing services, couples-based testing options should be provided to assist with open communication about sexual health between couples.

7.3.2 Implications for future research

The exploratory nature of this thesis suggests several potential areas to pursue in future research, both quantitative, qualitative, and using a mixed-methods approach.

First, very little population-based data collected in Canada allow for precise comparisons between different sexual orientation groups. Specifically, the Canadian Community Health Survey's combination measure of sexual orientation identity and behaviour is contrary to what many scholars have long advocated as the proper way to measure these constructs. The CCHS' combination measure does not allow for completely accurate results of how health and health care access outcomes manifest themselves in sexual minority populations, and as compared to heterosexual individuals.

A sample collected on a larger geographic scale would also allow for further comparisons to be made between different subgroups of GB-MSM on specific health

outcomes, including mental health issues, and health service utilization such as HIV testing. Larger national samples allow more precise analyses of the heterogeneity within GB-MSM, and to meaningfully detect interactions and mediation effects that are not possible in the sample utilized in this thesis. A larger national sample would also allow us to detect differences between and within certain regions, such as using the classifications of peer health groups identified by Statistics Canada for analysis, which compares health regions based on 24 socio-demographic variables and other geographic characteristics.[54] Studies with larger samples could assist in effectively explaining some of the smaller effects, which remain unclear in this analysis (e.g. education, employment). Further, a larger sample could potentially detect effects between different ethno-cultural groups of GB-MSM.

It would be ideal to conduct research on samples that have data collected from across the lifecourse (or retrospective collection). This would be especially interesting in Canada with the various protections available to sexual minority men, examining the long-term effects of legalizing same-sex marriage, lifecourse changes in internalized homonegativity, and the effects that migration to Canada has had on GB-MSM newcomers.

Another area to pursue for research is detailed curricula/program analysis and evaluation to ensure professional educational programs for service providers (primary care providers, mental health service providers, and any other formally-trained provider) are training individuals to accurately, appropriately, and efficiently care for GB-MSM and other sexual minority groups.

Additional areas of investigation that were beyond the scope of the study reported here but warrant attention include levels of "outness" in Canadian GB-MSM and how this is related to disclosure of sexual orientation to providers; and strategies current providers utilize to facilitate sexual orientation disclosure.

Finally, as indicated by our review of the literature, many studies adopt a deficit approach to studying GB-MSM. By asking the right research questions, studies could adopt a more rounded view of GB-MSM health and specifically research and identify additional examples of resilience and the role these might play in the health of Canadian GB-MSM.

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APPENDIX A

Health in Middlesex Men Matters

Terms of Reference

For Members of the Research Team

Established July 2008
Revised October 2011

These Terms of Reference are intended to guide the work of the Health in Middlesex Men Matters Project, our community based research (CBR) project.

While each partner agrees in principle with the Terms of Reference, it is considered a 'living document,' and shall be reviewed on an annual basis.

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1. Purpose of the CBR Project

One or two sentence project description:
This community-based research (CBR) project looks at access to health care, social isolation, and internal/external homonegativity of self-identified members of Middlesex County's gay, bisexual and other men-who-have-sex-with-men (GBMSM) communities using a social determinants of health approach.

One sentence project goal:
To improve health care, health care access and to identify community needs in Middlesex County's gay, bisexual, and other men-who-have-sex-with-men (GBMSM) communities.

Project Objectives:
1. Identify barriers to health, health care access
2. Determine the extent that social isolation, internal/external homonegativity, lack of communication is experienced in Middlesex County, as stated at the Community Health Forum in November 2006.
3. Examine these issues with respect to specific vulnerabilities to HIV infection.
4. Determine ways in which to bridge the gaps in services for gay, bisexual, and other men who have sex with men in Middlesex County
5. Establish formal service delivery plans amongst community partners and agencies to improve access to health care for gay, bisexual, and other men who have sex with men in Middlesex County

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2. Guiding Principles for the CBR Project

a. This project will engage a set of principles that will foster community ownership and empowerment among team members, including power-sharing, capacity-building through mentoring, group participation in all relevant aspects of the research project, and community ownership of the project.
b. This project will strive to prioritize capacity building within the local communities and among individual members of the research team.
c. This project will strive to respect all research participants, team members and community members, including in relation to privacy, vulnerability, dignity, culture and rights through all stages of the research.
d. This project will engage in an open and transparent process where a collective vision of research goals and objectives is shared, and where the roles, expectations, and needs (e.g. publishing, program and community development, grant funding) of team members are clearly understood.
e. This project will be a collaborative and equitable research partnership where members draw upon individual skill sets to meaningfully and mutually work toward the team's vision.
f. This project will engage in data collection and data analysis processes that are sensitive to and best reflect the lived experiences/knowledge of community members.
g. This project will employ dissemination strategies leading toward education, advocacy, policy change, health systems change, community benefit, and social change.
h. This project will foster a supportive team environment through critical reflection of our work and group process, and consistent acknowledgement of team members' contributions.
i. With respect to Aboriginal involvement in this CBR project, the team endorses the principles of ownership, control, access and possession. [1]
j. The project will respect each individual's confidentiality and anonymity at all stages of the research project.

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3. Project Structure, Roles and Responsibilities

This project recognizes that roles and responsibilities differ among people involved in the Health in Middlesex Men Matters Project. All actions and activities relating to the Project are based on principles of equity, empowerment, capacity-building, and collective, community ownership of the project and its data. The team agrees to remain cognizant that different people will have differing accountabilities, experiences, and risks (e.g. community reputation,

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Ownership refers to a relationship Aboriginal communities have to collectively posses their cultural knowledge, data and information. Involvement in research does not transfer ownership to any particular individual/organization and does not end following publication. Rather, ownership remains with the collective community through its representatives.
Control refers to an absolute right to be equally involved in all stages of research, from problem definition through to research finding presentation or publication.
Access to the resulting data of research is a key feature of OCAP. This applies regardless of where or how resulting data is held. Typically, once data have been cleaned of identifying information, data sets are returned to community representatives who are members of a research team.
Possession refers to the mechanism that respects the concept of ownership. Typically this refers to written agreements that assert traditional proprietary right and incorporate cultural values and perspectives

maintenance of trust, expectations within academic context) involved in their participation in this research, and agrees to provide some basic level of protection for each other.

As the described roles and responsibilities may shift with each project or phase, we will revisit them as necessary.

Primary Committees

- **Research Team (RT):** Together the co-principal investigators and co-investigators constitute the RT. The RT will maintain a composition with a minimum of a simple majority of GB-MSM community members. The RT will meet monthly, along with other non-voting team members as appropriate. The RT is responsible for reviewing information and updates on the project, and for making all major decisions. The RT determines all issues around the direction of the Project, hiring staff, and approving research tools and strategies. Major decisions include but are not limited to the following: 1) setting or altering project direction; 2) hiring staff and contractors; 3) responding to unexpected events; 4) changing the flow of the project or process from what is expected; 5) release of results; 6) use of data or project information, and; 7) communication regarding the project. The RT also approves any media contact, publications, and other interactions with the public and community. The RT is comprised of:
    - **Co-Principal Investigators:** The Co-PIs will provide leadership in every aspect of the project with support from co-Investigators. The Co-PIs' roles include overseeing the entire project, coordinating research team activities, ensuring that obligations to funders and institutions are met (e.g. annual reports), and ensuring the dissemination of research findings.
    - **Co-Investigators:** Co-Investigators will participate in all aspects of the research project, taking into account individual and organizational capacities, (skills, and available human and other resources). Co-Investigators will participate in identifying the scope and focus of the project, team meetings, the formulation of research questions, provide suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation. The Co-Investigators – where skills and available human and other resources exist – will be responsible for ensuring the dissemination of research findings. The Co-Investigators may also assist with data collection or other research steps as is deemed appropriate in team meetings.

- **Community Seeds:** Community Seeds are a group of 15 well-connected GB-MSM people, dispersed around Middlesex County, who represent different community constituencies with regard to: income; age; ethnicity, and; immigration-status. The community seeds will be involved in the project at three stages: 1) As "seeds" who recruit the first wave of participants; 2) as a discussion group that meets in the midst of analysis to assist in interpretation and development of knowledge transfer strategies. Relevant training and support will be provided for community seeds at all stages.

- **Graduate Students:** Positions will involve developing knowledge and skills in HIV/AIDS community-based research through participating in a range of activities from literature searches, coding and analysis of data, and development of knowledge transfer initiatives.

- **Contractors**: Contractors are hired to undertake specific tasks on the project, including interviewing, graphic design, computer programming, and web design. Contractors will primarily interface with a single individual. Contractor positions are as follows:

    - **Programmer's Responsibilities: (Specialized web and data processes)** Custom programming to adapt online survey tool software to meet the specialized needs of our study, including verification of Respondent Driven Sampling (RDS) numbers for participation, generation of network-numbered coupons for RDS, non-random but anonymous ID generation, and respondent-specific re-accessing of RDS-related information.

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4. Decision-making process for the project

Our decision-making process in this project aims to:

- encourage the participation and empowerment of all team members;
- be transparent, open and clear; and
- provide opportunities for exchanges of learning that draw on the various skills and areas of knowledge of different team members.
- ensure that all actions taken by the team are clearly accounted for through agenda-setting and the recording of meeting minutes for each meeting

Differing Responsibilities:

- Decisions related to the project's overall goals and strategies will be made by the Research Team, with a goal of reaching consensus;
- Roles related to specific aspects of the project will be delegated by the team. Team members agree to be accountable to the team for their actions on the project and their representation of the project.
- The team recognizes that different members will have different levels of responsibility and differentially bear external accountability. Subsequent decision-making structures and processes must take this into consideration.

