

2022-07-08

Barriers, Facilitators, and Experiences with Exercise Among Individuals of South Asian Heritage Living with and Beyond Cancer

Bansal, Mannat

Bansal, M. B. (2022). Barriers, facilitators, and experiences with exercise among individuals of South Asian heritage living with and beyond cancer (Master's thesis, University of Calgary, Calgary, Canada). Retrieved from <https://prism.ucalgary.ca>.

<http://hdl.handle.net/1880/114852>

Downloaded from PRISM Repository, University of Calgary

UNIVERSITY OF CALGARY

Barriers, Facilitators, and Experiences with Exercise Among Individuals of South Asian Heritage
Living with and Beyond Cancer

by

Mannat Bansal

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SCIENCE

GRADUATE PROGRAM IN KINESIOLOGY

CALGARY, ALBERTA

JULY, 2022

© Mannat Bansal 2022

Abstract

Purpose: The purpose of this study was to understand the physical activity (PA) experiences, as well as needs, barriers, and facilitators to exercise, among individuals of South Asian heritage diagnosed with cancer.

Methods: A qualitative descriptive design was used for this study. Individuals of South Asian heritage were recruited via a mix of convenience sampling and purposive sampling, with outreach via radio, posters in community settings, and via participants in current exercise oncology studies. Inclusion criteria included being over the age of 18; diagnosed with any cancer type and stage; pre, during, or post-treatment; able to speak English, Hindi, or Punjabi; and self-identified as South Asian. Data for this study was collected via semi-structured interviews conducted in either Hindi, Punjabi, or English. Interviews were transcribed verbatim in the original language and then analysed using conventional content analysis. The codes created through analysis were then translated and back-translated to ensure accuracy. Codes were then organized into themes and categories.

Results: Eight participants were recruited, with 5 interviews in Punjabi and 3 interviews in English. The three themes that were created from the participant interviews include: 1) Culture, 2) Informational Needs, and 3) The Nature of Exercise Oncology Programming. Within these themes, categories included PA needs, barriers, and facilitators.

Conclusion: Participants' perspectives provided insights into the PA experiences, barriers, facilitators, and needs of people of South Asian heritage living with and beyond cancer. The results can be used to inform the tailoring of exercise oncology resources to better support physical activity for this population.

Keywords: exercise oncology, South Asian, barriers, facilitators, preferences

Preface

This thesis is original, unpublished, independent work by the author, M. Bansal. The study reported herein was granted ethics approval by the Health Research Ethics Board of Alberta (HREBA) – Cancer Committee (CC); Ethics ID: HREBA.CC-21-0097 for the project “Exploring Barriers and Facilitators to Physical Activity Among Individuals of South Asian Heritage Living with Cancer” on October 21, 2021.

Acknowledgements

First and foremost, to my supervisor, Dr. Nicole Culos-Reed. Nicole, I was in my 2nd year of undergraduate studies sitting on the floor of a random building on campus, when I came across your work on social media. I turned to the person next to me and said, “this is the person I am going to do my master’s with.” You inspire me in ways that I cannot even begin to articulate. Your hard work, passion, and dedication already set you apart, but your commitment to your students is something I will forever be grateful for. Thank you for allowing me the opportunity to be a part of your Health and Wellness Lab family these past two years, for all the guidance you provided me, and for keeping me on for the next four years for my Ph.D.! I am so glad for that lucky day that I happened to see your work on social media.

To my committee, Dr. Kathryn King-Shier and Dr. William Bridel. Thank you for your guidance, support, and expertise over the past two years. I appreciate all the time you put into ensuring that this work was done well. This would not have been possible without you. *To Dr. Turin Chowdhury* – thank you for being a part of this process and for your time. I look forward to your feedback.

To my funding sources, the Training in Research and Clinical Trials in Integrative Oncology Program, Arnie Charbonneau, the Daniel Family Foundation, and the Faculties of Kinesiology and Graduate Studies, University of Calgary. Thank you for the opportunity to do this research and the various development and leadership opportunities.

To the Health and Wellness Lab. Wow – what a team! You were truly one of the highlights of these past two years. No matter what was happening, you were always there to put a smile on each other’s faces. *Tanya, Jess, Nicole, and Julianna* – thank you for the laughs, the mentorship, and for always being willing to answer my endless questions. *Amanda* – you are

always a HWL member at heart. You took me under your wing with the SPIN-CHAT work just a few months into my time with the lab. Thank you for all you taught me about research and managing grad school. *Rosie* – thank you for being such a great mentor and allowing me to learn so much from you through the systematic review. *Chad* – thank you for always being willing to proofread my work. I have stuck my head into your office to ask questions at least a thousand times but you never complained. Thank you so much. *Emma, Benny, Julia, Tana, Manny, Max, Delaney, and Kelsey* – I could not have asked for a better cohort of graduate students to have worked with over the past two years. If I am half the graduate student that you all were/are, I will consider myself proud. In particular, thank you, *Emma*, for all the support you have provided me. With your heart of gold and your willingness to always help others, I know you will thrive in your future career aspirations. I would also like to give a special thank you to *Benny and Harshpreet* for all your work on the translation for this study.

To Bobbie-Ann – we finally made it! I would not have gotten through this without you. Thank you so much for messaging me after the graduate student orientation. I remember watching our first master’s defence together and texting each other about dropping out because we got so scared. I am glad we did not actually do that. Thank you for going along with my wacky ideas to increase our productivity. On that note, thank you for getting on Zoom every morning at 7 am so we could motivate each other to get our work done. I know you will go on to do amazing things.

To my grandma, my dadima. Before I started the first grade, you sat me down and forced me to learn how to read and write in Punjabi. You told me that it would come in handy one day and that I would thank you. I believe that “one day” has finally come. I do not think even you had imagined that it would come in handy at this level. I promise you here in writing: our culture

and our language will not end with me. Also, thank you for being such a fantastic model for my recruitment posters. Your exercise oncology journey continues to inspire me.

To my parents – thank you. I hope you know that your hard work and sacrifices did not go unnoticed. You moved to a new country with nothing but hopes and dreams that your child would have all the opportunities that you did not. You got me where I am through sheer determination. Thank you for the sacrifices you tried to keep hidden from me. Thank you, mom, for cutting up apples and leaving them on my desk while I studied. I still hate apples, but my gut is very grateful. Thank you for allowing me to come and lay my head in your lap on the days I felt too stressed and overwhelmed. Dad, thank you for always making me laugh on those same days. Thank you for jumping up and down with me like we were Phoebe and Rachel from FRIENDS every time I got a scholarship/award or even a good test score. Thank you for continuing the work dadima started and for proof-reading all my Punjabi. Thank you both for always believing in me – you are my best friends. I love you.

To Sanchit, my chosen family. There is not a single bone in my body that wants to be cheesy or lovey-dovey on my master's thesis acknowledgements. So, I will just say thank you. You were the light at the end of a very dark tunnel.

Dedication

This work is dedicated to Kishan Singh Virdi, my grandpa, my papaji. Thank you for always instilling in me a substantial value for academia. Thank you for being strong in your conviction that I would be more than the traditional gender roles expected of me. I wish you were still here to see the work you inspired.

Table of Contents

Abstract.....	ii
Preface.....	iii
Acknowledgements.....	iv
Dedication.....	vii
Table of Contents.....	viii
List of Tables.....	x
List of Figures and Illustrations.....	xi
List of Symbols, Abbreviations and Nomenclature.....	xii
CHAPTER ONE: INTRODUCTION.....	13
1.1 Cancer and Physical Activity.....	13
1.2 Ethnicity and Physical Activity.....	14
1.3 Ethnicity, Physical Activity, and Cancer.....	15
1.4 Summary.....	23
1.5 Objectives of Present Project.....	23
CHAPTER TWO: METHODS.....	24
2.1 Study Design.....	24
2.2 Participants.....	24
2.3 Recruitment.....	24
2.4 General Procedures.....	26
2.4.1 Analytic Strategy.....	27
2.4.2 Translation Process.....	28
2.5 Quality Criteria.....	30
2.6 Reflexive Acknowledgement.....	31
CHAPTER THREE: RESULTS.....	32
3.1 Demographics.....	32
3.2 Conventional Content Analysis.....	35
CHAPTER FOUR: DISCUSSION AND CONCLUSION.....	58
4.1 Thesis Summary.....	58
4.1.1 South Asian Ethnicity and PA for those Living with and Beyond Cancer: Barriers.....	59
4.1.2 South Asian Ethnicity and PA for those Living with and Beyond Cancer: Facilitators and Needs.....	61
4.1.3 South Asian Ethnicity and PA for those Living with and Beyond Cancer: Additional Considerations.....	63
4.2 Implications for Future Exercise Oncology Resources Including Education and Programs.....	65
4.3 Study Strengths Limitations, Challenges, and Limitations.....	66
4.4 Conclusion.....	68
REFERENCES.....	70

APPENDIX A	80
APPENDIX B	83
APPENDIX C	86
APPENDIX D	93
APPENDIX E	96
APPENDIX F	99

List of Tables

Table 1. Exercise oncology literature focussed on ethnically diverse populations.	17
Table 2. Participant demographics and clinical characteristics.	33
Table 3. Participant characteristics.	34

List of Figures and Illustrations

Figure 1. Translation Strategy.....	29
Figure 2. English Recruitment Poster.	80
Figure 3. Hindi Recruitment Poster	81
Figure 4. Punjabi Recruitment Poster.	82

List of Symbols, Abbreviations and Nomenclature

Abbreviation	Definition
PA	Physical Activity
ACE	Alberta Cancer Exercise
EXCEL	Exercise for Cancer to Enhance Living Well

Chapter One: **Introduction**

1.1 Cancer and Physical Activity

One in two Canadians will be diagnosed with cancer in their lifetime (Canadian Cancer Statistics Advisory Committee, 2019), resulting in a need for supportive care for those living with and beyond cancer (de Heus et al., 2021). There is abundant evidence suggesting that physical activity (PA) is an effective non-pharmacological intervention to help alleviate the adverse side effects of cancer and its treatment (Campbell et al., 2019; Cormie et al., 2018). PA is a low-cost intervention that reduces cancer-related side effects, including pain and fatigue, while also increasing psychosocial well-being and decreasing mortality (McNeely et al., 2019; Santa Mina et al., 2017; Van Waart et al., 2015). In addition, PA is associated with improved treatment-related outcomes (McNeely et al., 2019; Van Waart et al., 2015), as well as increased physical functioning and overall quality of life in individuals living with and beyond cancer (Campbell et al., 2019; Hayes et al., 2019; Cormie et al., 2017).

Despite the potential benefits of PA, most individuals living with and beyond cancer are not active enough to achieve health benefits (Min et al., 2019). To better understand these levels of inactivity across cancer patients, an exploration of PA-related barriers and facilitators for individuals living with and beyond cancer is useful. Common barriers to PA in general cancer populations for adults include lack of time (Kim et al., 2019; Clifford et al., 2018) and treatment-related side effects such as fatigue (Ferri et al., 2020; Clifford et al., 2018). Whereas commonly reported facilitators to PA have been the improved physical and mental health outcomes (Ferri et al., 2020; Clifford et al., 2018). Several studies have highlighted the importance of facilitating exercise programs that help individuals living with and beyond cancer overcome these barriers and accrue the benefits of long-term PA adherence (Fox et al., 2019; Clifford et al., 2018; Romero et al., 2018).

While these are the commonly reported barriers and facilitators for many individuals living with and beyond cancer, there may be unique factors for individuals within specific cancer populations. Little research has examined the experiences or potential unique barriers and facilitators to PA for various ethnic minority groups.

1.2 Ethnicity and Physical Activity

Before exploring ethnicity and PA, it is essential first to define key terms. *Race* is a social construct describing groupings of humans based on physical and biological traits such as genes and skin colour, while *culture* describes learned norms, values, shared meanings, customary beliefs, social forms, and behaviours of a group (Caliendo & McIlwain, 2020; Spencer, 2014). *Ethnicity* describes large groups of people grouped according to shared geographic ancestral origins and cultural origin/background (Caliendo & McIlwain, 2020). According to Statistics Canada (2016), individuals of South Asian heritage (those from Afghanistan, Pakistan, India, Sri Lanka, Bangladesh, Nepal, and Bhutan), the largest visible minority group in Canada, represent 25.1% of Canada's total ethnic minority population and 5.6% of Canada's total population (Wasay et al., 2014; Statistics Canada, 2016). In general, ethnic minority individuals have even lower levels of PA than non-minority populations (Spector et al., 2013), and individuals of South Asian heritage are among the most sedentary ethnic groups in Canada (Caperchione et al., 2015). Barriers to engaging in PA among non-clinical South Asian populations include language barriers, a lack of education, spirituality, a lack of cultural sensitivity among exercise programming, and collectivist attitudes (Horne & Tierney, 2012). These lower levels of PA are related to an increased risk of chronic diseases across ethnic minority populations relative to non-minority individuals (Caperchione et al., 2015; Sweeney et al., 2019). Moreover, culture and ethnicity play significant roles in the way that individuals understand health and suffering, make decisions regarding lifestyle changes, and adhere to medical treatments (Kagawa-Singer et al.,

2010). To date, there is little exercise oncology literature on PA experiences, or the barriers and facilitators focused on ethnic minority individuals despite the disparities in cancer incidence and outcomes by ethnicity (Zavala et al., 2021). The little work that has been done has primarily focused on ethnic minority individuals with breast cancer, and none of this work explicitly focused on individuals of South Asian heritage living with cancer (see Table 1 for a review of the literature).

1.3 Ethnicity, Physical Activity, and Cancer

While exercise oncology research on ethnic, racial, and cultural diversity is growing (12 studies conducted since 2008), there remain overall relatively few studies (see Table 1). The work that has been done in minority groups and exercise oncology includes African American, Chinese American, Hispanic/Latina, and unspecified “ethnically diverse” individuals. The results from these studies highlight that there are important differences between ethnic groups regarding PA levels, barriers, and facilitators. When tailoring exercise oncology resources to a specific culture, the beliefs of individuals in that culture surrounding PA, and the beliefs surrounding cancer, must be understood (Koshoedo et al., 2015). For example, Deng et al. (2019) designed a culturally tailored lifestyle intervention program for Chinese American cancer survivors and found that this personalized program resulted in significantly greater adherence to PA. Results support the call for exercise interventions to be culturally tailored for different ethnic minority cancer populations (Deng et al., 2019; Spector et al., 2013). As ethnic minority and South Asian populations in particular grow in Canada, potential health disparities resulting from lower PA levels must be addressed (Gu et al., 2019; Wallander et al., 2012).

Exercise oncology resources, including education and programs, geared toward individuals of South Asian heritage living with cancer must be culturally appropriate and considerate of their values and beliefs (Kagawa-Singer et al., 2010). Specifically, understanding

the potential unique needs, barriers, and facilitators to participating in regular weekly exercise oncology programs or PA in general for individuals of South Asian heritage living with and beyond cancer is necessary to address any potential unmet needs in this community.

Table 1. Exercise oncology literature focussed on ethnically diverse populations

Citation	Study Design	Purpose	Measures	Results
Hughes et al., 2008.	Feasibility study.	Assess the effectiveness of an exercise intervention on quality of life for Hispanic breast cancer survivors	Physical fitness, quality of life, self-reported stress, and salivary cortisol.	<ul style="list-style-type: none"> • Improved physical fitness • Reduced perceived stress • Decreased cortisol
Lim et al., 2009.	Cross-sectional survey. Focus group interviews.	(1) describe health behaviors and health-related quality of life (HRQOL) of Latina and Asian-American breast cancer survivors, (2) estimate possible culturally driven predictors of health behaviors and HRQOL, and (3) compare pathways for predicting health behaviors and HRQOL between the two groups.	<p>Health related quality of life questionnaire developed from the functional assessment of cancer therapy-general (FACT-G).</p> <p>Health behaviours measured using self-report.</p> <p>Cultural health belief scale comprised of four items from the multidimensional health locus of control.</p> <p>12-item short Acculturation Scale for Hispanics.</p>	<ul style="list-style-type: none"> • Asian Americans reported higher emotional and physical well-being scores than Latina-Americans. • Latinas and Asian Americans showed different pathways in the predicted relationships among the variables. • For Latina- Americans, doctor–patient relationship was positively related to exercise, and in turn, influenced physical and emotional well-being. • For Asian Americans, treatment decisions and the “sociocultural factor” (family situation or cultural background) were significantly related to stress management.