Process for Team Decisions:

- Decision-making at team meetings will strive first for consensus. If this method is not satisfactory, then team members will employ a voting procedure by simple majority of members present, providing that at least 50% of the research team members are present.
- Key decisions will be articulated in meeting notes that are distributed to Team members prior to each meeting. The approval of these meeting notes will be a standing item on each team meeting agenda.

Process for Conflict *Prevention and* Resolution:

- Members will make every effort to communicate openly and respectfully and to hear and understand each other's points of view. Team members will prioritize the well-being of the research team and the goals of the project, and commit to resolving conflicts that may emerge within the team.
- If serious conflicts do emerge that cannot be resolved through other methods, the team is committed to mediation as a strategy for resolution.

Process for Joining and Leaving the Research Team:
Joining the Research Team:

a. Scenario 1. Research team approached by an interested party
    i. Interested persons or organizational representatives would submit a statement of interest, CV or resume. The research team would discuss the prospect of their joining the team without the person present. Decisions will be made based on what they could contribute to the project, and community capacity building. Decision-making on adding new members will be by consensus minus one, meaning the team will strive for consensus, but may add a new member over the disagreement of a single existing member.
b. Scenario 2. The research team recruits a new member
    i. Interested persons or organizational representatives would submit a statement of interest, CV or resume. Active seeking of a new member will be based on needs identified by the team. Decision-making will be as above, by consensus minus one.

Leaving the Research Team:

a. Decisions will be made on a case by case basis. Replacements must be approved by the team

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5. Access to/Dissemination of Data

Based upon the project's guiding principles, the Co-PIs and the Co-Investigators share ownership and have access to the research data. Use will adhere to all requirements of the Research Ethics Board at The University of Western Ontario (including through re-approval by same for so-far-underdetermined uses in future projects). The team understands that ethical considerations with regard to working within local GB-MSM communities will go beyond those required by the Research Ethics Board, in order to respect and protect the community and maintain trust. The Research Team shall sign a confidentiality and data user agreement. Data will be used for:

- advancement of knowledge;
- identification of future research questions;
- making recommendations for policy and service provision; and
- supporting knowledge transfer, advocacy in relation to social justice and the social determinants of health, organizational development and the promotion of A/PHA leadership and involvement.

The data should not be used for:

- individual or agency interests that are not related to the goals of the research (unless approved in the guidelines outlined above);
- identification of individual data for personal or non-research use

In accordance with CBR principles, we are proposing a model of dissemination that encourages the active involvement of all research team members while taking into account their varying needs, responsibilities and capacities. Research findings will be disseminated in various ways

possibly including community forums, town hall meetings, conference presentations, agency workshops, newsletters, journal articles, media launch and policy briefs. The team will develop a coordinated dissemination strategy, to ensure that activities are linked to key milestones (e.g. literature review, completed community soundings, data analysis), and are strategically targeted to appropriate audiences (e.g. policy makers, community groups, health researchers and practitioners).

The team will establish analysis and writing groups for different articles and reports, with participants contributing different parts of the manuscript. We will offer capacity-building opportunities for team members who wish to expand their skills. Authorship will correspond with contribution to the research being reported, with the entire research team receiving acknowledgment. For example, a paper might be attributed to "A.B. Author, L.M. Writer, J.K. Researcher, for the Health in Middlesex Men Matters Project," with an acknowledgement listing all members of the project. Order of authorship and mechanisms for feedback on manuscript drafts will be decided up front by writing group members. This understanding applies to conference presentations, community forums, and other dissemination activities.

6. Acknowledgements

In all publications, media strategies and other public activities related to the Project, all team members will be acknowledged as investigators or authors, as appropriate. The members of the research committee team understand that 'authors' are those who participate in writing/publishing activities. The names of investigators'/authors' respective organizations will appear with acknowledgement, as appropriate.

7. List of Members

The Health in Middlesex Men Matters Research Team:
Gloria Aykroyd, St. Joseph's Health Care London-Infectious Diseases Care Program
Greta Bauer, Epidemiology & Biostatistics, The University of Western Ontario
Todd Coleman, Epidemiology & Biostatistics, The University of Western Ontario
Meredith Fraser, Regional HIV/AIDS Connection, London, Ontario
Kevin Murphy, Regional HIV/AIDS Connection, London, Ontario
Robert Newman, Regional HIV/AIDS Connection, London, Ontario
Lyn Pierre Pitman, Options Anonymous HIV Testing Clinic
Leanne Powell, Middlesex London Health Unit, London, Ontario
Daniel Pugh, Gay Men's Sexual Health Alliance, Toronto, Ontario

Former members:
Mark Defend
Paul McCarty-Johnston
Rick Mulvaney
Edwin Scherer

APPENDIX B

Roles of Investigators on the Health in Middlesex Men Matters Project

	Roles & Responsibilities
Dr. Greta Bauer (The University of Western Ontario)	• Associate Professor, Epidemiology & Biostatistics, Schulich School of Medicine & Dentistry • Principal Investigator • GB-MSM Community Ally • Oversees the entire project • Participates in all aspects of the research project • Decision-making • Survey design • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Manuscript drafting • Final decision-making power
Todd Coleman (The University of Western Ontario)	• Co-Principal Investigator • GB-MSM Community Member • Oversees and guides the entire project • Participates in all aspects of the research project • Coordinates research team activities • Ensures that obligations to funders and institutions are met • Ensures the dissemination of research findings • Survey design • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Manuscript drafting (thesis chapters) • Final decision-making power
Daniel Pugh (Gay Men's Sexual Health Alliance)	• Co-Principal Investigator • Knowledge Transfer & Exchange Coordinator • GB-MSM Community Member • Oversees and guides the entire project • Participates in all aspects of the research project • Ensures the dissemination of research findings • Survey design • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation

	• Manuscript drafting • Final decision-making power
Gloria Aykroyd (St. Joseph's Infectious Diseases Care Program)	• Co-Investigator • Program Coordinator & Social Worker • GB-MSM Community Ally • Participates in all aspects of the research project • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Final decision-making power
Meredith Fraser (Regional HIV/AIDS Connection)	• Co-Investigator • Director of Education • GB-MSM Community Ally • Participates in all aspects of the research project • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Final decision-making power
Kevin Murphy (Regional HIV/AIDS Connection)	• Co-Investigator • Gay Men's HIV Prevention Worker • GB-MSM Community Member • Participates in all aspects of the research project • Survey design • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Final decision-making power
Rob Newman (Regional HIV/AIDS Connection)	• Co-Investigator • Paralegal, PHA Peer Support and Advocacy • GB-MSM Community Member • Participates in all aspects of the research project • Survey design • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Final decision-making power
Lyn Pierre Pitman (Options Anonymous HIV	• Co-Investigator • Coordinator • GB-MSM Community Ally • Participates in all aspects of the research project

Testing Clinic)	• Survey design • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Final decision-making power
Leanne Powell (Middlesex-London Health Unit)	• Co-Investigator • Coordinator • GB-MSM Community Ally • Participates in all aspects of the research project • Survey design • Identifies the scope and focus of the project, team meetings, the formulation of research questions, provides suggestions and feedback on the methodology, and provide input on recruitment, data collection, data analysis and interpretation • Final decision-making power

APPENDIX C

The Health in Middlesex Men Matters Survey

Health in Middlesex Men Matters (HiMMM)

Eligibility

To gain access to the rest of the survey, please completely answer each question in this section. This is the only section of the survey where you are required to fill out every question.

1. Do you identify as male?
   - Yes
   - No

2. Are you 18 years of age or older?
   - Yes
   - No

3. Do you live in London-Middlesex County, Ontario (which includes, but is not limited to London, Byron, Lambeth, Strathroy, Dorchester, Ailsa Craig, Lucan, Mount Brydges, and West Delaware and surrounding areas)? This also indudes college or university students currently living in London-Middlesex County who may live elsewhere for part of the year.
   - Yes
   - No

4. Do any of the following describe you? (*Check "Yes" to all that apply*)

   a. I identify as gay, bisexual or any other similar identity
   - Yes
   - No

   b. I have had one or more sexual experiences with another man
   - Yes
   - No

   c. I have had strong and continual sexual attraction(s) to one man or men
   - Yes
   - No

In the next questions, we are looking to find out more about local social networks. By asking if you know someone or they know you, we mean that:

- **You know their name and they know your name,**
  and
- **You are able to contact them (in person, by telephone, by mail, or online)**
  and
- **You have spoken to them (in person, by telephone, by mail, or online) in the past year.**

5. How many men do you **know** that identify as gay or bisexual, **or** have had sexual experiences with another man **or** strong and continual sexual attractions to men?
   _____ men

6. Of these men, how many live in Middlesex County **and** are 18 years of age or older?
   ____ men

7. How would you describe your relationship to the person that provided you access to this survey? (*Check all that apply*)
   - ☐ Acquaintance
   - ☐ Close friend
   - ☐ Co-worker
   - ☐ Current partner or spouse
   - ☐ Former partner or spouse
   - ☐ Online Friend (e.g. Facebook, gay.com)
   - ☐ Relative or family member
   - ☐ Sex partner
   - ☐ Former sex partner
   - ☐ Stranger
   - ☐ Other (*please specify*) _____

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION A

This study uses new ways to reach more gay, bisexual and other men who have sex with men than traditional surveys given out at doctors' offices or at clubs or support groups. We want to know how well our method works. We would like to know whether you might have completed the survey in one of these other places, if we'd done this differently.

A1. In the past 12 months, in the London-Middlesex region, have you …? (*Check all that apply*)

- ☐ Been a client of a psychiatrist or psychologist who sees many gay clients
- ☐ Been a client at the Regional HIV/AIDS Connection (formerly the AIDS Committee of London)
- ☐ Been a patient of a doctor or clinic where many gay patients go
- ☐ Attended a gay, bisexual, or other men who have sex with men support group
- ☐ Gone to gay bars or clubs
- ☐ Gone to gay bathhouses
- ☐ Been a member of an LGBT student group
- ☐ Gone to an event at an LGBT community centre
- ☐ Been a member of a LGBT religious group
- ☐ Attended the London Pride Festival
- ☐ None of the above

A2. If you were asked to complete this survey at your doctor's or therapist's office in the past 12 months, would you have done it?

- ○ Yes
- ○ Likely Yes
- ○ Likely Not
- ○ No
- ○ Not applicable, I have not been to a doctor or therapist's office in the past 12 months

A3. If you were asked to complete this survey at a lesbian, gay, bisexual, or trans (LGBT) community event in the past 12 months, would you have done it?

- ○ Yes
- ○ Likely Yes
- ○ Likely Not
- ○ No
- ○ Not applicable, I would not attend any LGBT community events

A4. In your opinion, what percentage of gay, bisexual, and other men who have sex with men are actively involved in the local gay community?

- ○ 0 to 9%
- ○ 10 to 19%
- ○ 20 to 29%
- ○ 30 to 39%
- ○ 40 to 49%
- ○ 50 to 59%
- ○ 60 to 69%
- ○ 70 to 79%
- ○ 80 to 89%
- ○ 90 to 100%

A5. Are you actively involved in the local gay community?

Yes
No

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION B: HEALTH AND HEALTH SERVICES

B1. Overall, how would you rate your **general health**?

- Excellent
- Very Good
- Good
- Fair
- Poor

B2. Overall, how would you rate the **availability** of health care services **in your community** (London-Middlesex region)?

- Excellent
- Good
- Fair
- Poor

B3. Overall, how would you rate the **quality** of the health care services that are available **in your community** (London-Middlesex region)?

- Excellent
- Good
- Fair
- Poor

B4. For the following four statements, please specify the degree with which you agree or disagree.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a. If you don't have your health you don't have anything					
b. There are many things I care about more than my health					
c. Good health is of only minor importance in a happy life					
d. There is nothing more important than good health					

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION B: HEALTH AND HEALTH SERVICES - continued

For the next series of questions, we would like to learn about your experience with regular primary health care providers – those you can go to for routine medical check-ups or for specific health concerns.

B5. Do you **currently** have a regular primary health care provider, that is, someone you can go to for routine medical check-ups or for specific health concerns? A regular primary health care provider can include, but is not limited to, a family doctor, a nurse practitioner, a walk-in clinic, or interdisciplinary health centre.

- Yes
- No

a. Does your **current** regular primary health care provider know about your sexual orientation?

- Yes
- No

b. Do you feel **comfortable** sharing your sexual orientation with your regular primary health care provider?

- Yes
- No

c. Do you **talk** to your current regular primary health care provider about health issues specific to being gay, bisexual, or a man who has sex with another man?

- Yes
- No

d. Is your current regular primary health care provider a…?

- Community Health Centre
- Family Doctor
- Family Health Team
- Nurse Practitioner
- Walk-in Clinic
- Other (*please specify*)

B6. Below are statements related to communicating with your regular primary health care provider. Thinking about when you consult with your usual regular primary health care provider, **how do you rate the following**:

	Excellent	Very Good	Good	Fair	Poor	Very Poor	Does not apply
a. How **thoroughly** the regular primary health care provider asks about your symptoms and how you are feeling?	○	○	○	○	○	○	○

b. How well the regular primary health care provider **listens** to what you have to say?	○	○	○	○	○	○	○
c. How well the regular primary health care provider **puts you at ease** during your physical examination?	○	○	○	○	○	○	○
d. How much the regular primary health care provider **involves you in decisions** about your care?	○	○	○	○	○	○	○
e. How well the regular primary health care provider **explains** your problems or any treatment that you need?	○	○	○	○	○	○	○
f. The amount of **time** your regular primary health care provider spends with you?	○	○	○	○	○	○	○
g. The regular primary health care provider's **patience** with your questions or worries?	○	○	○	○	○	○	○
h. The regular primary health care provider's **caring and concern** for you?	○	○	○	○	○	○	○

B7. For each of the following, has a regular primary health care provider **ever**…? (*Check all that apply*)

- ☐ Made negative comments or gestures about lesbian, gay, bisexual, or transgender people
- ☐ Made negative comments or gestures related to a person's gender, race, religion, culture or ethnicity
- ☐ Belittled or made fun of you for being, gay, bisexual, or a man who has sex with another man
- ☐ Refused to see you or ended care because of your sexual orientation
- ☐ Refused to see you or ended care because of your gender, race, religion, culture or ethnicity
- ☐ Refused to discuss or address health concerns related to being gay, bisexual or a man who has sex with a man
- ☐ Made assumptions about your or your health based on your sexual orientation
- ☐ Assumed you were straight/heterosexual
- ☐ Assumed you had a lot of sex partners based on your sexual orientation
- ☐ None of the above

B8. Are you covered under any health care insurance plans for basic medical expenses (for example: OHIP, UHIP, or other private plans)?

- ○ Yes
- ○ No

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION B: HEALTH AND HEALTH SERVICES - continued

In the next series of questions, we would like to know more about your experiences with mental health care providers and accessing mental health care.

B9. In general, would you say your **mental health** is…?

- ○ Excellent
- ○ Very Good
- ○ Good
- ○ Fair
- ○ Poor

B10. Have you **ever** seen or talked to a health professional about your emotional or mental health?

- ○ Yes
- ○ No

a.
Who did you see or talk to? *(Check all that apply)*

- ☐ Aboriginal Elder
- ☐ Family doctor or general practitioner
- ☐ Nurse or nurse practitioner
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Religious or spiritual leader
- ☐ Social worker or counsellor
- ☐ Support group
- ☐ Telephone or online counselling (i.e. crisis line)
- ☐ Other (*please specify)*

B11. **In the past 12 months**, have you seen or talked to a health professional about your emotional or mental health?

- ○ Yes
- ○ No

a.
Who did you see or talk to **within the last 12 months**? *(Check all that apply)*

- ☐ Aboriginal Elder
- ☐ Family doctor or general practitioner
- ☐ Nurse or nurse practitioner
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Religious or spiritual leader
- ☐ Social worker or counsellor
- ☐ Support group
- ☐ Telephone or online counselling (i.e. crisis line)
- ☐ Other (*please specify)*

B12. Are you covered under any health care insurance plans for counselling, therapy or other mental health services?

Yes
No

B13. Please complete the following chart. In the **first response column**, check if a health care provider has **ever told you** that you might have any of the listed mental health conditions, checking all that apply. In the **second response column**, regardless of whether or not you have been told that you have any of these conditions by a health, indicate **whether you think you have any** of the listed mental health conditions, checking all that apply.

a.
I have not been told that I have a mental health condition by a health care provider

b.
I don't think I have a mental health condition

	Been told I have this condition	Think I have this condition
c. Addictions		
d. Adjustment disorder		
e. Anxiety (examples: panic attacks, post traumatic stress disorder)		
f. Attachment disorder		
g. Attention deficit disorder (A.D.D.)		
h. Attention deficit hyperactivity disorder (A.D.H.D)		
i. Bipolar disorder		
j. Borderline personality disorder		
k. Depression		
	Been told I have this condition	**Think I have this condition**
l. Dissociative identity disorder (e.g. multiple personality disorder)		
m. Eating disorder		
n. Insomnia		
o. Obsessive compulsive disorder		
p. Paranoia		
q. Psychosis		
r. Schizophrenia		
s. Stress-related disorder		
t. Other mental health condition (*please specify*)		

B14. For each of the following, has a mental health care provider **ever**…? (*Check all that apply*)

- Made negative comments or gestures about lesbian, gay, bisexual, or transgender people
- Made negative comments or gestures related to a person's gender, race, religion, culture or ethnicity
- Belittled or made fun of you for being, gay, bisexual, or a man who has sex with another man
- Refused to see you or ended care because of your sexual orientation
- Refused to see you or ended care because of your gender, race, religion, culture or ethnicity
- Refused to discuss or address health concerns related to being gay, bisexual or a man who has sex with a man
- Made assumptions about your or your health based on your sexual orientation
- Assumed you were straight/heterosexual
- Assumed you had a lot of sex partners based on your sexual orientation
- None of the above

B15.

Have you **ever taken part in a conversion therapy program**, also called "reparative" or "reorientation" therapy, that is, a method that attempts to change your sexual orientation from gay or bisexual to heterosexual?

- Yes
- No

a.
In what year did you **first** take part in this program?

b.
In what year did you **last** take part in this program?

B16. Below are statements related to communicating with your mental health care provider. Thinking about when you consult with your mental health care provider, **how do you rate the following**:

	Excellent	Very Good	Good	Fair	Poor	Very Poor	Does not apply
a. How **thoroughly** the mental health care provider asks about your symptoms and how you are feeling?							
b. How well the mental health care provider **listens** to what you have to say?							
c. How well the mental health care provider **puts you at ease** during your session?							
d. How much the mental health care provider **involves you in decisions** about your care?							
e. How well the mental health care provider **explains** your problems or any treatment that you need?							
f. The amount of **time** your mental health care provider spends with you?							
g. The mental health care provider's **patience** with your questions or worries?							
h. The mental health care provider's **caring and concern** for you?							

B17. Below are a number of statements related to counselling and mental health services. Please read each statement carefully and indicate your level of agreement. Please state your honest opinion in rating the statements. There are no wrong answers and the only right ones are whatever you honestly feel or believe. It is important that you answer every item.