			Interpersonal Aspects of Care subscale of the Adherence Determinants Questionnaire to assess doctor-patient relationship.	
Smith et al., 2009	Prospective cohort study.	To examine the associations between recreational physical activity and quality of life in a multiethnic cohort of breast cancer survivors, specifically testing whether associations are consistent across racial/ethnic groups/	Demographics, diagnosis information, physical activity, and quality of life.	There is an association between physical activity and quality of life for Black and non-Hispanic White women diagnosed with breast cancer.
Wada et al., 2013	Cross-sectional survey.	To determine if Asian American and Native Hawaiian and Other Pacific Islander adolescent and young adult survivors of childhood cancer (AYASCC) have a higher prevalence of adverse health behaviours.	Behavioral Risk Factor Surveillance System survey and Youth Risk Behavior Surveillance System survey.	Asian American and Native Hawaiian and other Pacific Islander AYASCC were more likely to be physically active than similarly aged non-cancer peers in Hawai'i, across the United States, and the largely white AYASCC samples.
Spector et al., 2013.	Cross-sectional survey.	Determine whether women with breast cancer were meeting current PA	International Physical Activity Questionnaire to measure PA.	Hispanic/ Latina women <ul style="list-style-type: none"> • least likely to meet PA recommendations.

		recommendations, and to describe perceptions of exercise self-efficacy, exercise benefits and barriers, and perceptions of environmental supports for PA by race or ethnicity.	Physical Exercise Self-Efficacy Scale to measure perceived self-efficacy. Perceived Exercise Barriers Scale. Perceived Exercise Benefits Scale. Environmental Supports for Physical Activity Questionnaire to assess neighborhood characteristics such as social or safety issues.	<ul style="list-style-type: none"> • More likely than Caucasian and African American women to report lack of enjoyment from exercise, lack of knowledge on how to exercise, feeling self-conscious because of looks, and discouragement as exercise barriers.
Spector et al., 2014.	Feasibility study.	Determine whether African American participants increase physical activity and explore whether exercise had a positive impact on fitness and health	Accelerometry, cardiopulmonary function (VO2peak), muscle strength, Selective Functional Movement Assessment, and dual energy X-ray absorptiometry. Fatigue and quality of life were also measured.	<ul style="list-style-type: none"> • Significant increase in total minutes of weekly physical activity. • Significant improvements were found in cardiopulmonary fitness. • Strength measures significantly increased. • Total QOL and fatigue scores improved, but neither was significant.
Paxton et al., 2014.	Cross-sectional survey.	To determine the PA intervention preferences of African American breast cancer survivors and determine whether these preferences differ	PA preferences were assessed using four closed-item questions and one open-ended question.	<ul style="list-style-type: none"> • About 49% of the participants who completed the survey categorized as obese • 54% did not meet the recommended guidelines for PA.

		according to medical and sociodemographic factors.	PA was assessed via a self-administered instrument designed for the Women's Health Initiative. Self-reported height and weight used to compute BMI. Sociodemographic and medical data was self-reported.	<ul style="list-style-type: none"> • 90% reported that they could participate in PA, • 67% indicated that they were interested in receiving program materials. • Interest in email, web, or mail-based over group, and telephone. • Women interested in participating in studies that promoted walking and resistance or strength training. • Intervention preferences did not differ significantly across sociodemographic or medical factors.
Glenn et al., 2018.	Cross-sectional survey. Phone interviews.	To assess weight status, physical activity, and dietary behaviors in an ethnically diverse sample of breast and colorectal cancer survivors with early onset disease	BMI, lifestyle behaviors, cancer-related beliefs, family history, genetic testing, use of preventive health services, and health information preferences. Also, fruit and vegetable intake, sugar-sweetened beverage consumption, and fast-food consumption.	<ul style="list-style-type: none"> • Few participants reported engaging in regular physical activity (31%). • High prevalence of overweight and suboptimal adherence to recommended nutrition and physical activity behaviors were observed among cancer survivors with early onset disease. • Cancer survivors diagnosed at a young age may benefit from targeted interventions to address overweight and suboptimal nutrition and physical activity.
Asare et al., 2019.	Cross-sectional analysis of data from 2016 Behavioral Risk Factor	Assess physical activity behavior of cancer survivors by race and social determinants of health.	Social determinants of health (SDH) and race	Blacks were more likely than Whites to report <ul style="list-style-type: none"> • low economic stability • low access to health care • low health literacy.

	Surveillance System			<ul style="list-style-type: none"> • Lower PA after adjusting for SDH
Deng et al., 2019.	Feasibility study.	To engage Chinese American cancer survivors (CACS) in systematic changes toward desired health behaviors through a healthy lifestyle intervention delivered by a community-based organization	Health Education Impact Questionnaire to measure patient knowledge. Automated Self-Administered 24-Hour Dietary Assessment Tool to measure dietary intake. Community Healthy Activities Model Program for Seniors to measure PA. BMI. SF-36 to measure quality of life.	<ul style="list-style-type: none"> • Significantly higher consumption of vegetables • Higher frequency of PA • Improved mental health <p>Lower limitation in doing their work or other activities due to physical health or emotional problems.</p>
Le et al., 2019.	Cross-sectional questionnaire.	Investigated Chinese American's PA adherence by acculturation level (vs. non-Hispanic White (NHW) survivors).	Acculturation (proxies of US residency, English proficiency, and interview language) Self-reported PA questionnaire.	<ul style="list-style-type: none"> • Less-acculturated Chinese survivors' adherence rate (60%) was significantly lower than that of NHWs (80%). <p>Less-acculturated Chinese survivors were also less likely to engage in vigorous-intensity PA than NHWs ($p < 0.01$).</p>
Stolley et al., 2020.	Cross-sectional survey and focus-group interviews.	To identify facilitators of behavior change and weight loss in an intervention for African American Breast Cancer Survivors	Questionnaires on demographics, nutrition, physical activity, patterns, and QOL. Focus group was on health behavior change and needs, interests, and preferences of a lifestyle intervention.	<p>Barriers:</p> <ul style="list-style-type: none"> • access, knowledge, and skills <p>Motivators:</p> <ul style="list-style-type: none"> • health benefits and building strength to feel more "manly." <p>High interest in programs to</p> <ul style="list-style-type: none"> • exercise, learn about affordable healthy eating, and bring survivors together to discuss survivorship issues.

Kwarteng et al., 2020.	Randomized controlled trial.	The purpose of this study was to examine facilitators of behavior change and weight loss among African-American women who participated in the Moving Forward Efficacy trial.	Demographic data (age, education, household income). BMI. Leisure-time activity using the Modified Activity Questionnaire (MAQ). Dietary Intake using Healthy Eating Index (HEI). Physical activity and nutrition self-efficacy using an 11-item instrument. The Social Support Questionnaire to measure social support for eating and exercise. Perceived access to healthy eating, exercise, and neighborhood safety using the Perceived Access to Healthy Eating and Exercise scale.	<ul style="list-style-type: none"> • No evidence to suggest mediation, Some direct associations of • self-efficacy, • certain types of social support • perceived access to exercise on weight loss • behavior change.
------------------------	------------------------------	--	--	---

*Note: the terminology used in this table is the same terminology used in the papers that are being referenced

1.4 Summary

While there is substantial evidence for the benefits of PA and exercise interventions as a part of supportive care for those living with and beyond cancer, much of the previous literature has not considered potential ethnic differences (Clifford et al., 2018). Given the abundance of evidence for the role of PA in cancer care, there is a need to understand specific population experiences, needs, barriers, and facilitators to PA and exercise to begin to address these discrepancies (Liguori et al., 2021). Table 1 is a review of the studies in exercise oncology for diverse populations. Based on the research to date in exercise oncology, there are populations that have not been addressed, including individuals of South Asian heritage. Understanding PA and exercise experiences (including norms and beliefs), exercise barriers, and exercise facilitators can ultimately be used to work toward implementing culturally tailored exercise oncology resources. Results will contribute to the growing body of research supporting the movement towards implementing PA and exercise as a part of standard supportive cancer care that is inclusive and designed for *all* individuals living with cancer.

1.5 Objectives of Present Project

The purpose of this study was to understand the general PA and exercise experiences, as well as the needs, barriers, and facilitators to exercise among individuals of South Asian heritage diagnosed with cancer.

The specific research questions were:

1. What are the experiences of individuals of South Asian heritage living with cancer with exercise oncology resources, including education and programs?
2. What are the preferences, barriers, and facilitators of individuals of South Asian heritage living with and beyond cancer to being physically active and participating in exercise oncology programming?

Chapter Two: **Methods**

2.1 Study Design

A qualitative descriptive design was used for this study. A qualitative design gives voice to participants, allowing their perspectives and experiences to be central (Willig & Stainton-Rogers, 2017). Qualitative descriptive design involves producing a rich description of facts in relation to the participants' experiences (Neergaard et al., 2009; Sandelowski, 2000). Language is considered a vehicle of communication rather than an interpretive structure itself, as it may be in other types of qualitative research (Sandelowski, 2000). Qualitative descriptive studies draw from naturalistic inquiry, which implies studying something in its natural state without manipulation.

2.2 Participants

We aimed to obtain 10 participants. This number was expected to provide a good breadth of knowledge and insight into the experiences of individuals of South Asian heritage living with and beyond cancer. Inclusion criteria included adults over the age of 18; diagnosed with any cancer type and stage; who were about to begin, currently undergoing, or had completed treatment; able to speak English, Hindi, or Punjabi; and self-identified as South Asian. Those who had not begun treatment were included to obtain a variety of perspectives on perceived barriers, facilitators, and preferences. Any individuals who had not been diagnosed with cancer or did not identify as being of South Asian heritage were excluded. Punjabi and Hindi are the first and fourth most common languages spoken by individuals of South Asian heritage residing in Canada (Statistics Canada, 2016).

2.3 Recruitment

Targeting individuals of South Asian heritage, participants were recruited via a mix of convenience sampling and purposive sampling. First, posters in English, Hindi, and Punjabi

languages (Appendix A) were put up at various community locations. The Genesis Centre, a recreational facility in the northeast quadrant of Calgary that houses many South Asian specific events, was reached out to via email using the email template seen in Appendix B, with the posters in Appendix A sent as attachments. The Genesis Centre agreed to put up the posters in their lobby. Further, posters were also put up at places of worship. Specifically, three Sikh Gurudwaras, three Islamic Mosques, one Hindu Mandir, and one Nirankari Bhavan were reached out to via email. Posters were eventually put up at the two Sikh Gurudwaras (Dashmesh Culture Centre and Gurudwara Darbar Sri Guru Granth Sahib Ji) and one Islamic Mosque (Islamic Information Society of Calgary). The study recruitment/informational email and posters were also sent to Soch Mental Health, a Canadian South Asian mental health initiative with an extensive network of South Asian connections. They shared the posters with their marketing team to circulate with the Soch community. Posters were also put up in South Asian grocery stores around Calgary including, Sanjha Punjab Grocery, Fruiticana, and Ok General Foods.

Beyond this, a South Asian-specific radio station, REDFm Calgary, was also contacted via email and utilized for recruitment. REDFm ran an interview with MB in Punjabi to discuss the study purpose and the inclusion criteria to aid in recruitment. In this interview, an email and phone number were provided for potential participants to reach the study researcher (MB). Additionally, current clinical contacts (e.g. Breast Health Clinic, Tom Baker Cancer Centre Outpatient Clinic) of the Health and Wellness Lab were reached out to via email and sent posters. Posters were also put up at psychosocial resources at Holy Cross Hospital in Calgary. Finally, Wellspring Calgary, a local charity that provides programs and services for people living with and beyond cancer, was reached out to via email. They agreed to share the posters with their members. For purposive sampling, current and previous participants of the Alberta Cancer

Exercise (ACE) study ([NCT02984163](#)) and Exercise for Cancer to Enhance Living Well (EXCEL) study ([NCT04478851](#)) who were eligible based on their self-identified ethnicity (South Asian) were contacted. We felt that current ACE and EXCEL participants would provide insight into the perspectives of those who have engaged with current exercise oncology programming alongside the insights of those who may not have specific exercise oncology experience. All contacts were emailed three times total (one initial email and two follow-up emails, each after approximately 2 weeks).

2.4 General Procedures

Interested participants who reached out to the study team via email in English, were emailed the consent form (Appendix C) and a general intake questionnaire (Appendix D) to identify their ancestral origins, age, gender, and preferred language. If interested participants spoke Punjabi or Hindi exclusively and could not navigate email, the consent form was read to them in their preferred language, and verbal consent was obtained. These participants reached out via phone. In these cases, a hard copy of the general intake questionnaire was provided in their language of choice. All participants had the option of obtaining a copy of the consent form. Participants were then asked their preferred interview date, time, and method (in-person at a location of their choice, over Zoom, or over the phone). Data for this study was then collected via semi-structured interviews conducted in either Hindi, Punjabi, or English, and audio recorded. The consent form was again reviewed prior to the start of the interview.

The individual conducting the interview (MB) knew the identity of the participant but assigned a code to the participant's name in order to maintain anonymity. Once the participant's preferred language (Hindi, Punjabi, or English) had been identified, MB conducted semi-structured interviews using the semi-structured interview guide (Appendix E). The questions were designed to elicit the "story" of a participant's experience with PA in general, including

frequency and intensity of PA prior to diagnosis and PA in relation to their cancer journey. This included frequency and intensity of PA during and after (if relevant) cancer treatment, their exposure to oncology-specific PA resources (education and programs), perceived barriers to PA, and what helps them engage (i.e., facilitators) in PA programs. The interview questions focused on potential culturally-specific barriers and facilitators to try and understand the role different cultures may play in PA engagement. Probing following initial questions was guided by the discussion and was via open-ended questions (see probe examples in Appendix E).

2.4.1 Analytic Strategy

Qualitative content analysis has the goal of providing knowledge and understanding of the topic being studied. This method of analysis involves the systematic classification process of coding and identifying themes or patterns (Graneheim & Lundman, 2004; Hseih & Shannon, 2005; Graneheim et al., 2017). In particular, conventional content analysis was used by MB, involving an inductive category development approach (Hseih & Shannon, 2005; Elo & Kyngäs, 2008) on NVivo 12.0 software. Once transcribed, the interviews were read word-by-word to extract codes (Hseih & Shannon, 2005; Elo & Kyngäs, 2008). These codes were created by highlighting words that capture key concepts or thoughts. Then, MB made notes of her first impressions, thoughts, and initial analysis. Eventually, as the analysis process continued, codes were created that reflect more than one key concept or thought. These codes were derived directly from the data and formed the initial coding scheme (Hseih & Shannon, 2005; Elo & Kyngäs, 2008; Lindgren et al., 2020). Next, codes were categorized based on how they related to each other, allowing for organization into meaningful clusters (Graneheim & Lundman, 2004; Elo & Kyngäs, 2008; Hseih & Shannon, 2005; Lindgren et al., 2020). There was then further organization of the clusters into larger categories or themes. Subsequently, the themes were defined with examples (Hseih & Shannon, 2005; Lindgren et al., 2020).

2.4.2 Translation Process

The interviews were audio recorded and transcribed verbatim by MB. Translation was done following the strategy recommended by Chen and Boore (2009) (see Figure 1). This translation process involves analysing the data in the original language (Chen & Boore, 2009). In the case of this study, when the interviews were conducted in Punjabi, the codes were created in Punjabi as well. The codes were then translated to English independently by MB and another member of the research team (HG). The two researchers went back and forth on their translations until agreement was reached. Next, the now English codes were checked for accuracy through back-translation to the original language by another member of the research team (BR). The translation steps were then repeated as necessary to ensure accuracy between the original codes and the back-translation. Translation and back-translation was used to translate representative quotes as well. This translation method has been found to be more efficient while also being considerate of time and resources as compared to translating all the data completely prior to analysis (Chen & Boore, 2009; Sutrisno et al., 2014; Santos et al., 2015).