	Strongly Disagree	Disagree	Agree	Strongly Agree
a. Receiving treatment for emotional or mental health problems carries social stigma.				
b. It is a sign of personal weakness or inadequacy to receive treatment for emotional or mental health problems.				
c. People will see a person in a less favourable way if they come to know				

	that they have received treatment for emotional or mental health problems.				
d.	It is advisable for a person to hide from people that they have been treated for emotional or mental health problems.	○	○	○	○
e.	People tend to like less those who are receiving professional help for emotional or mental health problems.	○	○	○	○

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION B: HEALTH AND HEALTH SERVICES - continued

We would now like to ask you a few questions to get your thoughts about lesbian, gay, bisexual, or transgender (LGBT)-related services and your experiences accessing these.

B18. If a service existed in London-Middlesex to provide lesbian, gay, bisexual, or transgender (LGBT)-specific health care, how interested would you be in using their services?

1 Not at all interested	2	3	4 Neutral	5	6	7 Very interested
○	○	○	○	○	○	○

B19. At which, if any, of the following sites have you accessed health information that is aimed at gay, bisexual, and other men who have sex with men? (*Check all that apply*)

- ☐ Central Spa
- ☐ Cross Cultural Learner Centre
- ☐ Local Doctor's office
- ☐ Options Clinic – London Intercommunity Health Clinic
- ☐ Regional HIV/AIDS Connection (formerly AIDS Committee of London)
- ☐ St. Joseph's Infectious Diseases Care Program
- ☐ Local Websites (e.g. theshag.ca)
- ☐ None of the above
- ☐ Other local resources (*please specify*)

B20. In general, how would you **rate the availability** of health information that is aimed at local gay, bisexual, or other men who have sex with men?

- ○ Very poor
- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent
- ○ Exceptional

B21. Have you ever been tested for HIV (AIDS virus)?

- ○ No
- ○ I do not know
- ○ Yes

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION B: HEALTH AND HEALTH SERVICES - continued

B21. a.
When was the last time that you were tested?
Year: Month: Choose

b.
How many times have you been tested in the past 2 years?
times

c.
What was the result of your last HIV test?
- I did not receive the result
- I do not know
- I was HIV-negative – I did not have the virus
- I was HIV-positive – I have the virus

d.
If the result was positive, when was the **first** time that you tested positive for HIV?
Year: Month: Choose

e.
Have you ever taken anti-HIV medication, either to prevent or to treat HIV infection?
- Yes, in the past 6 months
- Yes, but not in the past 6 months
- No (scroll down and click the "Next" button)
- I don't know (scroll down and click the "Next" button)

f.
If yes, when did you first start taking anti-HIV medication? Please make your best guess if you don't know for sure.
Year: Month: Choose

g.
Are you now taking anti-HIV medication?
- Yes
- No
- I don't know

h.
If not, when did you last take any anti-HIV medication?
Year: Month: Choose

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION B: HEALTH AND HEALTH SERVICES - continued

If you are HIV positive, please scroll down and click the "Next" button.

B22. The following are reasons some people give for not being tested for HIV. **If you have NOT been tested for HIV in the past 2 years, please check all of the reasons that apply to you.**

- ☐ I am at low risk for HIV infection
- ☐ If I tested positive, nothing can be done
- ☐ I am afraid of needles
- ☐ I do not want to know
- ☐ I don't think I can get HIV
- ☐ I think I am HIV-positive
- ☐ I think I am HIV-negative
- ☐ I always have safer sex
- ☐ I never thought about it
- ☐ I am worried about the impact on my sex life
- ☐ I don't think the test is always right
- ☐ I did not have sex with an infected person
- ☐ I am healthy so I don't need to be tested
- ☐ I could not deal with knowing I was infected
- ☐ I do not know where to get the test
- ☐ I am afraid of having my name reported
- ☐ I do not have health care coverage in Canada
- ☐ I am worried about being discriminated against
- ☐ It could affect my career or insurance
- ☐ It could affect my relationships
- ☐ I want to be tested, just haven't done it yet
- ☐ Doesn't matter if I'm infected because of my age
- ☐ I do not believe that HIV causes AIDS
- ☐ I do not know anyone who has HIV or AIDS so I am not worried
- ☐ I don't have a doctor
- ☐ Other (*please specify*)

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION C: SOCIAL SUPPORT

This section asks about the different types of support that are available to you and your feelings about how these are provided.

C1. Generally speaking, how would you **describe your social connection to ANY lesbian, gay, bisexual, or transgender (LGBT) communities**? (*This includes LGBT communities from both outside of London-Middlesex County and within*)

1 Not at all connected	2	3	4 Neutral	5	6	7 Very connected
○	○	○	○	○	○	○

C2. Generally speaking, on the following scale, how would you **describe your social connection to LOCAL lesbian, gay, bisexual, or transgender (LGBT) communities** in London-Middlesex County?

1 Not at all connected	2	3	4 Neutral	5	6	7 Very connected
○	○	○	○	○	○	○

C3. Are you a member of any lesbian, gay, bisexual, or transgender (LGBT) specific organizations or associations? *(Check all that apply)*

- ☐ Advocacy group
- ☐ Arts-based group (i.e. choir, performers)
- ☐ Community group
- ☐ Ethnic or cultural associations
- ☐ High school student group
- ☐ Newcomer to Canada group
- ☐ Religious groups
- ☐ Social clubs
- ☐ Sporting group (i.e. bowling, volleyball, baseball)
- ☐ Support group
- ☐ University and/or College student group
- ☐ Workplace or professional group
- ☐ Other groups (*please specify*)

  _____
- ☐ I don't belong to any LGBT-specific organizations

C4. About how many close friends or relatives do you have, that is, people you feel at ease with and can talk to about what is on your mind?

_____ people

C5. We are interested in how you feel about the following statements. Read each statement carefully and indicate how you feel about each one.

	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree

a. There is a special person who is around when I am in need	○	○	○	○	○	○	○
b. There is a special person with whom I can share my joys and sorrows	○	○	○	○	○	○	○
c. My family really tries to help me	○	○	○	○	○	○	○
d. I get the emotional help and support I need from my family	○	○	○	○	○	○	○
e. I have a special person who is a real source of comfort to me	○	○	○	○	○	○	○
f. My friends really try to help me	○	○	○	○	○	○	○
g. I can count on my friends when things go wrong	○	○	○	○	○	○	○
h. I can talk about my problems with my family	○	○	○	○	○	○	○
i. I have friends with whom I can share my joys and sorrows	○	○	○	○	○	○	○
j. There is a special person in my life who cares about my feelings	○	○	○	○	○	○	○
k. My family is willing to help me make decisions	○	○	○	○	○	○	○
l. I can talk about my problems with my friends	○	○	○	○	○	○	○

C6.

Thinking back on your responses to this last set of questions, how many of your answers describe the social support you get from gay, lesbian, bisexual, or transgender communities?

- All
- More than half
- About half
- Less than half
- None

C7. For the following ten questions, please indicate the level of acceptance for each of the scenarios.

	1 Not at all accepting	2	3	4 Neutral	5	6	7 Completely accepting
a. How accepting of **gay men** is the **broader community** in London – Middlesex County, Ontario?							
b. How accepting of **gay men** is the **gay community** in London – Middlesex County, Ontario?							
c. How accepting of **bisexual men** is the **broader community** in London – Middlesex County, Ontario?							
d. How accepting of **bisexual men** is the **gay community** in London – Middlesex County, Ontario?							
e. How accepting of **transgender men** (men considered to be female-to-male) is the **broader community** in London – Middlesex County, Ontario?							
	1 Not at all accepting	2	3	4 Neutral	5	6	7 Completely accepting
f. How accepting of **transgender men** is the **gay community** in London – Middlesex County, Ontario?							
g. How accepting of **transgender women** (women considered to be male-to-female) is the **broader**							

	community in London – Middlesex County, Ontario?							
h.	How accepting of **transgender women** is the **gay community** in London – Middlesex County, Ontario?	○	○	○	○	○	○	○
i.	How accepting of **men of colour** is the **broader community** in London – Middlesex County, Ontario?	○	○	○	○	○	○	○
j.	How accepting of **men of colour** is the **gay community** in London – Middlesex County, Ontario?	○	○	○	○	○	○	○

C8. The following statements represent some ideas which you may agree or disagree with. Please complete the chart with the answers that best represent your opinions.

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
a. I am comfortable about people finding out that I am gay or bisexual	○	○	○	○	○	○	○
b. It is important to me to control who knows about my homosexuality or bisexuality	○	○	○	○	○	○	○
c. I feel comfortable discussing homosexuality or bisexuality in a public situation	○	○	○	○	○	○	○
d. Even if I could change my sexual orientation I wouldn't	○	○	○	○	○	○	○
e. I feel comfortable being seen in public with an obviously gay person	○	○	○	○	○	○	○
f. Most gay men cannot sustain a long-term committed relationship	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
g. Most gay men prefer anonymous sexual encounters	○	○	○	○	○	○	○
h. Gay men tend to flaunt their sexuality inappropriately	○	○	○	○	○	○	○
i. Gay men are generally more promiscuous than straight men	○	○	○	○	○	○	○
j. I often feel intimidated while at gay venues	○	○	○	○	○	○	○
k. Social situations with gay men make me feel uncomfortable	○	○	○	○	○	○	○
l. I feel comfortable in gay bars	○	○	○	○	○	○	○
m. Making an advance to another man is difficult for me	○	○	○	○	○	○	○

C9. The following 10 questions are about your current and previous experiences with being gay or bisexual. Please complete the chart with the answers that best suit your experiences.

	Never	Once or twice	Sometimes	Many times
a. As you were growing up, how often were you made fun of or called names because you are gay or bisexual?	○	○	○	○
b. As you were growing up, how often were you hit or beaten up because you are gay or bisexual?	○	○	○	○
c. As an adult, how often are you made fun of or called names because you are gay or bisexual?	○	○	○	○
d. As an adult, how often were you hit or beaten up because you are gay or bisexual?	○	○	○	○
e. As a child, how often have you heard that gay and bisexual men grow old alone?	○	○	○	○
f. As a child, how often have you heard that gay and bisexual men are not normal?	○	○	○	○
	Never	**Once or twice**	**Sometimes**	**Many times**
g. As a child, how often have you felt that being a gay or bisexual man has hurt your family?	○	○	○	○

h. How often have you had to pretend to be straight (heterosexual)?	○	○	○	○
i. How often do you suspect you have been turned down for a job because you are gay or bisexual?	○	○	○	○
j. How often have you had to move away from your family or friends because you are gay or bisexual?	○	○	○	○
k. How often have you experienced some form of police harassment because you are gay or bisexual?	○	○	○	○

C10. How often do people think you are gay or bisexual without being told?

- ○ Never
- ○ Occasionally
- ○ Sometimes
- ○ Usually
- ○ Always

C11. Below is a list of statements dealing with your general feelings about yourself. Please indicate whether you strongly agree, agree disagree, or strongly disagree with each.

	Strongly Agree	Agree	Disagree	Strongly Disagree
a. On the whole, I am satisfied with myself.	○	○	○	○
b. At times, I think I am no good at all.	○	○	○	○
c. I feel that I have a number of good qualities.	○	○	○	○
d. I am able to do things as well as most other people.	○	○	○	○
e. I feel I do not have much to be proud of.	○	○	○	○
f. I certainly feel useless at times.	○	○	○	○
g. I feel that I'm a person of worth, at least on an equal plane with others.	○	○	○	○
h. I wish I could have more respect for myself.	○	○	○	○
i. All in all, I am inclined to feel that I am a failure.	○	○	○	○
j. I take a positive attitude toward myself.	○	○	○	○

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION D: SEXUAL BEHAVIOUR IN THE PAST 6 MONTHS

This section contains questions about sexual behaviour within the past 6 months. Many of the questions on the following 2 pages were asked as part of a larger survey distributed to men in Toronto and Ottawa. We will be using the answers to obtain information specific to men in the London-Middlesex area. We realize that asking questions about sex and sexual health can be a sensitive topic for some people. Please be assured that all information you enter here will be kept strictly confidential.

D1. During **your lifetime**, have your sex partners been…?
- ○ Male only
- ○ Female only
- ○ Both male and female
- ○ I have had no sex partners in my lifetime

D2. During the **past 5 years**, have your sex partners been…?
- ○ Male only
- ○ Female only
- ○ Both male and female
- ○ I have had no sex partners in the past 5 years

D3. During the **past 12 months**, have your sex partners been…?
- ○ Male only
- ○ Female only
- ○ Both male and female
- ○ I have had no sex partners in the past 12 months

D4. During the past 6 months, with how many women have you had sex? (vaginal, oral or anal)

1 women

a.
How often did you use a condom?
- ○ Never
- ○ Occasionally
- ○ Sometimes
- ○ Usually
- ○ Always

D5. During the past 6 months, with how many men have you had sex (oral or anal)?

men

D6. During the past 6 months, have you had oral sex with a man where you sucked his penis (i.e. cock)?
- ○ No
- ○ Yes

a.
During the past 6 months, with how many men have you had oral sex?
Number of men whose penis (i.e. cock) you sucked (*be as precise as possible*)

D7. During the past 6 months, have you had anal sex with a man?

- No
- Yes

a.

During the past 6 months, with how many men have you had anal sex?
Number of men (*be as precise as possible*)

b.

During the past 6 months, have you had unprotected anal sex (no condom) with a man?

- No
- Yes

i.

Have you had unprotected anal sex with at least one man…
…who you knew at the time was HIV-positive?

- No
- Yes

ii.

Have you had unprotected anal sex with at least one man…
…who you knew at the time was HIV-negative?

- No
- Yes

iii.

Have you had unprotected anal sex with at least one man…
…whose HIV status you did not know at the time?

- No
- Yes

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION D: SEXUAL BEHAVIOUR IN THE PAST 6 MONTHS

D8. The last time you had anal sex with a man in the past 6 months did you or your partner use a condom?

- No
- Yes

D9. During the past 6 months, have you ever partially or fully inserted your penis (i.e. cock) into a man's anus (i.e. ass) before putting a condom on?

- No
- Yes, once
- Yes, more than once

a.
How often would you say this has happened?

- Never (0%)
- Rarely (less than 25% of the time)
- Sometimes (25-49% of the time)
- Most of the time (50-74% of the time)
- Almost every time (75-99% of the time)
- All the time (100% of the time)

D10. During the past 6 months, has a man ever partially or fully inserted his penis (i.e. cock) into your anus (i.e. ass) before putting a condom on?

- No
- Yes, once
- Yes, more than once

a.
How often would you say this has happened?

- Never (0%)
- Rarely (less than 25% of the time)
- Sometimes (25-49% of the time)
- Most of the time (50-74% of the time)
- Almost every time (75-99% of the time)
- All the time (100% of the time)

D11. During the past 6 months, while penetrating (e.g. fucking), have you ever taken the condom off and then continued to give anal sex to (i.e. fuck) your partner?

- No
- Yes, once
- Yes, more than once

a.
How often would you say this has happened?

- Never (0%)
- Rarely (less than 25% of the time)
- Sometimes (25-49% of the time)
- Most of the time (50-74% of the time)
- Almost every time (75-99% of the time)
- All the time (100% of the time)

D12.

During the past 6 months, while receiving anal sex (i.e. being fucked), has a man ever taken the condom off and then continued to have anal sex with you?

- No
- Yes, once
- Yes, more than once

a.

How often would you say this has happened?

- Never (0%)
- Rarely (less than 25% of the time)
- Sometimes (25-49% of the time)
- Most of the time (50-74% of the time)
- Almost every time (75-99% of the time)
- All the time (100% of the time)

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU

E1. How old are you?

_____ years old

E2. In what country were you born?

- ○ Canada
- ○ China
- ○ Colombia
- ○ Cuba
- ○ Dominican Republic
- ○ Germany
- ○ India
- ○ Indonesia
- ○ Iran
- ○ Italy
- ○ Korea
- ○ Mexico
- ○ Netherlands
- ○ Poland
- ○ Portugal
- ○ United Kingdom
- ○ United States
- ○ Venezuela
- ○ Other (*please specify*) _____
- ○ Don't know

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

E2. a.
In what year did you first come to Canada?

E2. b.
Which of the following government classifications describes how you first arrived in Canada?

- Unskilled worker classification
- Skilled worker immigration
- Economic or business class immigration
- Family class immigration
- Temporary worker or work visa
- Refugee
- Refugee claimant/ PRRA/ Judicial Review
- Visitor visa
- Student visa
- Undocumented/ Non-status/ Without papers
- I don't know
- Other (*please specify*)

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

E3. What is your current status in Canada?

- ○ Canadian citizen
- ○ Permanent resident/Landed immigrant
- ○ Refugee
- ○ Refugee applicant/ person in need of protection (before decisions has been made by immigration authorities)
- ○ Temporary worker/ work permit holder
- ○ Visitor
- ○ Student
- ○ Undocumented/ no status/ without papers
- ○ Other (*please specify*)
- ○ Don't know

E4. Are you First Nations, Métis or Inuit? (*Check all that apply*)

- ☐ Yes, First Nations
- ☐ Yes, Métis
- ☐ Yes, Inuit
- ☐ None of the above
- ☐ Don't know

E5. What were the ethnic or cultural origins of your ancestors? (*Write in as many that apply*)

E6. Which of the following best describes your ethnic or cultural identity? *(Check all that apply)*

- ☐ Aboriginal (First Nations, Métis or Inuit)
- ☐ Latin American (e.g. Argentina, Mexico, Nicaragua)
- ☐ East Asian (e.g. China, Japan, Korea, Taiwan)
- ☐ Black-Caribbean
- ☐ Indo-Caribbean (e.g. Guyanese with origins in India)
- ☐ South Asian (e.g. India, Sri Lanka, Pakistan)
- ☐ Middle Eastern (e.g. Egypt, Iran, Israel, Saudi Arabia)
- ☐ South East Asian (e.g. Vietnam, Malaysia, Philippines)
- ☐ White Canadian or White American
- ☐ White European (e.g. England, Greece, Sweden, Russia)
- ☐ Black Canadian or African-American
- ☐ Black African (e.g. Ghana, Kenya, Somalia)

E7. Are you perceived or treated as a person of colour?

- ○ Yes
- ○ No

E8. What language do you speak most often?

- ○ English
- ○ Other (*please specify*)

E9. How comfortable are you when speaking English in everyday settings?

- ○ Not at all
- ○ A bit
- ○ Somewhat
- ○ Fairly
- ○ Quite

Extremely

E10. In what language do you prefer to receive health care and social services?
- English
- Other (*please specify*)
- Don't know

E11. Have you been diagnosed with a medically recognized intersex condition?
- Yes
- No
- Don't know

E12. Are you transgender, transsexual, or a person with a history of transitioning sex or gender?
- Yes, female-to-male (FTM)
- Yes, male-to-female (MTF)
- No

E13. How do you currently identify? *(Check all that apply)*
- Bisexual
- Gay
- Two-Spirit
- Queer
- Straight or heterosexual
- Asexual
- Pansexual
- Not sure or questioning
- Other (*please specify*)

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

The following question is asked by Statistics Canada to measure sexual orientation. Please indicate how you would respond.

E14. Do you consider yourself to be…

- ○ Heterosexual? (sexual relations with people of the opposite sex)
- ○ Homosexual, that is lesbian or gay? (sexual relations with people of your own sex)
- ○ Bisexual? (sexual relations with people of both sexes)
- ○ Don't know
- ○ I'd rather not say

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

E15. What is your current relationship status?