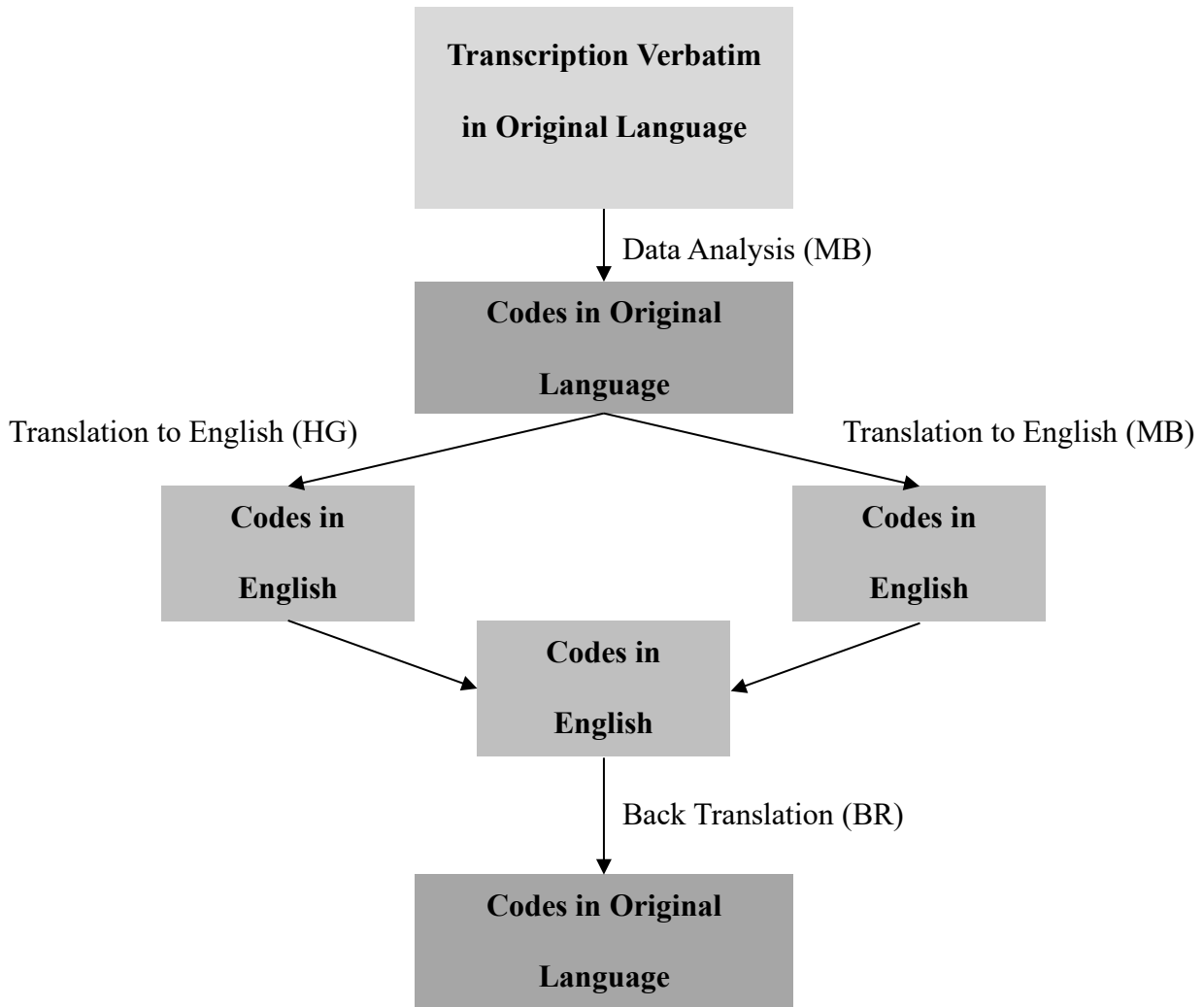


Figure 1. Translation and back-translation methods as informed by Chen and Boore (2009).

2.5 Quality Criteria

Credibility involves whether the data and method of analysis address the intended focus of the research (Graneheim & Lundman, 2004; Elo et al., 2014). As such, a qualitative study using semi-structured interviews addresses the intended focus as they allow for a detailed exploration of participants' experiences as well as how these experiences may be informed by discourses, assumptions, or ideas that exist in wider society that they reside in (Evan & Lewis, 2018). The general intake questionnaire given to all participants ensured that participants were accurately described. If participants with various relevant experiences are chosen, then there is a higher likelihood of investigating the research focus from various perspectives (Graneheim & Lundman, 2004). For this study, participants were of various South Asian backgrounds and had different linguistic capabilities. Additionally, by purposively sampling from the existing ACE and EXCEL database, we were able to obtain perspectives from individuals of South Asian heritage who had engaged with current exercise oncology programming, as well as those who had not. Further, representative quotations are provided from translated and transcribed data to help differentiate between categories and themes. Next, *dependability* refers to the stability of data over time and in different conditions (Lincoln & Guba, 1985; Granheim & Lundman, 2004; Elo et al., 2014). This was addressed through an iterative coding and translation process between MB, HG, and BR and through discussion with NCR after translation was complete. Finally, *transferability* refers to the decision of how well the results can be extrapolated to other groups or settings (Koch, 1994; Granheim & Lundman, 2004; Elo et al., 2014). Transferability is ultimately the readers' decision but can be facilitated by providing clear and articulate descriptions of the culture and context of the participants, selection criteria, and process of analysis (Granheim & Lundman, 2004; Elo & Kyngäs, 2008; Elo et al., 2014). This information is provided in this chapter and the results chapter.

2.6 Reflexive Acknowledgement

Reflexivity is the practice of acknowledging the contextual and intersecting relationships between the researcher and the participants as well as any shared experiences (Dodgson, 2019). Specifically, reflexivity forces the researcher to take responsibility for one's own positionality and how this may impact the research, including the people being studied, the questions being asked, and the interpretation of the data (Berger, 2015). Following is a brief reflexive account of my positionality in relation to this study. I am a 24-year-old, second generation Canadian born to Canadian immigrants of Indian origin. I have seen multiple family members diagnosed with cancer, and some have lost their battle to cancer. I watched their journeys through the Canadian healthcare system and played the role of translator for some of these family members during medical appointments. Additionally, I was witness to their lack of access to supportive care services, including exercise oncology resources. In addition to my cultural background and personal experiences with cancer, I am an exercise oncology class instructor with the ACE program. Within this setting, I have noticed a lack of diversity in the class participants. These experiences were foundational in my passion for better understanding the experiences of individuals of South Asian heritage living with and beyond cancer with exercise. Any potential biases in my interpretation of the data were addressed through constant discussion with BR, HG, and NCR.

Chapter Three: **Results**

3.1 Demographics

Interviews were conducted with eight participants but 10 completed the consent form. From this 10, one was of Iraqi heritage and therefore did not meet the eligibility criteria and one did not respond to follow-ups to schedule an interview. Of those interviewed, one participant was recruited through a poster at a place of worship, three were recruited through emails to participants in the ACE and EXCEL databases, and four were recruited via the REDFm radio interview. Table 2 summarizes participant demographics and clinical cancer characteristics. Participants self-identified as being of Indian heritage (75.0%) and Pakistani heritage (25.0%). The majority of participants (62.50%) opted to be interviewed in Punjabi, while the rest of the participants (37.50%) chose to interview in English.

Table 2. Participant demographics and clinical characteristics ($n=8$).

Variable	
Age [‡]	51.25 (17.09), [25.00-74.00]
Gender [†]	
Female	7 (87.50)
Male	1 (12.50)
Country of Ethnic Origin [†]	
India	6 (75.00)
Pakistan	2 (25.00)
Preferred Language [†]	
English	3 (37.50)
Punjabi	5 (62.50)
Cancer Type [†]	
Breast	4 (50.00)
Sarcoma	1 (12.50)
Genitourinary	2 (25.00)
Digestive	1 (12.50)
Treatment Status [†]	
Currently Receiving Active Treatment	3 (37.50)
Completed Treatment	3 (37.50)
Receiving Long-Term Hormone Therapy	2 (25.00)
Years Since Diagnosis [‡]	3.82 (3.10), [8.04-0.75]

Notes: [‡]Mean (Standard Deviation), [Range]; [†]n (%)

Table 3. Participant characteristics

Participant #	Gender	Age	Cancer Type	Treatment Status	Country of Ethnic Origin	Interview Language
P1	F	50	Breast	Completed Treatment	India	Punjabi
P2	F	35	Breast	Receiving Long-Term Hormone Therapy	Pakistan	English
P3	F	25	Sarcoma	Currently Receiving Active Treatment	Pakistan	English
P4	M	74	Genitourinary	Currently Receiving Active Treatment	India	Punjabi
P5	F	66	Digestive	Currently Receiving Active Treatment	India	Punjabi
P6	F	68	Genitourinary	Completed Treatment	India	Punjabi
P7	F	43	Breast	Receiving Long-Term Hormone Therapy	India	English
P8	F	49	Breast	Completed Treatment	India	Punjabi

3.2 Conventional Content Analysis

Study participants discussed their experiences with PA-related to their cancer journey and specifically their facilitators and barriers to PA both before, during, and after (where applicable) their cancer treatment. Interviews lasted, on average, 58.87 minutes (range approximately 27-97 minutes). The transcripts were analyzed to understand barriers, facilitators, and experiences with PA of individuals of South Asian heritage living with and beyond cancer. Themes and underlying categories were built from codes as per a conventional content analysis approach. 95 codes were initially created, which were integrated into categories and then three themes. The three themes created from the participant interviews include 1) Culture, 2) Informational Needs, and 3) The Nature of Exercise Oncology Programming. These themes, the categories within them, and representative quotes are described below (see Appendix F for more representative quotes per category and theme).

Theme 1: Culture

As described earlier, *culture* is defined as learned norms, values, shared meanings, customary beliefs, social forms, and behaviours of a group (Caliendo & McIlwan, 2021; Spencer; 2014). Participants often discussed their culture in relation to their PA and cancer journey. Within this “Culture” theme, there were three categories, including “The Role of The Family”, “Religion”, and “Health and PA Norms”.

Category: The Role of the Family

Participants described the very significant role that families play in the participants’ experiences with their disease and with their experience with PA. For example, when reflecting on their cancer journey, one participant spoke about the expectation of ensuring that all family members are aware and understand all aspects of their diagnosis, prognosis, and treatment plans. Specifically, the participant described how stressful it could be to recollect all the information

from their oncology appointments with their families. The participant commented on the added difficulty of their cancer journey through this task.

*Because even with the- with the normal person going through this whole thing and understanding, a lot of times when you're stressed out and you hear some, you have only 5 minutes or 10 minutes with your oncologist or whatever he- these things, they're talking, and there's a lot of information that you might not understand. And then you have to make sense of it- remember it and then answer a lot of people when you will be back- what has happened? Yeah, and it's not easy to get that much information in such a small amount of time and still understand it. **P2***

This task becomes more complex and stressful when English is not the individual's native language, and thus hearing new, detailed medical information is even harder to remember and interpret to bring back to the family.

Participants also reflected positively on the support they received from their families during their cancer journey. In particular, participants described relying on their family for a range of supports, including PA support, emotional support, general health needs, transportation, and translation of educational resources and information.

*[My kids say] 'it will be okay. If anything happens, they will do your treatment. You will be okay'. They make me strong. They give me courage. **P1***

Conversely, participants recalled their families' emotional reactions to their cancer diagnosis and spoke of how they often had to remain strong to support their family's emotions. Additionally, many participants described prioritizing their family's needs and emotions over their own. Other participants were hesitant to provide too many details about their cancer to their family with hopes of sparing their families from emotional distress. The potential burden that supporting participants can put on the family was also commented on.

Because at first, my husband also cried a lot, when we found out [about the diagnosis]. He cried a lot. Then he said 'no I'll die, I'll die'. Right? That's what he said. Then, I said, 'our kids will fade, if you do this. We need to give them hope.' **P1**

I don't really dwell a lot with- a lot of information on [my parents]. I don't want them to feel, you know, worried about me sometimes. Yeah because they- they will worry. **P7**

Our mentality is that 'I have to look after my whole family, then if another tells me to, then I will do self-care. Otherwise, no.' **P8**

And I, I always felt really sad, because sometimes when people of immigrant community comes- come here and have like some sort of disease, and then the kids are translating, that's such a burden on the child, like, the kids are so involved, they're translating, understanding...So I mean, yeah, that's also I feel like it's a burden for children too. **P2**

This quote captures how the translation of health information can fall on the children of individuals living with chronic disease and be a significant burden. However, even if this is a potential burden, this quote also shows how South Asian families work as a collective in the face of cancer and other illnesses and speaks to the potential role for family involvement to support an individuals' movement choices.

In the same vein, participants highlighted the importance of family “buy-in” from individuals of South Asian heritage for exercise oncology. Families were described as playing a significant role in a participant's willingness to exercise. As such, it is important to bring awareness about the role of exercise to the family as much as to the individual.

[To get more South Asian exercise oncology participants], I think family support is important. Personally, instead of the individual, family awareness- if other [family] members say it, then the individual thinks 'yes, I want to'. P8

We are thinking about other people too, because we are so- I guess we are very community-oriented. So nobody's like one person, they have family, they have siblings, they have...parents that are always in the appointment or visiting or things like that. So we have to think about the whole dynamic. As a whole because that's not just one person. It's a whole family. P2

These quotes further add to the idea of the family collective and the role this plays in the individuals' cancer journey, and their decisions regarding lifestyle changes such as the uptake of exercise oncology programming. Family in many instances may act as a facilitator to becoming

physically active for individuals living with and beyond cancer of South Asian heritage. Overall, participants described a very collectivist mindset during their individual cancer journey.

Category: Health and PA Norms

Participants spoke about PA and health-related norms that may impact the discussion around exercise oncology resources including education and programs. These norms may hinder or facilitate adherence to PA. For example, participants spoke about how their norms are to show all doctors respect, and to listen, but not necessarily ask questions. Therefore, they are less likely to take initiative and ask their doctor to provide more information about exercise oncology. Further, participants mentioned that they only do what the doctor has directly told them to.

Yes, the doctor told me to [exercise]...Now whatever the doctor tells me to do- the doctor was the one who told me what exercises to do. The doctor was the one who told me to do the ones with the dumbbells. 'These are 3-4 exercises, do them.' P5

And that's also one of the things I think we are very, very unique. Some people in our community just don't want to ask questions [to doctors]. Doesn't want to stir the pot... So maybe that's why they're not reaching out because they don't want to. They don't want to stir the pot, they don't want to ask questions. P2

Notably, one participant described the need for current exercise oncology programs to reach out to clinics in communities where there are more people of South Asian heritage residing. Providing the exercise oncology information to these clinics would better inform the

doctors, and as described by the participants above, if the doctors recommend exercise, South Asian patients are more likely to do it.

I feel like if there were, for example, like outreach to communities like that where there actually are people of this population, or like if the doctors knew about it and they were helping to bring people in, I think that would help but that doesn't exist there. People there don't really know about ACE...So I feel like what would help is if like people involved in ACE or EXCEL and programs like that, reached out specifically to the communities in which these people live- people of South Asian background. P3

This reflects a strong cultural norm around participants' role as patients and seeing the doctor as an expert. This highlights the importance of outreach to physicians and specifically physicians who work more with individuals of South Asian heritage. Increasing awareness of the role of movement and exercise during cancer care and into survivorship via educational outreach to doctors in these communities may facilitate referrals and further build community buy-in.

Also, participants expressed wariness about discussing their cancer diagnosis and related experiences with others. This was because participants were concerned about being given unwanted opinions and misinformation from others. Not wanting to discuss cancer and their experiences may serve as a barrier to joining group exercise classes – as they see this as a setting that would require them to talk about their cancer-related experiences.

So I feel like most people that I come across that are of this background, they would typically like tiptoe around it...It's more like the older population that I struggle with.

Like my parents' generation. I feel like they are really not great at having these conversations. Like I just feel like they don't really know how to respond and too much-like for my dad, he'll sometimes be like 'hey like I can't handle this. You know, I'm praying for you but I- sometimes it's too much for me to know the details' ...Do I feel like it's appropriate? No I often feel like it's not an appropriate topic of discussion and not one that a lot of people in this culture wanna have. P3

So sometimes they are just curious, but not helpful. So maybe that's the reason why they don't want to share because there's been times when I've been told to drink carrot juice and it will miraculously cure me, or I don't have to go through chemo. I shouldn't be going through chemo. It kills you. And there's a conspiracy theory about...pharmaceutical companies gaining some extra money, because I went through chemo. You don't need that crap. P2

On the other hand, while discussing this cultural norm of not speaking about their cancer and associated experiences, some participants indicated they felt there is a need in the South Asian community to be more open and were willing to share their cancer experiences with others.

And I think that we should. We should talk. If I have to even I am willing to talk, if I have to tell somebody...And especially breast cancer, I don't know why people consider it as a stigma right? I don't know what will happen. Like when you talk about it, you do it in a

low voice and say 'oh that person got cancer', right? Like I don't know, as if just speaking about cancer will cause it to spread. P8

While participants described not being willing to have cancer-related discussions, they also recognized a need in the community to do so. The previous two quotes, in particular, perhaps highlight a need to educate members of the community on cancer, cancer-treatment, and other aspects of the cancer journey.

Finally, participants discussed the idea of the individual's role for their lifestyle choices. The views shared reflected a belief among the participants and within their experiences with others, that it is ultimately up to the individual to become physically active and healthy. Likewise, if an individual has negative health outcomes, then they believe that others will think they must have done something wrong. This adds to the idea of avoiding unwanted opinions from others as mentioned earlier.