- Single and not dating
- Single and dating
- In a monogamous relationship
- In a non-monogamous (open) relationship
- In a polyamorous (multiple people) relationship

E16. What is your current **legal** marital status?

- Married to another man
- Married to a woman
- Living common-law with another man
- Living common-law with a woman
- Separated
- Divorced
- Widowed
- Never married

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

The following question asks you for the first three characters of your postal code. The answer to this question can be useful in finding out what services are needed in which areas. This information will only be used to determine the *general* areas that people live in and can no way determine where you live.

E17. What are the first three characters of your postal code?

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

E18. Are you **currently** attending a school, college or university?

- ○ Yes, full-time
- ○ Yes, part-time
- ○ No

E19. What is the highest level of schooling you have **finished** so far?

- ○ I have never gone to school
- ○ Some elementary/primary school
- ○ Completed elementary/primary school
- ○ Some secondary school
- ○ Completed secondary school
- ○ Some community college
- ○ Completed community college
- ○ Some university at the bachelor's level
- ○ Completed bachelor's degree
- ○ Some part of a university certificate or diploma above bachelor's degree
- ○ Completed university certificate or diploma above bachelor's degree
- ○ Some professional school (example: law school, dental school, medical school)
- ○ Completed professional school (example: law school, dental school, medical school)
- ○ Some university at the graduate degree
- ○ Completed graduate degree
- ○ Other (*please specify*) _____

E20. **At any time in the last 12 months**, did you work at a job or business? (*Check all that apply*)

- ☐ Yes, I worked at a paid job, full-time (35 hours or more per week)
- ☐ Yes, I worked at a part-time job (less than 35 hours per week)
- ☐ Yes, I worked at more than one part-time job
- ☐ No

E21. **At any time in the last 12 months,** did you perform any volunteer work?

- ○ Yes
- ○ No

a.
About how many hours a week do you usually volunteer?
_____ Hours

E22. What is your best estimate of the **total income**, before taxes and deductions, of **all household members from all sources in the past 12 months**?

- ○ Less than $5,000
- ○ $5,000 to $9,999
- ○ $10,000 to $19,999
- ○ $20,000 to $29,999
- ○ $30,000 to $39,999
- ○ $40,000 to $49,999
- ○ $50,000 to $59,999
- ○ $60,000 to $69,999
- ○ $70,000 to $79,999
- ○ $80,000 to $89,999
- ○ $90,000 to $99,999
- ○ $100,000 or more

I'd rather not say

E23. **Including yourself**, how many people were being supported on this household income? Please include everyone who is being supported, including those who may live outside of Canada.

people

Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

E24. What is your best estimate of the **total personal income**, before taxes and deductions, from all sources in the **past 12 months**?

- ○ Less than $5,000
- ○ $5,000 to $9,999
- ○ $10,000 to $19,999
- ○ $20,000 to $29,999
- ○ $30,000 to $39,999
- ○ $40,000 to $49,999
- ○ $50,000 to $59,999
- ○ $60,000 to $69,999
- ○ $70,000 to $79,999
- ○ $80,000 to $89,999
- ○ $90,000 to $99,999
- ○ $100,000 or more
- ○ I'd rather not say

☐ Ready to submit this screen.

Next

Health in Middlesex Men Matters (HiMMM)

SECTION E: ABOUT YOU - continued

E25. What is your current religious or faith practice?

- None
- None, I am agnostic
- None, I am an atheist
- Agnosticism
- Atheism
- Buddhism
- Christianity
- Hinduism
- Islam
- Judaism
- Paganism
- Sikhism
- Other (*please specify*)

E26. Right now, how religious or spiritual are you?

- Not at all
- A bit
- Somewhat
- Fairly
- Quite
- Extremely

E27. Growing up, what was your religious or faith practice?

- None
- None, I am agnostic
- None, I am an atheist
- Agnosticism
- Atheism
- Buddhism
- Christianity
- Hinduism
- Islam
- Judaism
- Paganism
- Sikhism
- Other (*please specify*)

E28. How religious was your upbringing?

- Not at all
- A bit
- Somewhat
- Fairly
- Quite
- Extremely

E29. Now that you've finished, is there anything else you'd like to let us know?

E30.

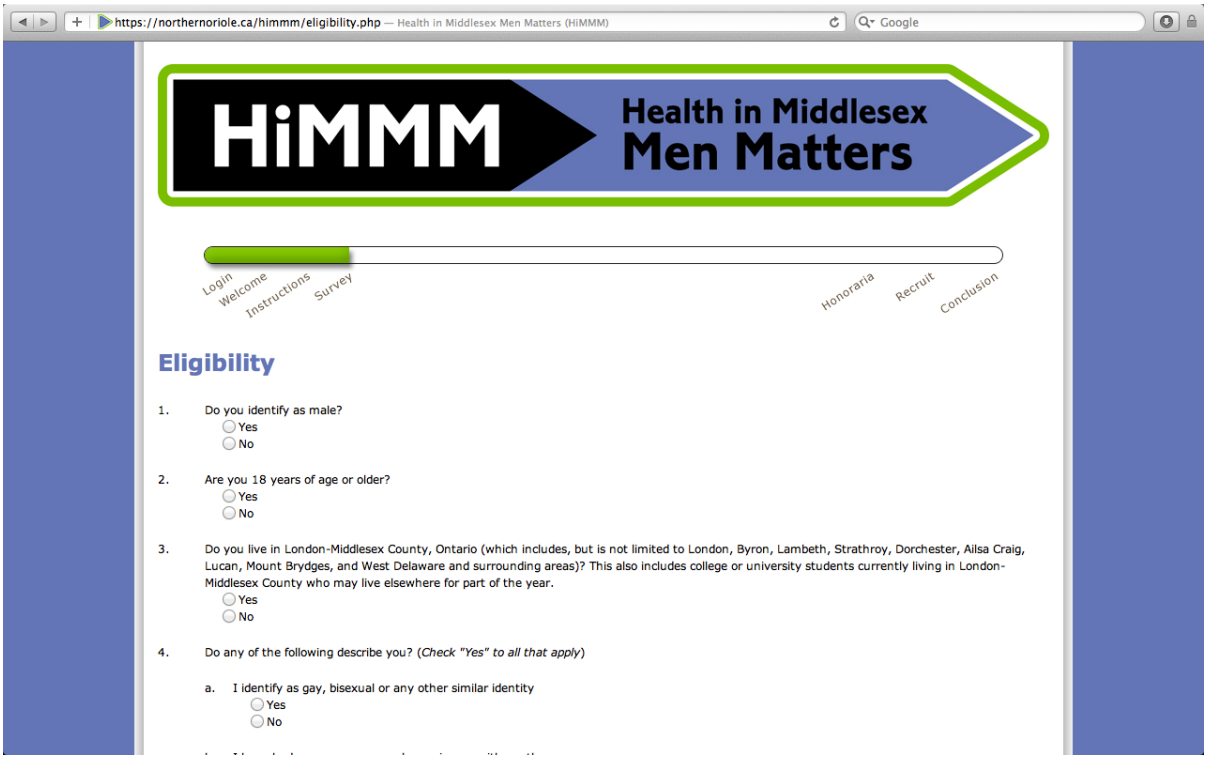
What is the best way to make the results of this study available to local communities (for example, posters or pamphlets)?

Ready to submit this screen.

Next

APPENDIX D

Visual style of online survey



APPENDIX E

Additional methodology details

E.1 Background - The Health in Middlesex Men Matters (HiMMM) Project

The AIDS Committee of London (ACOL; now the Regional HIV/AIDS Connection, or RHAC) held the Lesbian, Gay, Bisexual, Transgender, Two-Spirit, Queer (LGBT2SQ) Health Forum on November 23, 2006 in London, Ontario to initiate dialogue, identify health concerns, and plan next steps in improving health services for LGBT2SQ communities in London.[1] Discussions resulted in the identification of three notable themes: 1) homonegativity—external and internal; 2) isolation and social exclusion, and; 3) communication. When LGBT2SQ persons interface with the health care system in the region, frequent experiences of overt and covert homonegativity occur, from systemic and individual perspectives.[1]

Informal discussion within GB-MSM communities in the London area followed regarding findings from the LGBT2SQ Forum. These discussions resulted in community members and allies from The University of Western Ontario (Western), the Regional HIV/AIDS Connection (RHAC), and St. Joseph's London - Infectious Disease Care Program (IDCP) partnering to explore these themes and their individual and collective impacts on health care access for local GB-MSM. The results from this project were intended to directly inform prevention programming, service delivery, and future research initiatives in Middlesex County, Ontario.

In late 2008, the emerging HiMMM team successfully obtained a capacity-building grant from the Ontario HIV Treatment Network. Capacity-building training initiatives for the team included an introduction to community-based research, a review of survey design principles, and a session outlining quantitative sampling methods for hidden populations. This initial grant has also allowed for the development of a web presence since 2009 (www.himmm.ca). The original research team eventually expanded to include the Options Clinic, London's anonymous HIV testing service, and the Middlesex London Health Unit.

As part of the capacity-building phase, the HiMMM team developed interview guides and conducted 20 interviews with community members and service providers to identify

knowledge gaps related to themes identified in the LGBT2SQ Forum. GB-MSM were identified using purposive sampling based on characteristics including age, ethnicity, HIV status, geographical dispersion, and sexual orientation. Service providers were selected based on their occupations. Interviews were transcribed and analysed informally and have since resulted in the creation of two manuscripts. One of these is a mixed methods (qualitative and quantitative) examination of perceived acceptance for identity subgroups within the GB-MSM community and broader society. The other is a qualitative examination of perceived knowledge, attitudes, and behaviours regarding HIV/AIDS from local GB-MSM.