You can tell us over and over again that 'exercise has benefits, exercise has benefits' but if our minds aren't made up then what benefits, right?...We can say it again and again. For this, you need to make up your own mind [to exercise]. P1

I think it's all South Asian, I think we tend to- like in our cultures to blame ourselves. Like, you know, somebody got into a bad situation, you're like 'oh, but she must have done something wrong in her lifetime. To deserve this.' P2

In addition to these health norms, participants also described norms, beliefs, and ideas around what is considered PA. When asked about what they currently do to stay physically active, many participants described employment or household work rather than formal exercise.

I do kitchen work- I do house work [for physical activity]. I do anything, big or small. P6

I work- I used to work in a furniture factory [for physical activity]. P4

There remains an importance for continuing to educate populations that ‘all movement matters’, and a physically active lifestyle may include both home and work activities.

Category: Religion

Participants described their belief in a higher power in relation to their cancer journey. They also spoke of the role that places of worship play in their day-to-day lives. Religion was identified as a potential facilitator for adopting a physically active lifestyle among individuals of South Asian heritage living with and beyond cancer. For example, participants commented on their belief in God and how this belief is what provides them emotional support and acceptance during their cancer journey.

But I didn't- I didn't feel anything [when I was diagnosed]. I have a lot of faith in God...But it's fine, now everyone who is born, has to die one day. Other than that, you know God? Before we are born, He has written our death. And this is the truth. If I have to go, then I have to go. P6

This quote highlights that the participant was able to find peace and acceptance of their cancer diagnosis through their faith in God. Others also spoke about how religion influences their lifestyle choices.

Prophet Muhammad said, to be more physically active, maybe we have to, touch upon, like how religion has- I'm so sure every religion talks about being- taking care of your body...this is a gift from God. Your body's a gift from God. You need to take care of it, like, you know, stay away from things that harm it. Like maybe, more do things that benefits it. Yes. And for us, it's an amanat. It's like, it's not ours. But amanat is something that is given to you to keep for a while, but you have to give it back. So like for Islam, it's an amanat. And you don't, like if I give you something to keep, you don't go around ruining it. Keep it safe and you try, like if you, if you like me, you will keep it safe. You wouldn't go around, like throwing it or wrecking it. And so like, if you do like Allah, you need to keep your body safe. You need to. You're accountable of what you do with it.

P2

For some participants, religion, and culture around their religious communities, should be acknowledged and utilized to further build support for placing activity within the 'heart of the community'. Participants spoke about how religious organizations or places of worship may be useful for exercise education, and hosting exercise oncology programming. It was also mentioned that there is more trust for members of their own community and that this would include religious leaders in the community. As such, participants said that it would be beneficial

to leverage religious leaders to engage more individuals of South Asian heritage in exercise oncology programming.

I would say that our, old age people, they come to the Gurudwara a lot. And if you have your program at the Gurudwara, then it's better. Because here, our old age man- ladies, gents, they get on a bus and come here... They are already here, at the Gurudwara, they have their meal and water, they drink their tea and water. And everyone gets together here. And I would say that if your program was here then it would be better. P4

Conversely, one participant felt that PA for oncology educational resources and exercise oncology programming at places of worship would not be a valuable use of resources.

I don't know if [Mosques] really would be open to doing something like that and I don't know how many people would be reading about ACE on a Mosque bulletin board or having conversations with someone in a Mosque about health-related stuff. So yeah I just don't know if that is the best use of your resources, I guess. P3

These participants presented differing views about utilizing religious organizations for exercise oncology program and educational resource dissemination. Since P3 was speaking about Islamic Mosques and P4 was speaking about Sikh Gurudwaras, it is possible that different religious organizations may serve as stronger avenues for exercise oncology than others. However, given the importance of religious institutions for many within South Asian cultures,

further exploring these community organizations as potential partners for PA delivery settings would be useful.

Theme 2: Informational Needs

Participants in this study described barriers they have faced in receiving and understanding available exercise oncology educational resources. Categories within Theme 2 included “Need more PA for oncology education”, “Barriers to Exercise Oncology Educational Resources Identified by Individuals of South Asian Heritage”, “Need New Ways to Spread Exercise Oncology Information”. The participants highlighted gaps in knowledge and understanding regarding the role of PA for cancer. Additionally, participants discussed barriers leading to a lack of awareness of available exercise oncology programming.

Category: Need More PA for Oncology Education

Participants spoke about how they were told to exercise by healthcare providers but did not have enough education on exercise to actually begin.

I don't do much exercise these days. I don't have any help or guidance. P8

I think we need to educate them. I don't think they know the importance of being active. I don't see a lot like, I mean, I'm talking about the older generation, like the most they do is walk. But I feel like yeah, we have to hammer that physical activity is really important.

It's not just walking, it's just, we have to incorporate that. Education is a big thing. P2

I don't have [cancer] now. I don't know anything about [exercise and cancer] like what I can do about it. I mean, I hope the coming time is okay, but I don't know anything about this. P4

In relation to this, participants spoke about how they were less active due to treatment-related side-effects such as fatigue.

Health isn't like how it used to be right?...I feel weakness. P1

But after radiation, [my energy was] completely zero. And that took me almost more than 2 months. In between it would be like eating, lying down, then getting up, eat and then lay down again all day, right? P8

Conversely, participants who had been previously involved in ACE and EXCEL reported that their treatment related side-effects improved as a result of exercise classes.

Oh yeah [ACE] helps with fatigue. I noticed that like when I went through the ACE program, like I- there were times when I was so tired that I didn't even want to do the physical activity or even just go for a walk but as soon as I made myself do it, I felt like I had more energy after the activity. So yeah. So physical activity- it helps with fatigue and then also helps with I guess the- I feel like I'm motivated after like when I- after doing the ACE class or going for a walk... P7

Through proper education, participants may have been aware that PA could help reduce treatment-related side-effects, and this may serve as motivation to simply ‘move more’ or at least as much as possible, during treatments. In fact, other participants did note feeling motivated to exercise by the potential health benefits they may receive.

[I exercise because] I want to maintain good health. P4

The importance of healthcare providers sharing PA educational information with patients is well-supported in the literature, but improved ways to provide this educational information should be considered when trying to reach more underserved cultural and ethnic minority populations.

Category: Barriers to Exercise Oncology Educational Resources Identified by Individuals of South Asian Heritage

Participants spoke about their experiences with educational resources and resources informing them about available exercise oncology programming. They discussed the barriers faced when trying to understand or engage with these resources. First, participants commented on wanting to see diversity in exercise oncology educational resources. It was mentioned that the lack of visible diversity (i.e., in pictures representing exercisers and trainers) in exercise oncology educational resources is a potential deterrent to exercise oncology programming.

I think like what would increase participation would be...if on a poster, you could have people that look like- like there is a girl in a Hijab or there's a visibly brown or like South Asian participant. You know what I mean? Like just make it look more inclusive and make it more inclusive, I guess. P3

This supports the importance of having exercise oncology resources that are diverse and representative of many individuals' backgrounds. Furthermore, due to language barriers, participants described their inability to understand any of the educational resources provided on the topics of PA for oncology or on free available exercise oncology programming (i.e., online resources).

And [NAME], you know what? Language matters a lot. A lot of times we do not even try to read any literature in English...we do not know. We only go to the doctor as much as required by our disease. Other than that, we do not go for any other services. P8

It could be like language barriers that could be one thing like people just don't like understand what is happening or know there is an ACE program out there. P7

This could further explain why, despite there being free 12-week ACE and EXCEL exercise oncology classes, participants spoke about not being aware of these opportunities and described financial barriers to PA.

I guess financial [barriers to exercise]. Sometimes people don't- can't afford- can't afford gym memberships. P2

Overall, there is a need for PA educational and programming resources that are tailored so that participants can understand (linguistically and at a reading level appropriate for the public) the information, as well as see themselves in these resources.

Category: Need New Ways to Spread Information

Participants explained how this community relies on word-of-mouth. Additionally, participants mentioned that information should be made available through South Asian radio stations, South Asian grocery stores, and South Asian specific cultural associations. There is more trust for members of their own community.

Word of mouth is a big thing, I think, in our community. We have trust between ourselves.

P2

*My husband heard [the radio interview] He noted down the number...then I started communicating but that talk helps a lot. Talks like that should be done more. **P8***

*Royal Woman Association is one [association that should be reached out to] and there's...Calgary Woman Culture Association. **P5***

*Put [posters] at superstore. There are lots of Punjabi stores- grocery stores. **P1***

The described gap in understanding the benefits of PA for oncology or in the knowledge of available exercise oncology resources can potentially be helped through these different ways to spread information to individuals of South Asian heritage. All in all, across the theme of

“Informational Needs”, and the three associated categories, we see that there is a need to reconsider our current methods of disseminating exercise oncology educational resources to better engage more individuals of South Asian heritage.

Theme 3: The Nature of Exercise Oncology Programming

Beyond educational resources, participants spoke about their particular preferences and needs in relation to exercise oncology programs. For most needs and preferences, there were many differences between participants. Categories within theme 3 included: “Barriers to Exercise Oncology Programming Identified by Individuals of South Asian Heritage” and “Need Various Exercise Oncology Programming Options”.

Category: Barriers to Exercise Oncology Programming Identified by Individuals of South Asian Heritage

Similar to the barriers in educational resources, participants brought up the need for exercise oncology classes in different South Asian languages including Punjabi and Urdu. Participants explained that unless exercise oncology programming can be offered in different languages, there is no point in them engaging in these programs.

But I do not know a lot [of English]. If I do not understand what is being said, then there is no benefit. P4

I used to think that like you could just demonstrate it but no. Demonstration is not all it takes and language does play a role and I think that if you're really going to- if you're able to bring in people that are, like you know, they don't even speak English...it's great

to bring those in and it would be even better to cater to them by having someone who speaks the language. P3

Additionally, one participant described how they had received information for ACE. The participant's son had found ACE videos on YouTube, but the participant felt the videos looked too difficult and was deterred.

I don't know anything [about the benefits of exercise for cancer] but I- they told us. Then my son talked- looked it up as well. They make [people] do too much. They make people do a lot of jumping...they gave the [web]site to my son [for ACE/EXCEL], then he opened the [web]site up and looked at it. P5

This is important because ACE videos on YouTube include low-impact alternatives for all exercises, but if one does not speak English the directions would not be useful. This further highlights the importance of having programming in different languages. This includes programming resources that start from movement or PA and build up to exercise, to support individuals in 'moving more', that can be delivered in individuals' native languages.

Also, participants who had experience in exercise oncology programs spoke about the discomfort with the lack of diversity in classes. This participant explained how this lack of diversity can pose a significant barrier to long-term PA maintenance.

When I was in ACE, I was the only person of a coloured background. Everybody else in the class was White and old...I have thought about enrolling in a class like ACE again

and that is definitely something that I think about every time like I didn't have a single interaction with anyone in that class except for the instructor...I wear a Hijab as well. So I feel like that makes me even more different...I felt and looked very different from everyone. and I think that is a hindrance. Like someone- I can imagine people literally not showing up for the second class when they feel that alienated, I guess. P3

This is particularly interesting, as the lack of diversity in classes appears to then be a barrier to gaining more diversity in classes. This leads to a 'vicious cycle' where classes may not become more diverse, as individuals who may represent minority populations will not enroll due to the lack of diversity. Determining ways to address this issue is paramount to ultimately reaching and engaging more ethnically and culturally diverse populations.

Category: Need Various Exercise Oncology Programming Options

Participants commented on a variety of different needs and preferences for exercise oncology programming. This included programming options such as online vs. in-person, live vs. pre-recorded, exercise-type, and the need for separate classes for men and women. First, there were participants who preferred online classes while there were also participants that preferred in-person classes. Some participants also explained that while they would prefer in-person, they would rather do online classes for now, due to COVID-19.

But the thing is we cannot think about it [in person classes] for as long as the pandemic is still around. Firstly, we are patients. It is too dangerous anyway now. There is too much fear. P6

Some participants, however, indicated technology being a barrier to online exercise oncology classes. This was described to be a common issue with the elderly South Asian community. Still, other participants did not feel that the use of technology would pose any sort of barrier.

Zoom or anywhere else, it doesn't matter. P5

Those who know how to use the internet, it is good for them. Some unfortunate people who don't even have a phone, or have the phone but don't know how to use the internet...there are only few [South Asian] people who do know how to use [the internet].

P6

There were also concerns surrounding in-person classes, particularly in relation to driving and transportation to these classes. Some felt that driving to in-person exercise oncology classes would be a barrier.

[I can go] anywhere. Finding the address - I've had this [problem] from the beginning. I never went anywhere far. When I go, I take my husband with me. I can drive around nearby. So I cannot find an address too quickly. I get nervous. P1

It's hard. It's hard. [Driving] is difficult. We cannot go. Or if someone gives us ride then we can go. P4

Given the range of responses, this highlights that ultimately both online and in-person options should be offered to account for different preferences, barriers, lifestyles, and concerns. Additionally, for online offerings, there were participants who preferred live classes while there were also participants that preferred pre-recorded classes. Those that preferred live classes explained that having a structured schedule was more likely to result in maintaining PA. On the other hand, those that preferred pre-recorded classes explained how this would work better with their busy day-to-day schedules.

Video is fine. Yes. When a person becomes free, they can watch it then... no particular time, that would be hard. P1

I think if it's at specific time then it sets a regular routine. So it should be specific time at most places. P8

Similarly, there were some participants who preferred formal exercise offerings while all participants also mentioned preferring certain types of informal PA.

But I like being in a class because then I feel like I am more motivated, I just, I get lazy when I'm on my own and I just don't- like if I don't have to be in a class, I just be like, you know, I will do it tomorrow. And then tomorrow never happens. So that's a big motivator. P2

All participants described a preference for walking as a form of informal PA. Related to walking, participants spoke about how walking is not an option year-round due to weather barriers and how they would need alternatives during those times.

No I like to walk... I would do exercise at home, by walking, I can get fresh air from outside. P4

Walk is my favourite. Sometimes 8-10 kms. I often feel as though I should go and walk... The weather here is like this, otherwise outdoor walks are relaxing. P8

As an alternative to walking, some spoke of the role of yoga, while others indicated they had no preference at all.

I used to do yoga [before my diagnosis]. I used to do yoga for 45 minutes...I used to do it everyday after waking up in the morning...I like yoga. P6

No I don't have any problem like that [about exercise preference]. P1

Finally, participants spoke about separate classes for men and women - some participants felt it necessary, while others did not.

No no, nothing like that. You can do [classes] together. P1

I would be more comfortable with women only classes...EXCEL has men I think in our class...I don't mind it. Like my- then that's the kind of person I am. I don't mind it. But I think now, if you- if you look at the community as a whole, I think women would be more comfortable with women only classes. P3

A lot of women are afraid to speak up or do anything if they know there is men in the room...Specifically for South Asian...maybe there could be a group of just women and there could be a group just for men and...maybe potentially a group of mix men and women. P7

These quotes highlight the potential need for women's only exercise oncology classes. Despite there being participants that have no preference for separating classes by gender, it is evident that having the option of women's only exercise oncology could help more individuals who do have this preference/need engage in exercise oncology programming. Especially if there are individuals who are specifically being hindered from exercise oncology classes for this reason. Overall, the categories within the theme of "The Nature of the Exercise Oncology Programming" support tailoring, providing options, and ensuring that movement and exercise can fit the lifestyles, norms, and needs of individuals of South Asians heritage living with and beyond cancer. This will be critical to engaging more individuals of this population in exercise oncology programming. Altogether, across the themes, there are some unique and varied PA experiences, barriers, and facilitators among individuals of South Asian heritage living with and beyond cancer.

Chapter Four: **Discussion and Conclusion**

4.1 Thesis Summary

PA is a safe and effective non-pharmacological intervention for those living with and beyond cancer (McNeely et al., 2019; Santa Mina et al., 2017; Van Waart et al., 2015). Individuals of South Asian heritage, the largest visible minority group in Canada, are also among the most physically inactive groups (Statistics Canada, 2016; Caperchione et al., 2015). Previous studies with individuals living with and beyond cancer, including those within specific ethnic groups, have shown differences in PA levels, barriers, and facilitators between ethnic groups (Stolley et al., 2020; Spector et al., 2013; Lim et al., 2009). However, none of this work to date has focused on individuals of South Asian heritage. Nonetheless, from this work on barriers, facilitators, preferences, and needs, we know that it is important for exercise oncology resources to be tailored to meet specific cultural needs. This tailoring requires understanding the beliefs of individuals from that ethnic group in relation to PA specifically in the cancer context (Kagawa-Singer et al., 2010). Thus, this project examined: (1) what the experiences are of individuals of South Asian heritage living with and beyond cancer with exercise oncology resources, including education and programs are, and (2) what the preferences, barriers, and facilitators are of individuals of South Asian heritage living with and beyond cancer to being physically active and participating in exercise oncology programming. Through the inductive category development approach informed by conventional content analysis of the semi-structured interviews, three themes were created. These themes are (1) Culture, (2) Informational Needs, (3) The Nature of Exercise Oncology Programming. Ultimately, this work supports the notion that special considerations are needed to engage more ethnically diverse cancer populations in PA. This information can be used to inform the tailoring of exercise oncology resources that may better support individuals of South Asian heritage living with and beyond cancer. With such tailoring

of PA resources, we ultimately will improve the overall health outcomes of individuals of South Asian heritage living with and beyond cancer.