This thesis project is intrinsically tied to the Health in Middlesex Men Matters (HiMMM) Project, as Todd Coleman was in attendance at the Health Forum and initiated the research project.

E.2 Community-based research

The HiMMM Project functions as a community-based research group. A key characteristic of community-based research (CBR), sometimes called "community-based participatory research," is "the emphasis on the participation and influence of non-academic researchers in the process of creating knowledge".[2] CBR involves community members, organizational representatives, and researchers in all aspects of the research process.

Key principles to community-based research include that: CBR recognizes community as a unit of identity; builds on strengths and resources within the community, facilitates collaborative partnerships in all phases of the research; integrates knowledge and action for mutual benefit of all partners; promotes a co-learning and empowering process attending to social inequalities; involves a cyclical and iterative process; addresses health from positive and ecological perspectives; and disseminates findings and knowledge to all partners.[3]

E.3 Self-administered questionnaire

E.3.1 Questionnaire development

The quantitative questionnaire that provided the data used for the manuscripts in this thesis project was developed over two years. The survey was launched online in 2011. Transcripts of the interviews held during the capacity-building phase were read by all HiMMM team members, discussed, and used to guide the survey's development. Previous surveys of the GB-MSM community[4], the Trans PULSE Project Survey[5], the population-based Canadian Community Health Survey (CCHS)[6], and other community-based surveys also helped to provide insight into the inclusion of questionnaire items. For items that were not seen in prior questionnaires, the HiMMM team created these specifically. The questionnaire was reviewed extensively and pre-tested by the research team and other community members prior to launch. A copy of the questionnaire can be found in APPENDIX C.

The questionnaire was formatted according to guidelines set forth by Aday et al. and Dillman's Tailored Design Method, with guidelines established for Internet Surveys.[7,8] Inclusion of items was carefully considered and limited to ensure brevity of the questionnaire, as initial informal discussion indicated that a survey of GB-MSM should take, on average, no longer than 25-30 minutes to complete. The final questionnaire was divided into the following sections: eligibility, health and health services, social support, sexual behavior, and demographics, with two final open-ended text boxes asking for anything else the respondent would like to tell the Project and what, in their opinon, would be the best way to make results available.

The survey was programmed into an online webpage version by Northern Oriole[9], a survey design company. Northern Oriole translated the written questionnaire into a dynamic online version with built-in skip patterns. Coding for each variable was built into the survey based on a scheme developed by Todd Coleman and Dr. Greta Bauer. Data from participants' home computers were transferred over a secure "https" connection.

E.3.2 Sampling design and recruitment

Due to the inability to obtain a random sample of GB-MSM, the HiMMM Project survey initially programmed the sample to be drawn using respondent driven sampling

(RDS), a network-based sampling method designed for collecting data on "hidden" and marginalized populations.[10] RDS has often been used, with varying degrees of success, for data collection with groups where sampling frames do not exist and public acknowledgement of membership can be stigmatizing.[10] Prior to beginning data collection, the HiMMM team had speculated about the "connectedness" of GB-MSM communities in Middlesex County, which is a characteristic necessary for the successful use of RDS. Recruitment for HiMMM began in November 2011 with fifteen "seeds" selected by the research team based on their connectedness to sub-communities within local GB-MSM communities and their willingness to assist in ensuring the recruitment chains that they seed "sprout". For every subsequent wave, each HiMMM participant could recruit up to three eligible GB-MSM community members from their social networks to participate in the next wave.

After seven months of data collection via RDS, less than 100 men had been sampled. The HiMMM team decided at this point to open the questionnaire up online, creating a convenience sample. Once the online questionnaire was made more broadly available, the survey was promoted in local venues (bars, bathhouse), agencies (RHAC, St. Joseph's Infectious Diseases Care Program, Options Anonymous HIV Testing Clinic), and virtual venues including smartphone apps (e.g. Grindr, Scruff) and web-based chat rooms (e.g. gay.com, squirt.org).

Eligible participants: 1) were 18 years or older; 2) lived in Middlesex County; and 3) identified as gay, bisexual, or as a man who has had one or more sexual experiences with another man, or has had strong and continual sexual attractions to one man or men. The survey took, on average 34 minutes to complete, but completion times varied between 11 minutes and 2 hours, 36 minutes.

Since rewards, costs, and trust predict whether or not an individual participates in a survey, incentives were provided in a combination of monetary and lottery.[8] Respondents were offered $10 gift cards as a token gift for completing the survey. As a secondary incentive, the recruiter had a ticket entered into a periodic draw for each person they recruited who completes the survey. Prizes are three $100 gift cards and an iPod Nano. Names and addresses were collected in a separate, unlinked database to send gift cards and ticket numbers for distribution to other participants.

E.4 Data procedures

E.4.1 Data management

A codebook was developed for questionnaire variables and completed by a HiMMM Project research assistant. The codebook outlined variables names, codes for response options, instructions for coding, and original references (where applicable). When new variables were created, they were entered into the codebook by the research assistant. The data were stored in a password-protected MySQL database housed in a high security building in Oakville, Ontario with strong industry-standard encryption via an SSL Certificate. Data were backed up on a weekly basis and transferred to the T:/ Drive on the Schulich School of Medicine & Dentistry's network. Once the final data set was gathered and backed up on the T:/ Drive, data were deleted from the original MySQL database.

E.4.2 Data cleaning

Data checking (range and contingency checking) was performed by Todd Coleman using graphical and statistical methods using SAS.[11,12] Diagnostic exploration of each variable of interest was performed by Mr. Coleman to familiarize himself with the data. For categorical data, histograms and frequency tables were completed in SAS.[12] For continuous variables, means, medians, ranges (interquartile and total), and standard deviations were calculated. Data were checked for implausible values and logical imputation of missing values was conducted in SAS. Participants who had not completed Section E (Demographics) were not included in the final clean data set. Because the survey was programmed with skip patterns, minimal contingency checking (comparing responses between related questions) was required.[7] If errors were found, answers were inferred based on logic (i.e. a year value requiring four characters entered as "209" would be replaced with "2009") or based on responses to related questions. If answers could not be inferred, the variable value was set to missing.

E.4.3 Handling of duplication

Duplicate checking was conducted in the data cleaning stage to help uncover similar entries. If one or more duplicates were suspected, the participants' data were checked against each other data and, if excessive similarities existed, were excluded, leaving only one set of answers in the final data set.

E.4.4 Handling missing data

For variables necessary for regression analyses, logical imputation on a case-by-case basis was performed by replacing missing values based on the respondent's answers to other related items within the survey.[13] The final score of scale measures with more than 20% of individual items missing were codes as missing. Single imputation of missing categorical and continuous variables with the median and mean values of the variable occurred, respectively, for items with less than 10% missingness. No variables used in the analyses in our analyses had excessive missingness (i.e. greater than 15%).

E.5 Data analyses

E.5.1 Measures

The following table outlines the variables used in each manuscript of the dissertation, labelled with the associated question number from which the variable was adapted or derived from.

Table B.1 – Variable used in manuscripts

Manuscript	Variables
Chapter 3 – Access to a primary care provider for gay, bisexual, and other men who have sex with men: Results from the HiMMM Project	*Demographics:* age group [E1]; ethno-cultural background [E6]; ethnic or cultural identity indicated [E6]; birth country [E2]; education [E19]; annual household Income/per person [E22,E23]; area of residence [E17]; employment status [E20]; student status [E18]; marital status [E16]; relationship status [E15]; marital and relationship status (combined) [E15,E16]; sexual orientation identity [E14]; sexual orientation behaviour [D5]; *Health and primary care*: self-reported general health [B1]; perceived quality of health care services in the community [B3]; perceived availability of health care services in the community [B2]; HIV status [B21]; health insurance availability for basic medical expenses [B8]; has a primary care provider [B5]; current type of PCP [B5]; any negative experiences with a PCP [B7] *Model predicting access to a primary care provider*: age [E1]; ethno-cultural background [E6]; educational attainment [E19]; employment status [E20]; student status [E18]; marital & relationship status (combined) [E15,E16]; health value scale [B4]; birth country [E2]; sexual orientation identity [E14]; annual household income per person [E22,E23]; area of residence [E17]; insurance availability [B8]; social support (from friends) [C5]; social support (from family) [C5]; social support (from special

	person) [C5]; perceived quality of local health care [B3]; social support (% from GLBT communities) [C6]; previous negative experiences with a PCP [B7]; self-perceived general health [B1]; sexual orientation behaviour [D5]; HIV status [B21]
Chapter 4 - Sexual orientation disclosure and patient-centred care	*Demographics:* age group [E1]; ethno-racial group [E6]; ethnic or cultural identity indicated [E6]; birth country [E2]; education [E19]; annual household Income/per person [E22,E23]; area of residence [E17]; employment status [E20]; student status [E18]; marital and relationship status (combined) [E15,E16]; sexual orientation identity [E14]; sexual orientation behaviour [D5] *Psychosocial variables*: social support (% from GLBT communities) [C6]; social support (from friends) [C5]; social support (from family) [C5]; social support (from significant other) [C5]; internalized homonegativity [C8]; experiences of homophobia [C9] *Health and primary care*: self-reported general health [B1]; perceived quality of health care services in the community [B3]; HIV status [B21]; health insurance availability for basic medical expenses [B2]; current PCP knows about respondent's sexual orientation [B5a]; talks to their current PCP about health issues specific to being GB-MSM [B5c]; experiences with a PCP (ever) [B7]; any negative experiences with a PCP [B7]; health value scale [B4]; patient assessment of provider communication (scale) [B6] *Model predicting whether the PCP knows respondent's sexual orientation*: age [E1]; ethnicity [E6]; education [E19]; employment status [E20]; student [E18]; marital & relationship status [E15,E16]; health value scale [B4]; self esteem (scale) [C11]; born in Canada [E2]; sexual orientation identity [E14]; internalized homonegativity (scale) [C8]; experiences of homophobia (scale) [C9]; annual household income (per person) [E22,E23]; insurance availability [B8]; social support (from friends) [C5]; social support (from family) [C5]; social support (from significant other) [C5]; perceived quality of local health care [B3]; patient assessment of provider communication (scale) [B6]; social support (% from GLBT communities) [C6]; negative experiences with a PCP [B7]; self-perceived general health [B1]; sexual orientation behaviour [D5]; HIV status [B21]