4.1.1 South Asian Ethnicity and PA for those Living with and Beyond Cancer: Barriers

Findings from this study highlight a number of barriers to PA for individuals of South Asian heritage living with and beyond cancer. These identified barriers include language used for exercise oncology resources including both education and programming, financial, poor health as a result of treatment, technology, travelling/driving, and not knowing where to start.

Language has previously been identified as a barrier to seeking and understanding cancer and health related information for minority and migrant populations (Bhandari et al., 2020). As described by Bhandari et al. (2020), if the individual cannot speak the language, they cannot collect the information, nor can they utilize it to their benefit. Similarly, language barriers prevent individuals of South Asian heritage from benefiting from the available exercise oncology resources. As such, it is important that exercise oncology resources including education and programming address language barriers in order to engage more individuals from this population.

The remaining barriers to PA are similar to what has been reported across various populations (Clifford et al., 2018). For example, poor health as a result of treatment as a barrier to PA has been reported in previous studies with general cancer populations (Frikkel et al., 2020; Clifford et al., 2018). However, many studies have also shown that poor health as a result of treatment can be improved from PA (Cormie et al., 2018). Support and education from all members of the cancer care team are required to help individuals engage in PA (Cormie et al., 2018; Campbell et al., 2018). In addition, behaviour change strategies such as health coaching may also need to be employed (Eisele et al., 2021; Gell et al, 2019; Campbell et al., 2018). Similarly, financial barriers to becoming physically active have been identified in previous

studies with individuals living with and beyond cancer (Faro et al., 2020) but due to the availability of free exercise oncology programming, it is likely that this barrier could be tackled through improved dissemination of information regarding these programs. Again, this dissemination could perhaps be improved for individuals of South Asian heritage by tackling language barriers and by spreading information through novel methods, such as through community radio shows or posters and information from religious leaders at places of worship.

Emerging work highlights that low technological literacy among general cancer populations is a significant barrier (Ester et al., 2021). This is particularly relevant in recent years when a reliance on remote/online delivery of mobile and electronic health interventions increased due to the COVID-19 pandemic (Bland et al., 2020). Previous studies have called for access to mobile and electronic training opportunities to be provided for eHealth interventions to address barriers (Tennant et al., 2015). For South Asian Canadians in particular, eHealth interventions have been shown to be feasible but language preferences, older age, and being female are associated with lower uptake (Makowsky et al., 2021). Furthermore, travel barriers and the inconvenience of travel time have also been previously reported as barriers to PA among those living with and beyond cancer (Adams et al., 2021). Such logistics are commonly seen as significant barriers to access to exercise as a supportive cancer care resource, especially as we move into reaching more individuals living with and beyond cancer in rural/remote locations (i.e., outside of major urban centres where more resources exist; Smith-Turchyn et al., 2020). Online intervention delivery has been shown as a way to combat travel barriers (Burkow et al., 2018). However, with any online delivery, the barriers resulting in low technology uptake among this population must be taken into consideration. Future studies need to research the feasibility of

online interventions with technological literacy support opportunities for individuals of South Asian heritage living and beyond cancer.

Finally, participants in this study indicated not knowing where to start exercising as a barrier to PA. This confirms findings in previous studies with general cancer populations that highlight the importance of providing participants with the PA skills and direction to facilitate behaviour change (Sheehan et al., 2020; Hallward et al., 2018). Studies with other clinical South Asian populations have confirmed that a lack of knowledge of how to engage in PA is a barrier (Sohal et al., 2015). Once again, it is important that exercise oncology educational resources are tailored (addressing language barriers or lack of visible representation) so that this information is adequately reaching and serving individuals of this population. Overall, while the barriers identified above were not all necessarily unique to individuals living with and beyond cancer of South Asian heritage, they are important to address in order to support participation.

4.1.2 South Asian Ethnicity and PA for those Living with and Beyond Cancer: Facilitators and Needs

There were a variety of identified facilitators to, preferences for, and needs for PA. All participants spoke about their views on PA and described a preference for walking. Walking has previously been shown as the preferred mode of PA in non-clinical South Asian populations as well (Daniel et al., 2021; Daniel et al., 2018) and walking interventions for individuals living with and beyond cancer have been shown to improve physical and mental health (Frensham et al., 2018). The feasibility of a walking intervention for individuals of South Asian heritage living with and beyond cancer is a potential avenue for future studies. Additionally, participants commented on viewing household chores and work as a form of PA. Similar views have been found in other ethnic cancer populations (Bao et al., 2019). Household and occupational PA has been shown to be beneficial (Patel et al., 2019). It is recommended that individuals living with

and beyond cancer are reaching 30 minutes of moderate intensity aerobic exercise three times each week with resistance training at 60% of one repetition maximum, at least two times per week (Campbell et al., 2019). Therefore, there needs to be education on reaching the correct intensity and duration of PA.

In this study, participants also raised concerns over the lack of representation in exercise oncology educational resources and classes. This is in line with previous studies that have called for increased representation of racial and ethnic diversity in cancer and other health-related resources (Loeb et al., 2022; King-Shier et al., 2018). Moving forward, exercise oncology resources should not only be available in different languages but should also have visible diversity in the graphics and pictures. This may be the first step in increasing diversity in the classes themselves. Moreover, there were differing thoughts on whether separate classes for men and women were necessary, but overall, it was indicated as needed by enough participants to warrant strong consideration. A previous study with general cancer populations found that women prefer exercising with other women who have undergone similar experiences to them (Emslie et al., 2007). Many non-cancer related PA studies specific to South Asian women have also previously brought forth the importance of women's only exercise spaces (Pullia et al., 2022; Horne et al., 2018; Kandula et al., 2016) in order support PA participation. Finally, while no specific exercise oncology literature exists on the need for exercise oncology programming in different languages, there are studies on the need for formal PA sessions in additional languages for general South Asian populations (Ige-Elegbede et al., 2019; Horne et al., 2018).

Generally, these identified needs and preferences for exercise oncology programs are consistent with findings in previous general exercise oncology literature and non-cancer South Asian and PA literature. Overall, it is important that exercise oncology programs and educational

materials are adequately tailored for individuals of South Asian heritage living with and beyond cancer.

4.1.3 South Asian Ethnicity and PA for those Living with and Beyond Cancer: Additional Considerations

Additional considerations that were identified in this study include the role of the family, cancer and PA norms, and religion. Participants in this study highlighted the role that their family plays in their cancer journey. Within this there were mentions of the prioritization of their family over themselves, but there were also mentions of the support that they have received from their family. Previous exercise oncology studies have found traditional family caregiving roles to be barriers to PA in other ethnic populations. However, exercise oncology studies with other ethnic groups also found lack of support from family to be a barrier to PA (Clifford et al., 2018; Lim et al., 2013). Although participants in the present study did comment on prioritizing their family's needs (and perhaps by doing so not looking after their own health first), they also commented positively on how much their families supported them to remain positive and healthy in return. Participants discussed how they do not take care of themselves unless their family tells them to. Hence, exercise oncology resources including education and programming may need to be targeted towards family members in order to engage these individuals in PA. These findings are corroborated by findings within the South Asian cardiac rehabilitation literature that has highlighted the significance of family support in making and maintaining lifestyle changes (Dilla et al., 2020). This may require more innovative outreach methods beyond resources provided directly to patients at clinics. Indeed, family does appear to be an integral part of the PA oncology journey for an individual of South Asian heritage, thus building family into exercise oncology resources in future work is a strategy that should be further explored.

Religion was found to play a significant role in the way that participants understood their cancer journey and how they coped. Participants commented on accepting their diagnosis and not feeling emotional due to their belief in God. This is in contrast to previous literature with South Asian clinical populations that has highlighted a fatalistic perspective (Galdas et al., 2011). Fatalism represents the idea that health is influenced by external factors or a higher power and that an individual cannot change the negative and fatal outcome (Emanuel et al., 2018; Cohen, 2013), and is characterized by pessimism and helplessness (Emanuel et al., 2018). However, while participants in this study did state a belief that there is a higher power in control of their outcomes, they were not pessimistic, nor did the participants show a lack of desire to take control of their health behaviour due to their religious beliefs. In fact, participants indicated that it is an individual's responsibility to engage in PA and take care of their bodies as part of their religious beliefs. These findings are supported by work examining Sikh philosophy, which indicates a responsibility to oneself (Galdas & Kang, 2010). In the present study, a Muslim participant also indicated that Islam promotes a religious responsibility to take care of your body.

Furthermore, participants also spoke about a need to utilize religious organizations for exercise oncology programming. This had to do with having more trust for members of their own community, such as religious leaders, but was also due to convenience since many individuals of South Asian heritage will be at the place of worship in their community. Previous studies with non-clinical South Asian populations have commented on the potential to use places of worship where people congregate for exercise interventions (Horne et al., 2018). Of note, faith-based PA interventions are not new and have been shown to be valuable in non-South Asian, non-clinical populations (Parra et al., 2017). The importance of religious leaders in faith-based PA interventions has also previously been indicated (Baruth et al., 2015; Bopp et al., 2012).

However, it should be noted that these studies were only based on Church leaders. As such, these results cannot be generalized to other South Asian faiths such as Sikhism or Islam. Further work is required to look into the potential of faith-based exercise oncology resources including education and programming for individuals of South Asian heritage. Research on the feasibility and effectiveness of exercise oncology interventions in Sikh Gurudwaras or Islamic Mosques may offer a unique opportunity to integrate exercise oncology resources into the community.

4.2 Implications for Future Exercise Oncology Resources Including Education and Programs

The outcomes of this research can be applied to current exercise oncology resources to reach more individuals of South Asian heritage living with and beyond cancer. Current exercise oncology programs such as the ACE and EXCEL studies provide information and exercise oncology educational resources to clinical sites. Our current results indicate these need to be available in different languages (e.g., Punjabi and Urdu). Additionally, pictures and graphics on these resources should showcase more diversity, so that all individuals living with and beyond cancer can see people who look like them participating in PA. These tailored educational or informational resources may specifically address language barriers participants have to obtaining exercise oncology information and would also address the issue of not wanting to burden their families with translating. Further, having more inclusive graphics and pictures could lead to greater uptake of PA. These resources could be similar to the recruitment posters seen in Appendix A.

Second, there needs to be more outreach to general practitioners and clinics in areas where more individuals of South Asian heritage reside. Participants mentioned strong feelings of respect for doctors. Previous studies have also found that individuals of South Asian heritage hold doctors to a high status, allow decision making to be dictated by doctors, and prefer to

receive health information from family physicians (Khosla et al., 2019; King-Shier et al., 2018). Providing information on ACE, EXCEL, and general education on PA in oncology to family physicians in areas with higher densities of individuals of South Asian heritage would increase awareness, and could potentially result in a greater number of individuals from this population considering engaging in PA as part of their cancer journey. Supporting outreach within communities of South Asian populations is critical. Participants spoke of the reliance of word of mouth within the community to spread information, thus using avenues such as South Asian grocery stores, South Asian radio stations, South Asian specific cultural associations, and religious organizations to spread information and to potentially host PA programming were brought up by participants. As such, there needs to be more leverage of community resources to better engage this group in PA.

4.3 Study Strengths Limitations, Challenges, and Limitations

This study had some notable strengths including credibility, dependability, and transferability in the methods, as described earlier in Chapter 2. This study obtained the perspectives of individuals of South Asian heritage who were currently engaged in PA oncology programming (ACE and EXCEL) as well as the perspectives of those who were not. The recruitment through not only clinics but also South Asian grocery stores, South Asian radio stations, and places of worship supported increased outreach to the target population. Further a variety of perspectives were obtained due to the different cultural and religious backgrounds of the participants. Often studies are limited to only English-speaking participants and by conducting interviews in more languages, we were able to potentially gain more diverse perspectives to enhance our understanding about PA experiences, barriers, facilitators, and needs among individuals of South Asian heritage living with and beyond cancer. Additionally, there

was an iterative coding and translation process between MB, HG, and BR involving open dialogue and discussion. The translation method utilized was resourceful and time efficient compared to the typical translation method of translating all the data completely, as previously described in the methods chapter.

While this study had strengths, there were also some challenges. First, the goal of recruiting 10 participants was not reached. This could have been due to distrust for researchers, concerns around confidentiality, or not wanting to share their cancer diagnosis due to stigma among South Asian populations (Ahmed et al., 2019). Previous studies have stated that local endorsement from friends and family is more likely to result in recruitment than passive recruitment (e.g., posters) when trying to reach collective communities (Ahmed et al., 2019). Other studies have highlighted the importance of working with community partners, linguistic competency, and cultural competency (Prinjha et al., 2020) in order to ensure better recruitment of individuals of South Asian heritage in research. Future exercise oncology efforts must have outreach to more South Asian-specific community partners and leverage the South Asian community as a whole, to bring awareness to not only exercise oncology programming but also the general benefits of PA for those living with and beyond cancer.

Another challenge was doing the conventional content analysis in Punjabi when Punjabi is not the researcher's primary language. MB's first language was Punjabi but English is now MB's primary language. Due to the translation method chosen, it was important that the conventional content analysis was truly done in Punjabi rather than thinking in English and then translating into Punjabi in your head. This resulted in a slower process than originally expected. Furthermore, another challenge with translation was in the translation and back-translation of the study quotes. English does not have grammatical gender as other languages such as Punjabi,

Hindi, or French (Sato & Athanasopoulos, 2018). For example, if a participant were to say, “I want to exercise”, the way that the participant would say “want to” in Punjabi would be indicative of their gender identity. However, when translated to English, that grammatical gender is lost. “I want to exercise” does not give any indication of the speaker’s gender. The issue with this arose during back-translation when BR was unable to accurately back-translate to the correct original grammatical gender without knowing the speaker’s gender identity. Once this issue was identified, translators provided the speaker’s gender identity along with the English translated quotes to be back-translated.

While recruitment targeted the three languages of English, Punjabi, and Hindi, no Hindi speaking participants were recruited. There are many South Asian languages missing and thus many South Asian perspectives are potentially missing. In particular, Urdu was not included because no one on the research team is fluent in reading and writing in Urdu. However, Urdu is the second-most commonly spoken South Asian language in Canada behind Punjabi (Statistics Canada, 2016). Other notable languages missing include Tamil and Gujrati which represent the third and fifth most commonly spoken South Asian languages, respectively. Similarly, study participants were only of Indian and Pakistani heritage and thus there are missing South Asian cultural perspectives. Therefore, the findings of this study cannot be generalized to all individuals of South Asian heritage.

4.4 Conclusion

Overall, to the best of our knowledge, this thesis is the first in the field of exercise oncology that has focused specifically on individuals of South Asian heritage. It is critical that all individuals living with and beyond cancer have adequate access to information for and opportunities to engage in PA, in order to obtain the multitude of health benefits. This thesis provides insights into needs, preferences, and barriers for exercising oncology resources

including education and programming for individuals of South Asian heritage living with and beyond cancer. Results can support making exercise oncology resources more equitable, diverse, and inclusive. Further research and evidence are needed before implementing any South Asian-specific exercise oncology programming.