	Model predicting whether respondent talks to PCP about GB-MSM related health issues: age [E1]; ethnicity [E6]; education [E19]; employment status [E20]; student [E18]; marital & relationship status (combined) [E15,E16]; health value (scale) [B4]; self esteem scale [C11]; born in Canada [E2]; sexual orientation identity [E14]; internalized homonegativity (scale) [C8]; experiences of homophobia (scale) [C9]; annual household income (per person) [E22,E23]; insurance availability [B8]; social support (from friends) [C5]; social support (from family) [C5]; social support (from significant other) [C5]; perceived quality of local health care [B3]; patient assessment of provider communication (scale) [B6]; social support (% from GLBT communities) [C6]; negative experiences with a PCP [B7]; self-perceived general health [B7]; sexual orientation behaviour [D5]; HIV status [B21]
Chapter 5 - Mental health service utilization in a sample of gay, bisexual, and other men who have sex with men	*Demographics:* age group [E1]; ethno-racial group [E6]; ethnic or cultural identity indicated [E6]; country of birth [E2]; education [E19]; annual household Income/per person [E22,E23]; area of residence [E17]; employment status [E20]; student status [E18]; marital and relationship status (combined) [E15,E16]; sexual orientation identity [E14] *Mental health and psychosocial variables*: self-perceived mental health [B9]; insurance availability for mental health services [B12]; has a primary care provider [B5]; used mental health services within the past 12 months [B11]; childhood level of religiosity or spirituality [E28]; current level of religiosity or spirituality [E26]; current versus childhood level of religiosity or spirituality [E26,E28]; HIV status [B21]; social support from LGBT communities [C6]; been told they have a mental health condition by a health care provider [B13]; prior experiences with a mental health service provider, ever [B14] *Scale variables*: social support (from friends) [C5]; social support (from family) [C5]; social support (from significant other(s) [C5]; internalized homonegativity (scale) [C8]; experiences of homophobia (scale) [C9]; attitudes towards seeking psychological help [B17] *Model predicting mental health service utilization within the past 12 months*: age [E1]; ethnicity [E6]; birth country [E2]; education [E19]; employment [E20]; student [E18]; marital & relationship status (combined) [E15,E16]; attitudes

	towards seeking psychological help [B17]; sexual orientation identity [E14]; experiences of homophobia [C9]; annual household income (per person) [E22,E23]; insurance availability for mental health services [B12]; social support (from friends) [C5]; social support (from family) [C5]; social support (from significant other) [C5]; access to primary care provider [B5]; social support (% from LGBT communities) [C6]; prior negative experience with a MHSP [B14]; current versus childhood religiosity/spirituality [E26,E28]; internalized homonegativity [C8]
Chapter 6 - HIV testing service utilization in gay, bisexual, and other men who have sex with men	*Demographics*: age group [E1]; ethno-racial group [E6]; ethnic or cultural identity indicated [E6]; country of birth [E2]; education [E19]; annual household Income/per person [E22,E23]; employment status [E20]; area of residence [E17]; student status [E18]; marital and relationship status (combined) [E15,E16]; sexual orientation identity [E14] *Health, sexual, and psychosocial variables*: has a primary care provider [B5]; previous negative experiences with a PCP [B7]; current versus childhood religiosity & spirituality [E26,E28]; social connection to LGBT communities [C1]; social support from LGBT communities [C6]; HIV test in the past 6 months [B21]; sex partners in the past 6 months [D4,D5]; level of HIV risk (contextualized) [D1,D4,D6,D7,D9,D10,D11,D12] *Scale variables*: social support (from friends) [C5]; social support (from family) [C5]; social support (from significant other(s) [C5]; internalized homonegativity (scale) [C8]; experiences of homophobia (scale) [C9]; health value [B4] *Model predicting not accessing HIV testing within the past 6 months*: age [E1]; ethnicity [E6]; birth country [E2]; education [E19]; employment [E20]; student [E18]; area of residence [E17]; marital & relationship status [E15,E16]; health value (scale) [B4]; history of transitioning gender [E12]; sexual orientation identity [E14]; annual household income per person [E22,E23]; insurance availability [B8]; social support (from friends) [C5]; social support (from family) [C5]; social support (from significant other) [C5]; social support (% from LGBT communities) [C6]; social connection to GLBT communities [C1]; access to a primary care provider [B5]; prior negative experience with a PCP [B7]; current versus childhood religiosity/spirituality [E26,E28]; internalized homonegativity (scale) [C8];

	experiences of homophobia (scale) [C9]; sex partner number, past 6 months [D4,D5]; level of HIV-related risk within the past 6 months [D1,D4,D6,D7,D9,D10,D11,D12] *Reasons for not testing for HIV in the past 2 years* [B22]

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APPENDIX F

Ethics Approval

Office of Research Ethics

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Telephone: (519) 661-3036 Fax: (519) 850-2466 Email: ethics@uwo.ca
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Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Dr. G.R. Bauer

Review Number: 17650S **Review Level:** Full Board

Review Date: December 03, 2010 **Approved Local # of Participants:** 0

Protocol Title: THE HEALTH IN MIDDLESEX MEN MATTERS (HIMMM) PROJECT: HEALTH CARE UTILIZATION AND HIV-RELATED RISK BEHAVIOUR IN GAY, BISEXUAL, AND OTHER MEN WHO HAVE SEX WITH MEN IN MIDDLESEX COUNTY, ONTARIO.

Department and Institution: Epidemiology & Biostatistics, University of Western Ontario

Sponsor: ONTARIO HIV TREATMENT NETWORK

Ethics Approval Date: March 02, 2011 **Expiry Date:** December 31, 2011

Documents Reviewed and Approved: UWO Protocol, Letter of Information, Honoraria Process Page, End of Survey Page, Telephone Script. Interpreter Confidentiality Agreement.

Documents Received for Information:

This is to notify you that The University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the study or consent form may be initiated without prior written approval from the NMREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the NMREB:

a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the NMREB.

[redacted]

Chair of NMREB: Dr. Riley Hinson
FDA Ref. #: IRB 00000941

Ethics Officer to Contact for Further Information			
☑ Grace Kelly [redacted]	☐ Janice Sutherland [redacted]	☐ Elizabeth Wambolt [redacted]	

This is an official document. Please retain the original in your files.

cc: ORE File

Curriculum Vitae

Name: Todd Anthony Coleman

Education:

The University of Western Ontario
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2000-2007 Hon.B.H.Sc.

The University of Western Ontario
London, Ontario, Canada
2011-2013, Certificate in University Teaching and Learning

The University of Western Ontario
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2007-2014 Ph.D

Scholarships, Academic Honours & Awards

Ontario HIV Treatment Network, Studentship Award, 2010-2013

Canadian Institutes of Health Research, 2008-2009

Western Graduate Research Scholarship – Epidemiology, 2007 2012

Dean's List, Faculty of Health Sciences, 2005-2007

Research Grants

Brennan D, Jollimore J, Li AT, McEwen OJ, Visser F, Adam BD, Crath RD, Gahagan JC, Gilbert MP, Lachowsky NJ, McCready LT, Oliver BW, Bacon J, Brunetta J, Murray G, Kovacs C, Murphy K, Murray J, Utama RB, Zoccole A, Coleman TA, George C, Hansen B, Hart TA, Kirkland SA, Lewis N, MacPherson PA, Numer MS, Rangel JC, Scheim A, Shuper PA, Tan DH. HIV Prevention, Risk Perceptions, Behaviours, and Health Care Access Among Gay, Bisexual, Two-Spirit, and Other Men Who Have Sex with Men in the Context of Changing Social-Historical, Messaging, and Socio-Sexual Environments. Canadian Institutes of Health Research: $9,981. Received. Co-Investigator, 2014.

Bauer G, Pugh D, Coleman T, Newman R, Aykroyd G, Pierre Pitman L, Powell L, Fraser M, Murphy K. Health in Middlesex Men Matters (HiMMM): A community-based survey of social exclusion, homophobia, communication, health care and HIV in Middlesex County, Ontario. Canadian Institutes of Health Research: $151,198. Received. Co-Investigator, 2012-2015.

Coleman T, Pugh D, Landry T, Baidoobonso S. South Western Ontario Has HIV/AIDS Research Too! RBC Community Partner

Project Grant: $670. Received. Principal Investigator.

Bauer G, Pugh D, Coleman T, Aykroyd G, Defend M, McCarty-Johnston P, Newman R, Scherer E. Health in Middlesex Men Matters (HiMMM). Ontario HIV Treatment Network: $24,957. Co-Principal Investigator, 2009-2010.

Peer-Reviewed Publications

Bauer GR, Travers R, Scanlon K, Coleman TA. (2012). High heterogeneity of HIV-related sexual risk among transgender people in Ontario, Canada: a province-wide respondent-driven sampling survey. BMC Public Health. 12:292; DOI: 10.1186/1471-2458-12-292

Bauer GR, Khobzi N, Coleman T. (2010). Herpes simplex virus type-2 seropositivity and relationship status among U.S. adults age 20 to 49: A population-based analysis. BMC Infectious Diseases. 10:359; DOI: 10.1186/1471-2334- 10-359