REFERENCES

- Adams, J., Rauw, J., Weller, S., Campbell, K.L., Pollock, P., & Goulart, J. (2021). Physical activity recommendations for cancer survivors living with bony metastases: Views of oncologic health providers. *Journal of Cancer Survivorship, 15*(3), 414-417. <https://doi.org/10.1007/s11764-021-00999-8>
- Ahmed, A., Vandrevala, T., Hendy, J., Kelly, C., Ala, A. (2019). An examination of how to engage migrants in the research process: Building trust through an ‘insider’ perspective. *Ethnicity & Health, 27*(2), 463-482. <https://doi.org/10.1080/13557858.2019.1685651>
- Asare, M., McIntosh, S., Culakova, E., Alio, A., Meyer, M.R.U., Kleckner, A.S., Adunlin, G., Kleckner, I.R., Ylitalo, K.R., Kamen, C.S. (2019). Assessing physical activity behavior of cancer survivors by race and social determinants of health. *International Quarterly of Community Health Education, 40*(1), 7-16. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/0272684X19857427>
- Bao, Y., Chen, S., Jiang, R., Li, Y., Chen, L., Li, F., Tai, J. (2019). The physical activity of colorectal cancer survivors during chemotherapy. *Supportive Care in Cancer, 28*, 819-826. <https://doi.org/10.1007/s00520-019-04873-3>
- Baruth, M., Bopp, M., Webb, B.L., Peterson, J.A. (2015). The role and influence of faith leaders on health-related issues and programs in their congregation. *Journal of Religion and Health, 54*(5), 1747-1759. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1007/s10943-014-9924-1>
- Berger, R. (2015). Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research, 15*(2), 219-234. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/1468794112468475>
- Bhandari, D., Ozaki, A., Kobashi, Y., Higuchi, A., Shakya, P., Tanimoto, T. (2020). Cancer information seeking and scanning behavior among Nepalese migrants in Japan and its association with preventive behavior. *PLoS ONE, 15*(6), 1-17. <https://doi.org/10.1371/journal.pone.0235275>
- Bland, K.A., Bigaran, A., Campbell, K.L., Trevaskis, M., Zopf, E.M. (2020). Exercising in isolation? The role of telehealth in exercise oncology during COVID-19 pandemic and beyond. *Physical Therapy, 100*(10), 1713-1716. <https://doi.org/10.1093/ptj/pzaa141>
- Bopp, M., Peterson, J.A., Webb, B.L. (2012). A comprehensive review of faith-based physical activity interventions. *American Journal of Lifestyle Medicine, 6*(6), 460-478. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/1559827612439285>
- Burkow, T.M., Vognild, L.K., Johnsen, E., Bratvold, A., Risberg, M.J. (2018). Promoting exercise training and physical activity in daily life: A feasibility study of a virtual group intervention for behaviour change in COPD. *BMC Medical Informatics and Decision Making, 18*(1), 1-13. <https://doi.org/10.1186/s12911-018-0721-8>

- Canadian Cancer Statistics Advisory Committee. (2019). Canadian Cancer Statistics 2019. *Health Promotion and Chronic Disease Prevention in Canada, Research, Policy and Practice*, 39(8). <https://doi.org/10.24095/hpcdp.39.8/9.04>
- Caliendo, S.M., & McIlwain, C.D. (Eds.). (2020). *The Routledge companion to race and ethnicity*. (2nd ed.). Routledge Taylor & Francis Group. <https://doi.org/10.4324/9780429058608>
- Campbell, K.L., Winters-Stone, K., Wiskemann, J., May, A.M., Schwartz, A.L., Courneya, K.S., Zucker, D., Matthews, C., Ligibel, J., Gerber, L., Morris, S., Patel, A., Hue, T., Perna, F., Schmitz, K.H. (2019). Exercise guidelines for cancer survivors: Consensus statement from international multidisciplinary roundtable. *Medicine and Science in Sports Exercise*, 51(11), 2375-2390. <https://doi.org/10.1249/MSS.0000000000002116>
- Caperchione, C., Chau, S., Walker, G., Mummery, W., Jennings, C. (2015). Gender-associated perceptions of barriers and motivators to physical activity participation in South Asian Punjabis living in Western Canada. *Journal of Physical Activity and Health*, 12(5), 686-694. <https://doi.org/10.1123/jpah.2013-0208>
- Chen, H., Boore, J. (2009). Translation and back-translation in qualitative nursing research: Methodological review. *Journal of Clinical Nursing*, 19, 234-239. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1111/j.1365-2702.2009.02896.x>
- Clifford, B.K., Mizrahi, D., Sandler, S.X., Barry, B.K., Simar, D., Wakefield, C.E., Goldstein, D. (2018). Barriers and facilitators of exercise experienced by cancer survivors: A mixed methods systematic review. *Supportive Cancer Care*, 26, 685-700. <https://doi.org/10.1007/s00520-017-3964-5>
- Cohen, M. (2013). Cancer fatalism: Attitudes toward screening and care. In B. Carr & J. Steel (Eds.), *Psychological aspects of cancer*. (pp. 83-89). Springer, Boston, MA. https://doi-org.ezproxy.lib.ucalgary.ca/10.1007/978-1-4614-4866-2_6
- Cormie, P., Zopf, E.M., Zhang, X., Schmitz, K.H. (2017). The impact of exercise on cancer mortality, recurrence, and treatment-related adverse effects. *Epidemiologic Reviews*, 39(1), 71-92. <https://doi.org/10.1093/epirev/mxx007>
- Cormie, P., Atkinson, M., Bucci, L., Cust, A., Eakin, E., Hayes, S., McCarthy, S., Murnane, A., Patchell, S., Admans, D. (2018). Clinical oncology society of Australia position statement on exercise in cancer care. *Medical Journal of Australia*, 209(4), 184-187. <https://doi.org/10.5694/mja18.00199>
- Daniel, M., Abendroth, M., Erlen, J.A. (2018). Barriers and motives to PA in South Asian Indian immigrant women. *Western Journal of Nursing Research*, 40(9), 1339-1356. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/0193945917697218>

- Daniel, M., Marquez, D., Ingram, D., Fogg, L. (2021). Group dance and motivational coaching for walking: A physical activity program for South Asian Indian immigrant women residing in the United States. *Journal of Physical Activity and Health*, 18(3), 262-271. <https://doi.org/10.1123/jpah.2019-0316>
- de Heus, E., van der Zwan, J.M., Husson, O., Frissen, A., van Herpen, C.M.L. (2021). Unmet supportive care needs of patients with rare cancer: A systematic review. *European Journal of Cancer Care*, 30(6), 1-35. <https://doi.org/10.1111/ecc.13502>
- Deng, F., Chen, D., Swartz, M. C., & Sun, H. (2019). A pilot study of a culturally tailored lifestyle intervention for Chinese American cancer survivors. *Cancer Control*, 26(1), 1–7. <https://doi.org/10.1177/1073274819895489>
- Dilla, D., Ian, J., Martin, J., Michelle, H., Felicity, A. (2020) “I don’t do it for myself, I do it for them”: A grounded theory study of South Asians’ experiences making lifestyle change after myocardial infarction. *Journal of Clinical Nursing*, 29(19), 3687-3700. <https://doi.org/10.1111/jocn.15395>
- Dodgson, J.E. (2019). Reflexivity in qualitative research. *Journal of Human Lactation*, 35(2), 220-222. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/0890334419830990>
- Eisele, M., Twomey, R., Pohl, A.J., McDonough, M.H., McNeely, M.L., Ester, M., Daun, J.T., Culos-Reed, S.N. (2021). The online delivery of exercise oncology classes supported with health coaching: A pilot randomized controlled trial. *medRxiv*. <https://doi.org/10.1101/2021.11.29.21266169>
- Elo, S., Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107-115, <https://doi-org.ezproxy.lib.ucalgary.ca/10.1111/j.1365-2648.2007.04569.x>
- Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE open*, 1-10. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/2158244014522633>
- Emanuel, A.S., Godinho, C.A., Steinman, C., Updegraff, J.A. (2018). Education differences in cancer fatalism: The role of information-seeking experiences. *Journal of Health Psychology*, 23(12), 1533-1544. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/1359105316664129>
- Emslie, C., Whyte, F., Campbell, A., Mutrie, N., Lee, L., Ritchie, D., Kearney, N. (2007). ‘I wouldn’t have been interested in just sitting round a table talking about cancer’; exploring the experiences of women with breast cancer in a group exercise trial. *Health Education Research*, 22(6), 827-838. <https://doi.org/10.1093/her/cyl159>

- Ester, M., McNeely, M.L., McDonough, M.H., Culos-Reed, S.N. (2021). A survey of technology literacy and use in cancer survivors from the Alberta Cancer Exercise program. *DIGITAL HEALTH*, 1-10. <https://doi.org/10.1177/20552076211033426>
- Evan, C., Lewis, J. (2018). Analysing semi-structured interviews using thematic analysis: exploring voluntary civic participation among adults. *SAGE Research Methods Datasets*, 1-6. <http://dx.doi.org/10.4135/9781526439284>
- Faro, J.M., Arem, H., Heston, A., Hohman, K.H., Hodge, H., Wang, B., Lemon, S.C., Houston, T.K., Sadasivam, R.S. (2020). A longitudinal implementation evaluation of a physical activity program for cancer survivors: LIVESTRONG® at the YMCA. *Implementation Science Communications*, 1(63), 1-9, <https://doi-org.ezproxy.lib.ucalgary.ca/10.1186/s43058-020-00051-3>
- Ferri, A., Gane, E., Smith, M., Pinkham, E., Gomersall, S., Johnston, V. (2020). Experiences of people with cancer who have participated in a hospital-based exercise program: A qualitative study. *Supportive Care in Cancer*, 29(3), 1575-1583. <https://doi.org/10.1007/s00520-020-05647-y>
- Fox, L., Wiseman, T., Cahill, D., Beyer, K., Peat, N., Rammant, E., Van Hemelrijck, M. (2019). Barriers and facilitators to physical activity in men with prostate cancer: A qualitative and quantitative systematic review. *Psycho-Oncology*, 28(12), 2270–2285. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1002/pon.5240>
- Frensham, L.J., Parfitt, G., Dollman, J. (2018). Effect of a 12-week online walking intervention on health and quality of life in cancer survivors: A quasi-randomized controlled trial. *International Journal of Environmental Research and Public Health*, 15(10), 1-17. <https://doi.org/10.3390/ijerph15102081>
- Frikkel, J., Götte, M., Beckmann, M., Kasper, S., Hense, J., Teufel, M., Schuler, M., Tewes, M. (2020). Fatigue, barriers to physical activity and predictors for motivation to exercise in advanced cancer patients. *BMC Palliative Care*, 19(43), 1-11. <https://doi.org/10.1186/s12904-020-00542-z>
- Galdas, P., Kang, H.B.K. (2010). Punjabi Sikh patients' cardiac rehabilitation experiences following myocardial infarction: A qualitative analysis. *Journal of Clinical Nursing*, 19(21), 3134-3142. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1111/j.1365-2702.2010.03430.x>
- Galdas, P.M., Ratner, P.A., Oliffe, J.L. (2011). A narrative review of South Asian patients' experiences of cardiac rehabilitation. *Journal of Clinical Nursing*, 21(1), 149-159. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1111/j.1365-2702.2011.03754.x>
- Galdas, P., Oliffe, J.L., Kang, H.B.K., Kelly, M.T. (2012). Punjabi Sikh patients' perceived barriers to engaging in physical exercises following myocardial infarction. *Public Health Nursing*, 29(6), 534-541. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1111/j.1525-1446.2012.01009.x>

- Gell, N., Grover, K., Savard, L., Dittus, K. (2019). Outcomes of a text message, Fitbit, and coaching intervention on physical activity maintenance among cancer survivors: A randomized control pilot trial. *Journal of Cancer Survivorship*, 14(1), 80-88. <https://doi.org/10.1007/s11764-019-00831-4>
- Glenn, B.A., Hamilton, A.S., Nonzee, N.J., Maxwell, A.E., Crespi, C.M., Ryerson, B., Chang, L.C., Deapen, D., Bastani, R. (2018). Obesity, physical activity, and dietary behaviors in an ethnically-diverse sample of cancer survivors with early onset disease. *Journal of Psychosocial Oncology*, 36(4), 418-436. <https://doi.org/10.1080/07347332.2018.144803>
- Graneheim, U.H., Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105-112. <https://doi.org/10.1016/j.nedt.2003.10.001>
- Graneheim, U.H., Lindgren, B., & Lundman, B. (2017). Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Education Today*, 56(2017), 29-34. <http://dx.doi.org/10.1016/j.nedt.2017.06.002>.
- Gu, X., Zhang, T., Chu, T. L. (Alan), Wang, J., Zhang, X., Nelson, L., & Brown, K. (2019). Exploring racial disparities in physical activity and quality of life through an expectancy-value perspective. *Journal of Racial and Ethnic Health Disparities*, 6(5), 973–980. <https://doi.org/10.1007/s40615-019-00598-5>
- Hallward, L., Patel, N., Duncan, L.R. (2020). Behaviour change techniques in physical activity interventions for men with prostate cancer: A systematic review. *Journal of Health Psychology*, 25(1), 105-122. <https://doi.org/10.1177/1359105318756501>
- Hayes, S.C., Newton, R.U., Spence, R.R., Galvão, D.A. (2019). The exercise and sports science Australia position statement: Exercise medicine in cancer management. *Journal of Science and Medicine in Sport*, 22, 1175-1199. <https://doi.org/10.1016/j.jsams.2019.05.003>
- Horne, M., Tierney, S. (2012). What are the barriers and facilitators to exercise and physical activity uptake and adherence among South Asian older adults: A systematic review of qualitative studies. *Preventative Medicine*, 55(4), 276-284. <https://doi.org/10.1016/j.ypmed.2012.07.016>
- Horne, M., Tierney, S., Henderson, S., Wearden, A., Skelton, D. (2018). A systematic review of interventions to increase physical activity among South Asian adults. *Public Health*, 162, 71-81. <https://doi.org/10.1016/j.puhe.2018.05.009>
- Hsieh, H., Shannon, S.E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/1049732305276687>

- Hughes, D. C., Leung, P., & Naus, M. J. (2008). Using single-system analyses to assess the effectiveness of an exercise intervention on quality of life for Hispanic breast cancer survivors: A pilot study. *Social Work in Health Care*, 47(1), 73–91. <https://doi.org/10.1080/00981380801970871>
- Ige-Elegbede, J., Pilkington, P., Gray, S., Powell, J. (2019). Barriers and facilitators of physical activity among adults and older adults from Black and minority ethnic groups in the UK: A systematic review of qualitative studies. *Preventative Medicine Reports*, 15, 1-11. <https://doi.org/10.1016/j.pmedr.2019.100952>
- Kagawa-Singer, M., Valdez Dadia, A., Yu, M. C., & Surbone, A. (2010). Cancer, culture, and health disparities: Time to chart a new course? *CA: A Cancer Journal for Clinicians*, 60(1), 12–39. <https://doi.org/10.3322/caac.20051>
- Kandula, N.R., Dave, S., De Chavez, P.J., Marquez, D.X., Bharucha, H., Mammen, S., Dunaif, A., Ackermann, R.T., Kumar, S., Siddique, J. (2016). An exercise intervention for South Asian mothers with risk factors for diabetes. *Translational Journal of the American College of Sports Medicine*, 1(6), 52-59. doi: 10.1249/TJX.0000000000000005.
- Khosla, N., Washington, K.T., Mukerjea, A., Aslakson, R. (2019). Health-care providers' perspectives on decision-making among seriously ill patients of South Asian origin in the United States. *Journal of Palliative Care*, 34(3), 181-188. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/0825859719829480>
- Kim, S., Han, J., Lee, M.Y., Jang, M.K. (2019). The experience of cancer-related fatigue, exercise and exercise adherence among women breast cancer survivors: Insights from focus group interviews. *Journal of Clinical Nursing*, 29(5), 758-769. <https://doi.org/10.1111/jocn.15114>
- King-Shier, K., Lau, A., Fung, S., LeBlanc, P., Johal, S. (2018). Ethnocultural influences in how people prefer to obtain and receive health information. *Journal of Clinical Nursing*, 27(7), e1519-e1528. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1111/jocn.14281>
- Koch, T. (1994). Establishing rigour in qualitative research: The decision trail. *Journal of Advanced Nursing*, 19, 976-986. <https://doi.org/10.1111/j.1365-2648.1994.tb01177.x>
- Koshoedo, S. A., Paul-Ebhohimhen, V. A., Jepson, R. G., & Watson, M. C. (2015). Understanding the complex interplay of barriers to physical activity amongst black and minority ethnic groups in the United Kingdom: A qualitative synthesis using meta-ethnography Health behavior, health promotion and society. *BMC Public Health*, 15(643), 1-16. <https://doi.org/10.1186/s12889-015-1893-0>
- Kwarteng, J.L., Beyer, K.M.M., Banerjee, A., Stolley, M.R. (2020). Facilitators of behavior change and weight loss in an intervention for African American breast cancer survivors. *Cancer Causes and Control*, 31(8), 737-747. <https://doi.org/10.1007/s10552-020-01315-y>

- Le, Y., Gao, Z., Gomez, S.L., Pope, Z., Dong, R., Allen, L., Chang, M., Wang, J.H. (2019). Acculturation and adherence to physical activity recommendations among Chinese American and Non-Hispanic White breast cancer survivors. *Journal of Immigrant and Minority Health, 21*, 80-88. <https://doi.org/10.1007/s10903-018-0721-x>
- Liguori, G., Feito, Y., Charles, F., & Roy, B. A. (Eds.). (2021). ACSM'S Guidelines for Exercise Testing and Prescription (11th ed.). Wolters Kluwer.
- Lim, J. W., Gonzalez, P., Wang-Letzkus, M. F., & Ashing-Giwa, K. T. (2009). Understanding the cultural health belief model influencing health behaviors and health-related quality of life between Latina and Asian-American breast cancer survivors. *Supportive Care in Cancer, 17*(9), 1137–1147. <https://doi.org/10.1007/s00520-008-0547-5>
- Lim, J., Gonzalez, P., Wang-Letzkus, M.F., Baik, O., Ashing-Giwa, K.T. (2013). Health behavior changes following breast cancer treatment: A qualitative comparison among Chinese American, Korean American, and Mexican American survivors. *Journal of Health Care for the Poor and Underserved, 24*(2), 599-618. <https://doi.org/10.1353/hpu.2013.0094>
- Lincoln, Y.S., & Guba, E.G. (Eds.). (1985). *Naturalistic inquiry*. SAGE Publications.
- Lindgren, B., Lundman, B., & Graneheim, U.H. (2020). Abstraction and interpretation during the qualitative content analysis process. *International Journal of Nursing Studies, 108*(2020), 1-6. <https://doi.org/10.1016/j.ijnurstu.2020.103632>.
- Loeb, S., Borno, H., Gomez, H., Ravenell, J., Myrie, A., Sanchez, N.T., Byrne, N., Cole, R., Black, K., Stair, S., MacAluso, J., Walter, D., Siu, K., Samuels, C., Kazemi, A., Crocker, R., Sherman, R., Wilson, G., Griffith, D., Langford, A. (2022). Representation in online prostate cancer content lacks racial and ethnic diversity: Implications for Black and Latinx men. *Journal of Urology, 207*(3), 559-564. <https://doi.org/10.1097/JU.0000000000002257>.
- Makowsky, M.J., Jones, C.A., Davachi, S. (2021). Prevalence and predictors of health-related internet and digital device use in a sample of South Asian adults in Edmonton, Alberta, Canada: Results from a 2014 community-based survey. *JMIR Public Health and Surveillance, 7*(1), e20671.
- McNeely, M. L., Sellar, C., Williamson, T., Shea-Budgell, M., Joy, A. A., Lau, H. Y., Easaw, J.C., Murtha, A.D., Vallance, J., Courneya, K., Mackey, J.R., Parliament, M., Culos-Reed, N. (2019). Community-based exercise for health promotion and secondary cancer prevention in Canada: Protocol for a hybrid effectiveness-implementation study. *BMJ Open, 9*(9), 1–10. <https://doi.org/10.1136/bmjopen-2019-029975>
- Min, J., Yoo, S., Kim, M., Yang, E., Hwang, S., Kang, M., Yu, M., Yoon, C., Heo, J.E., Choi, Y., Jeon, J.W. (2019). Exercise participation, barriers, and preferences in Korean prostate cancer survivors. *Ethnicity & Health, 26*(8), 1130-1142. <https://doi.org/10.1080/13557858.2019.1634184>

- Neergaard, M.A., Olesen, F., Andersen, R.S., Sondergaard, J. (2009). Qualitative description – the poor cousin of health research? *BMC Medical Research Methodology*, 9(52), 1-5. <https://doi.org/10.1186/1471-2288-9-52>
- Parra, M.T., Porfirio, G.J.M., Arredondo, E.M., Atallah, Á.N. (2017). Physical activity interventions in faith-based organizations: A systematic review. *American Journal of Health Promotion*, 32(3), 677-690. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1177/0890117116688107>
- Patel, A.V., Friedenreich, C.M., Moore, S.C., Hayes, S.C., Silver, J.K., Campbell, K.L., Winters-Stone, K., Gerber, L.H., George, S.M., Fulton, J.E., Denlinger, C., Morris, G.S., Hue, T., Schmitz, K.H., Matthews, C.E. (2019). American College of Sports Medicine roundtable report on physical activity, sedentary behavior, and cancer prevention and control. *Medicine and Science in Sports and Exercise*, 51(11), 2391-2402. <https://doi.org/10.1249/MSS.0000000000002117>
- Paxton, R.J., Nayak, P., Taylor, W.C., Chang, S., Courneya, K.S., Schover, L., Hodges, K., Jones, L.A. (2013). African-American breast cancer survivors' preferences for various types of physical activity interventions: A Sisters Network Inc. web-based survey. *Journal of Cancer Survivorship*, 8(1), 31-38. <https://doi-org.ezproxy.lib.ucalgary.ca/10.1007/s11764-013-0307-5>
- Prinjha, S., Miah, N., Ebrahim, A., Farmer, A. (2020). Including 'seldom heard' views in research: Opportunities, challenges and recommendations from focus groups with British South Asian people with type 2 diabetes. *BMC Medical Research Methodology*, 20(1), 1-11. <https://doi.org/10.1186/s12874-020-01045-4>
- Pullia, A., Jeemi, Z., Ortiz, M.R., Dantas, J.A.R. (2022). Physical activity experiences of South Asian migrant women in Western Australia: Implications for intervention development. *International Journal of Environment Research and Public Health*, 19(6), 1-15. <https://doi.org/10.3390/ijerph19063585>
- Romero, S.A.D., Brown, J.C., Bauml, J.M., Hay, J.L., Li, Q.S., Cohe, R.B., Mao, J.J. (2018). Barriers to physical activity: A study of academic and community cancer survivors with pain. *Journal of Cancer Survivorship*, 12, 744-752. <https://doi.org/10.1007/s11764-018-0711-y>
- Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334-340. [https://doi.org/10.1002/1098-240X\(200008\)23:4<334::AID-NUR9>3.0.CO;2-G](https://doi.org/10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G)
- Santa Mina, D., Au, D., Brunet, J., Jones, J., Tomlinson, G., Taback, N., Field, D., Berlinger, A., Bradley, H., Howell, D. (2017). Effects of the community-based wellspring cancer exercise program on functional and psychosocial outcomes in cancer survivors. *Current Oncology*, 24(5), 284–294. <https://doi.org/10.3747/co.23.3585>

- Santos, H.P.O., Jr., Black, A.M., Sandelowski, M. (2015). Timing of translation in cross-language qualitative research. *Advancing Qualitative Methods*, 25(1), 134-144. <https://doi.org.ezproxy.lib.ucalgary.ca/10.1177/1049732314549603>
- Sato, S., Athanasopoulos, P. (2018). Grammatical gender affects gender perception: Evidence for the structural-feedback hypothesis. *Cognition*, 176, 220-231. <https://doi.org/10.1016/j.cognition.2018.03.014>
- Sheehan, P., Denieffe, S., Murphy, N.M., Harrison, M. (2020). Exercise is more effective than health education in reducing fatigue in fatigued cancer survivors. *Supportive Care in Cancer*, 28(10), 4953-4962. <https://doi.org/10.1007/s00520-020-05328-w>
- Smith, A.W., Alfano, C.M., Reeve, B.B., Irwin, M.L., Bernstein, L., Baumgartner, K., Bowen, D., McTiernan, A., Ballard-Barbash, R. (2009). Race/ethnicity, physical activity, and quality of life in breast cancer survivors. *Cancer Epidemiology, Biomarkers, & Prevention*, 18(2), 656-663. <https://doi.org/10.1158/1055-9965.EPI-08-0352>
- Smith-Turchyn, J., Gravesande, J., Sabiston, C. (2020). Exercise interventions for survivors of cancer living in remote and rural settings: A scoping review. *Rehabilitation Oncology*, 38(2), 2381-2427. <https://doi.org/10.1097/01.REO.0000000000000208>
- Sohal, T., Sohal, P., King-Shier, K.M., Khan, N.A. (2015). Barriers and facilitators for type-2 diabetes management in South Asians: A systematic review. *PLoS ONE*, 10(9), 1-15. <https://doi.org/10.1371/journal.pone.0136202>
- Spencer, S. (Ed.). (2014). *Race and ethnicity: Culture, identity and representation* (2nd ed.). Routledge Taylor & Francis Group. <https://doi.org/10.4324/9780203519165>
- Spector, D., Battaglini, C., & Groff, D. (2013). Perceived exercise barriers and facilitators among ethnically diverse breast cancer survivors. *Oncology Nursing Forum*, 40(5), 472-480. <http://dx.doi.org.ezproxy.lib.ucalgary.ca/10.1188/13.ONF.472-480>
- Spector, D., Deal, A.M., Amos, K.D., Yang, H., Battaglini, C.L. (2014). A pilot study of a home-based motivational exercise program for African American breast cancer survivors: Clinical quality-of-life outcomes. *Integrative Cancer Therapies*, 13(2), 121-132. <https://doi.org.ezproxy.lib.ucalgary.ca/10.1177/1534735413503546>
- Statistics Canada. (2016). Census of Population, Statistics Canada Open Catalogue no. 98-400-X2016187.
- Stolley, M.R., Sheehan, P., Matthews, L., Banerjee, A., Visotcky, A., Papanek, P., Woodley, L., Flynn, K.E. (2020). Exploring health behaviors, quality of life, and support needs in African-American prostate cancer survivors: A pilot study to support future interventions. *Supportive Care in Cancer*, 28, 3135-3143. <https://doi.org/10.1007/s00520-019-05092-6>

- Sutrisno, A., Nguyen, N.T., Tangen, D. (2014). Incorporating translation in qualitative studies: Two case studies in education. *International Journal of Qualitative Studies in Education*, 27(10), 1337-1353. <https://doi.org/10.1080/09518398.2013.837211>
- Sweeney, A. M., Wilson, D. K., & Brown, A. (2019). A qualitative study to examine how differences in motivation can inform the development of targeted physical activity interventions for African American women. *Evaluation and Program Planning*, 77(101718), 1-9. <https://doi.org/10.1016/j.evalprogplan.2019.101718>
- Tennant, B., Stellefson, M., Dodd, V., Chaney, B., Chaney, D., Paige, S., Alber, J. (2015). eHealth literacy and web 2.0 health information seeking behaviors among baby boomers and older adults. *Journal of Medical Internet Research*, 17(3), 1-17. <https://doi.org.ezproxy.lib.ucalgary.ca/10.2196/jmir.3992>
- Van Waart, H., Stuiver, M. M., Van Harten, W. H., Geleijn, E., Kieffer, J. M., Buffart, L. M., de Maaker-Berkhof, M., Boven, E., Schrama, J., Geenen, M.M., Meerum Terkwogt, J.M., van Bochove, A., Lustig, V., van den Heiligenberg, S.M., Smorenburg, C.H., Hellendoorn-van Vreeswijk, J.A.J.H., Sonke, G.S., Aaronson, N. K. (2015). Effect of low-intensity physical activity and moderate- to high-intensity physical exercise during adjuvant chemotherapy on physical fitness, fatigue, and chemotherapy completion rates: Results of the PACES randomized clinical trial. *Journal of Clinical Oncology*, 33(17), 1918–1927. <https://doi.org/10.1200/JCO.2014.59.1081>
- Wada, R.K., Glaser, D.W., Bantum, E.O., Orimoto, T., Steffen, A.D., Elia, J.L., Albright, C.L. (2013). Hawai'i's multiethnic adolescent and young adult survivors of childhood cancer: Are their health behavior risks similar to state and national samples? *Hawai'i Journal of Medicine & Public Health*, 72(11), 380-385.
- Wallander, J. L., Fradkin, C., Chien, A. T., Mrug, S., Banspach, S. W., Davies, S., Elliot, M.N., Franzini, L., Schuster, M. A. (2012). Racial/ethnic disparities in health-related quality of life and health in children are largely mediated by family contextual differences. *Academic Pediatrics*, 12(6), 532–538. <https://doi.org/10.1016/j.acap.2012.04.005>
- Wasay, M., Khatri, I.A., Kaul, S. (2014). Stroke in South Asian countries. *Nature Reviews Neurology*, 10(3), 135-143. <http://dx.doi.org.ezproxy.lib.ucalgary.ca/10.1038/nrneurol.2014.13>
- Willig, C., & Stainton-Rogers, S. (Eds.). (2017). *The SAGE Handbook of Qualitative Research in Psychology* (2nd ed.). SAGE Publications.
- Zavala, V.A., Bracci, P.M., Carethers, J.M., Carvajal-Carmona, L., Coggins, N.B., Cruz-Correa, M.R., Davis, M., de Smith, A.J., Dutil, J., Figueiredo, J.C., Fox, R., Graves, K.D., Gomez, S.L., Llera, A., Neuhausen, S.L., Newman, L., Nguyen, T., Palmer, J.R., Palmer, N.R...Fejerman, L. (2021). Cancer health disparities in racial/ethnic minorities in the United States. *British Journal of Cancer*, 124, 315-332. <https://doi.org/10.1038/s41416-020-01038-6>

APPENDIX A

Recruitment Posters

EXERCISE FOR PEOPLE LIVING WITH CANCER OF SOUTH ASIAN HERITAGE

What is this study? The goal of this study is to understand the experiences with physical activity and exercise for individuals living with cancer from South Asian cultures.

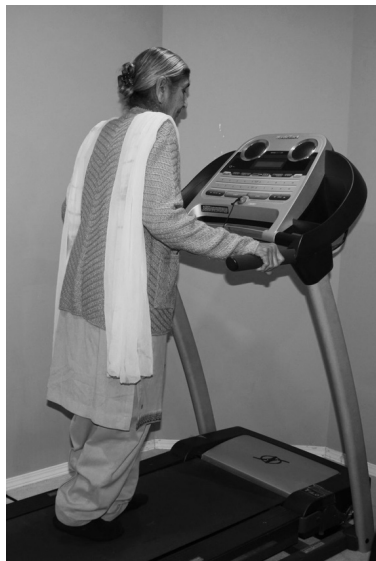
PARTICIPANTS

To be eligible for this study you must:

- Identify as South Asian
- Be able to speak Hindi, Punjabi, and/or English
- Be diagnosed with cancer with curative intent
 - Be starting treatment, on treatment, or completed cancer treatment
- Be 18+ years or older and be able to provide consent

WHAT IS INVOLVED?

If you take part in this study, you will be asked to complete a **short questionnaire** and an **interview** (in Hindi, Punjabi, or English) on the phone or online via the ZOOM app. These interviews will be scheduled at your convenience.



CONTACT INFORMATION

Study Coordinator: [Mannat Bansal](#)

Email: wellnesslab@ucalgary.ca

Phone: (403)-210-8482

This study has been approved by the
Health Research Ethics Board of Alberta
Ethics ID: HREBA.CC-21-0097
October 16, 2021 Version 3



दक्षिण एशिया के कैंसर के मरीजों के लिए कसरत का अध्ययन

यह अध्ययन क्या है? इस अध्ययन का लक्ष्य दक्षिण एशियाई संस्कृतियों के कैंसर से पीड़ित व्यक्तियों के लिए शारीरिक गतिविधि और व्यायाम के अनुभवों को समझना है।

प्रतिभागियों

अध्ययन के लिए पात्र होने के लिए आपको यह करना होगा:

- हिन्दी, पंजाबी या अंग्रेजी में बोलने में सक्षम हों
- इलाज के इरादे से कैंसर की पहचान की गई हो।
- आप कैंसर का इलाज शुरू कर रहे हो, इलाज चल रहा है, या इलाज हो चुका है।
- दक्षिण एशियाई के रूप में पहचान
- 18 वर्ष या उससे अधिक उम्र का हो और सहमति प्रदान करने में सक्षम हो चुका है।

क्या शामिल है?

यदि आप इस अध्ययन में भाग लेते हैं, तो आपसे एक संक्षिप्त प्रश्नावली और ऑनलाइन ZOOM app के माध्यम से या फोन पर एक साक्षात्कार (हिंदी, पंजाबी, या अंग्रेजी में) पूरा करने के लिए कहा जाएगा। ये साक्षात्कार आपकी सुविधानुसार निर्धारित किए जाएंगे।



संपर्क करें

अध्ययन समन्वयक: Mannat Bansal
Email: wellnesslab@ucalgary.ca
Phone: (403)-210-8482

इस अध्ययन को Health Research Ethics Board of Alberta द्वारा अनुमोदित किया गया है

Ethics ID: HREBA.CC-21-0097
October 16, 2021 Version 3



ਦੱਖਣ ਏਸ਼ੀਆਈ ਦੇ ਕੈਂਸਰ ਪੀੜਤਾ ਵਾਸਤੇ ਕੈਂਸਰ ਦਾ ਅਧਿਐਨ

ਇਸ ਅਧਿਐਨ ਵਾਰੇ? ਇਸ ਅਧਿਐਨ ਦਾ ਟੀਚਾ ਦੱਖਣੀ ਏਸ਼ੀਆਈ ਸਭਿਆਚਾਰਕ ਭਾਈਚਾਰੇ ਵਿੱਚ ਸਰੀਰਕ ਗਤੀਵਿਧੀਆਂ ਦੇ ਤਜਰਬਿਆਂ ਅਤੇ ਕੈਂਸਰ ਨਾਲ ਪੀੜਤ ਲੋਕਾਂ ਨੂੰ ਸੱਮਝਣਾ ਹੈ।

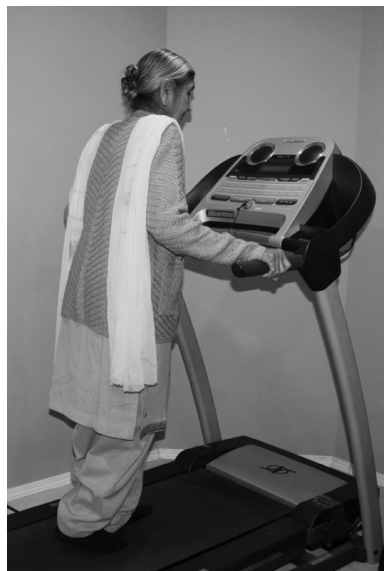
ਭਾਗੀਦਾਰ

ਇਸ ਅਧਿਐਨ ਵਿੱਚ ਹਿੱਸਾ ਲੈਣ ਵਾਸਤੇ ਯੋਗਤਾ

- ਮੂਲ ਰੂਪ ਵਿੱਚ ਤੁੰਸੀ ਦੱਖਣੀ ਏਸ਼ੀਆਈ ਹੋਣੇ ਚਾਹੀਦੇ ਹੋ।
- ਤੁੰਸੀ ਪੰਜਾਬੀ ਹਿੰਦੀ ਜਾਂ ਅੰਗਰੇਜੀ ਬੋਲਣ ਦੇ ਯੋਗ ਹੋਵੇ।
- ਇਲਾਜ ਦੇ ਇਰਾਦੇ ਨਾਲ ਕੈਂਸਰ ਦੀ ਪਛਾਣ ਕੀਤੀ ਗਈ।
- ਤੁੰਸੀ ਕੈਂਸਰ ਦਾ ਇਲਾਜ ਸ਼ੁਰੂ ਕਰ ਰਹੇ ਹੋ, ਇਲਾਜ ਚੱਲ ਰਿਹਾ ਹੈ ਜਾਂ ਇਲਾਜ ਹੋ ਚੁੱਕਾ ਹੈ।
- ਤੁਹਾਡੀ ਉਮਰ 18 ਜਾਂ 18 ਸਾਲ ਤੋਂ ਵੱਧ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ ਅਤੇ ਤੁਹਾਡੀ ਸਹਿਮਤੀ ਹੋਣੀ ਜ਼ਰੂਰੀ ਹੈ।

ਇਸ ਵਿੱਚ ਕੀ ਸ਼ਾਮਲ ਹੈ?

ਜੇ ਤੁੰਸੀ ਇਸ ਅਧਿਐਨ ਵਿੱਚ ਹਿੱਸਾ ਲੈਣਾ ਚਾਹੁੰਦੇ ਹੋ ਤਾਂ ਤੁਹਾਨੂੰ ਇੱਕ ਸੰਖੇਪ ਪ੍ਰਸ਼ਨਾਵਲੀ ਅਤੇ ਇੰਟਰਵਿਓ (ਪੰਜਾਬੀ, ਹਿੰਦੀ ਜਾਂ ਅੰਗਰੇਜੀ) ਫੋਨ ਜਾਂ ਐਨਲਾਈਨ ZOOM APP ਤੇ ਦੇਣੀ ਹੋਵੇਗੀ। ਇਸ ਇੰਟਰਵਿਓ ਦਾ ਸਮਾਂ ਤੁਹਾਡੀ ਸਹੂਲਤ ਦੇ ਮੁਤਾਬਕ ਹੋਵੇਗਾ।



ਸੰਪਰਕ ਕਰੋ

ਅਧਿਐਨ ਕੋਆਰਡੀਨੇਟਰ: Mannat Bansal
Email: wellnesslab@ucalgary.ca
Phone: (403)-210-8482

ਇਸ ਅਧਿਐਨ ਨੂੰ Health Research Ethics Board of Alberta ਦੁਆਰਾ ਮਨਜ਼ੂਰੀ ਦਿੱਤੀ ਗਈ ਹੈ

Ethics ID: HREBA.CC-21-0097
October 16, 2021 Version 3



APPENDIX B

Recruitment Emails

FOR HEALTHCARE PROVIDERS/CLINICS

To: [Healthcare Provider/Clinic]

From: Health and Wellness Lab

Subject: Recruitment for Qualitative Exercise Oncology Study for South Asian Cancer Populations

****POSTERS ATTACHED****

Dear [NAME]

I am emailing you today to inform you of a new qualitative study that we are doing within the Health and Wellness Lab. The purpose of this study is to understand barriers, facilitators, and experiences with physical activity among individuals living with cancer of South Asian heritage in Canada.

I am a master's student in the Faculty of Kinesiology at the University of Calgary, working with Dr. Nicole Culos-Reed. We are contacting you because you have previously been a contact for the exercise oncology programs through the Health and Wellness Lab in the Faculty of Kinesiology. We would greatly appreciate it, if you are able to inform your patients who may be potential participants of this study. We've attached a copy of the study poster to this email to share with potential participants and put up in your clinic.

Your patients are eligible if they are: **18 years of age or older**, identify as **South Asian**, able to **speak either Hindi, Punjabi, or English**, have been diagnosed with **non-metastatic cancer**, at **any stage of treatment** (pre-, undergoing, or post-) **with curative intent**, **able to participate in an interview** online, by phone, or in-person.

For this study, participants would complete a brief demographic questionnaire, participate in a 60-90 minute interview (in the language of their choice), and participate in a 10-15 minute follow-up interview. Interviews will be arranged at a time convenient for the participant.

Your **patients** can contact me by email at wellnesslab@ucalgary.ca or by phone at (403) 210-8482. All contact information is on the poster as well.

Thank you for your time.

Mannat Bansal
Master's Student
E: wellnesslab@ucalgary.ca
P: (403)-210-8482

Dr. Nicole Culos-Reed, PhD
Professor, Faculty of
Kinesiology, University of Calgary
Principle Investigator
E: nculosre@ucalgary.ca

FOR COMMUNITY CONTACTS:

To: [Community/Religious Organization]

From: Health and Wellness Lab

Subject: Recruitment for Qualitative Exercise Oncology Study for South Asian Cancer Populations

****POSTERS ATTACHED****

Dear [NAME],

I am emailing you today to inform you of a new qualitative study that we are doing within the Health and Wellness Lab. The purpose of this study is to understand barriers, facilitators, and experiences with physical activity among individuals living with cancer of South Asian heritage in Canada. We hope the results of this study will help to inform future implementation of exercise for cancer programs that are culturally appropriate.

I am a master's student in the Faculty of Kinesiology at the University of Calgary, working with Dr. Nicole Culos-Reed. We are contacting you as your organization works/serves individuals of a South Asian heritage. In our efforts to recruit potential participants, your help would be appreciated. We have attached our poster and would appreciate if you can share this info with your members. I am also happy to come to [LOCATION] to put up posters [where relevant]. Please let me know if that is allowed. Finally, I would be more than happy to speak with your members – virtually or in-person.

For your organizations information, potential participants are eligible if they are:

18 years of age or older, identify as **South Asian**, able to **speak either Hindi, Punjabi, or English**, have been diagnosed with **non-metastatic cancer**, at **any stage of treatment** (pre-, undergoing, or post-) **with curative intent**, able to participate in an interview online, by phone, or in-person.

For this study, participants would complete a brief demographic questionnaire, participate in a 60-90 minute interview (in the language of their choice), and participate in a 10-15 minute follow-up interview. Interviews will be arranged at a time convenient for the participant.

Interested participants can contact me by email at wellnesslab@ucalgary.ca or by phone at (403) 210-8482. All contact information is on the poster as well.

Thank you for your time.

Mannat Bansal
Master's Student
E: wellnesslab@ucalgary.ca
P: (403)-210-8482

Dr. Nicole Culos-Reed, PhD
Professor, Faculty of
Kinesiology, University of Calgary
Principle Investigator
E: nculosre@ucalgary.ca

FOR ACE/EXCEL PARTICIPANTS:

To: [ACE/EXCEL Participant]

From: Health and Wellness Lab

Subject: Recruitment for Qualitative Exercise Oncology Study for South Asian Cancer Populations

****POSTERS ATTACHED****

Dear [NAME],

I am emailing you today to inform you of a new qualitative study that we are doing within the Health and Wellness Lab. The purpose of this study is to understand barriers, facilitators, and experiences with physical activity among individuals living with cancer of South Asian heritage in Canada. We hope the results of this study will help to inform the future implementation of exercise for cancer programs that are culturally appropriate. We are emailing you today because you were identified as a potential participant.

I am a master's student in the Faculty of Kinesiology at the University of Calgary, working with Dr. Nicole Culos-Reed. We are contacting you because you have previously participated in programs through the Health and Wellness Lab in the Faculty of Kinesiology and given permission to be contacted for future studies. We are inviting you to participate in our current study.

To be eligible for this study, you must: be **18 years of age or older**, identify as being of **South Asian heritage**, able to **speak either Hindi, Punjabi, or English**, have been diagnosed with **non-metastatic cancer**, at **any stage of treatment** (pre-, undergoing, or post-) **with curative intent**, and **able to participate in an interview** online, by phone, or in-person. **If you are South Asian and do not speak Hindi or Punjabi but can speak English then you are eligible.**

For this study, you would complete a brief demographic questionnaire, participate in a 60-90 minute interview (in the language of your choice), and participate in a 10-15 minute follow-up interview. Interviews will be arranged at a time convenient for you.

If you would like to participate in this study or have any questions about it, please contact me by email at wellnesslab@ucalgary.ca or by phone at (403) 210-8482. All information is on the attached poster as well.

Thank you for your time.

Mannat Bansal
Master's Student
E: wellnesslab@ucalgary.ca
P: (403)-210-8482

Dr. Nicole Culos-Reed, PhD
Professor, Faculty of
Kinesiology, University of Calgary
Principle Investigator
E: nculosre@ucalgary.ca

APPENDIX C

Informed Consent Form



HREBA ICF Template v2017-Dec
Non-Clinical Trial Research

Informed Consent Form for Participation in a Research Study

***Diversity and Inclusion in Exercise Oncology:
Exploring Experiences with Exercise Among Individuals of South Asian Heritage
Living with Cancer***

(A study to understand the barriers and facilitators to exercise among South Asian individuals living with cancer)

Protocol ID: *HREBA.CC-21-0097*

Researcher: Mannat Bansal (M.Sc student)
Faculty of Kinesiology
University of Calgary
(587)-225-2210

Principal Investigator(s): *Dr. Nicole Culos-Reed* 403-220-7540

Study Team: *Dr. William Bridel
Dr. Kathryn King-Shier*

Sponsor: *Faculty of Kinesiology, University of Calgary*

WHY AM I BEING ASKED TO TAKE PART IN THIS RESEARCH STUDY?

You are being invited to participate in a research study because despite the known benefits of physical activity for those living with cancer, there are low numbers of individuals living with cancer of South Asian heritage involved in exercise oncology programs. The purpose of this study is to help understand what may help you or may prevent you from being more physical activity. We also want to understand overall exercise experiences for individuals of South Asian heritage living with cancer.

This consent form provides information about the study to assist you with making an informed decision. The researcher will discuss this study with you and will answer any questions you may have. You are encouraged to ask questions. When all your questions have been answered to your satisfaction, you can decide if you want to be in the study or not.

Taking part in this study is voluntary. You may choose whether or not you take part. If you choose to participate, you may leave the study at any time without giving reason or without penalty. Deciding not to take part or deciding to leave the study early will not result in any penalty or effect current or future care or employment.

Dr. Nicole Culos-Reed, Health and Wellness Lab, University of Calgary 2500 University Dr NW, Calgary, AB, <https://kinesiology.ucalgary.ca/labs/health-and-wellness/home>

If you decide to participate in this study, you will need to sign and date this consent form. You will receive a copy of the signed form.

PURPOSE OF STUDY

The purpose of this study is to understand the general physical activity experiences of individuals diagnosed with cancer of South Asian heritage living in Canada. We would like to understand what may help or prevent these individuals from being more physically active.

HOW MANY PEOPLE WILL TAKE PART IN THIS STUDY?

Up to 10 people will take part in this study.

WHAT WILL HAPPEN DURING THIS STUDY?

If you agree to take part in this study, you will be asked to complete a short questionnaire. Then, you will undergo a 30 minutes to 1 hour long interview over the phone, online via ZOOM, or in-person at the your preferred location. The time the interview is held will be based on the your preference. The interview will be asking questions about your cancer diagnosis, physical activity levels, general experiences with exercise while living with cancer, and what helps and prevents you from physical activity. The results of the study are expected to be available by June 2022.

This study should take *about 5 months* to complete and the results should be known in about *1 year*.

WHAT ARE MY RESPONSIBILITIES SHOULD I DECIDE TO PARTICIPATE IN THIS STUDY?

If you choose to participate in this study, you will be expected to:

- Complete a short online questionnaire that collects personal information.
- Participate in an interview that will take 30 minutes – 1 hour, either over the phone, in-person, or online via ZOOM.

WHAT WILL HAPPEN IF I CHOOSE TO WITHDRAW FROM THE STUDY EARLY?

You can choose to end your participation in this research study (called early withdrawal) at any time without having to provide a reason and without penalty. If you choose to withdraw early from the study without finishing the procedures or follow-up, you are encouraged to contact the researcher or study staff. The research may also withdraw you from the study if he/she feels it is in your best interest.

Dr. Nicole Culos-Reed, Health and Wellness Lab, University of Calgary 2500 University Dr NW, Calgary, AB, <https://kinesiology.ucalgary.ca/labs/health-and-wellness/home>

Information that was recorded before you withdrew will be used by the researcher for this study, but no additional information will be collected after you withdraw your permission.

WHAT ARE THE RISKS/DISCOMFORTS OF PARTICIPATING IN THIS STUDY?

It is possible that discussing your cancer diagnosis and journey could call psychological or emotional distress/discomfort. If this is the case, then psychosocial counselling resources at the Tom Baker Cancer Centre will be provided if desired.

WHAT ARE THE POTENTIAL BENEFITS OF PARTICIPATING IN THIS STUDY?

- Participation in this study may or may not be of personal benefit to you.
- Based on the results of this study, it is hoped that participation by individuals of a South Asian ethnicity in exercise oncology research and programs can be better understood and improved. Addressing issues of equity, diversity, and inclusivity in exercise oncology is critical.
- If participants are interested in exercise oncology programming as a result of this study, they will be referred to either the Alberta Cancer Exercise (ACE) or the Exercise to Enhance Living Well (EXCEL) studies.

HOW WILL MY PERSONAL INFORMATION BE KEPT PRIVATE?

- Age, country of ethnic origin, preferred language, and gender will be used to describe our study sample, and to potentially understand patterns that may arise from the interviews based on these factors.
- The retention of a master list that contains information to identify you will be stored separately from the data collected from the interviews. This master list will only be seen by the lead researcher. The data collected from the interviews will have removed any identifying information.
- The principal researcher will keep the master list of participants on an encrypted computer in her lab space that stores the data on a secure server at the University of Calgary. This will be retained until the end of the study to confirm interview interpretations with participants.
- Please be aware, as information will be collected online (electronically), we cannot fully guarantee privacy or protection of personal information.
- If the results of this study are published, participants' identities will remain confidential.
- It is expected that the information collected during the study will be used in analyses and will be published and/or presented to the scientific community at meetings and in journals, but participants' identities will remain confidential.

Individuals of the following organizations may look at the data collected, including your name, for quality assurance purposes and/or to verify that the information collected for this study is correct and follows proper laws and/or guidelines:

Dr. Nicole Culos-Reed, Health and Wellness Lab, University of Calgary 2500 University Dr NW, Calgary, AB, <https://kinesiology.ucalgary.ca/labs/health-and-wellness/home>

- The Health Research Ethics Board of Alberta which oversees the ethical conduct of this study

If you decide to participate, the researcher and study staff will only collect information they need for this study. They will do everything that they can to make sure that this data is kept private/confidential. Any data identifying participants will be kept on an encrypted computer. No data relating to this study that includes your name will be released outside of the study site nor will it be published by the researcher. Sometimes, by law, the researcher may have to release information including names and therefore absolute confidentiality cannot be guaranteed. However, every effort will be made to make sure that your information is kept confidential.

Even though the likelihood that someone may identify you from the study data is very small, it can never be completely eliminated. Every effort will be made to keep your information confidential, and to follow the ethical and legal rules about collecting, using and disclosing this information.

After the study is done, we will destroy any collected contact information.

Studies involving humans sometime collect information on race and ethnicity as well as other characteristics of individuals because these characteristics may influence how people respond to different interventions. Providing information on your race or ethnic origin is *required*, so that we can better understand issues of equity, diversity, and inclusion.

The video/audio recordings will be stored in a secure location and viewed only by members of the research team. The recordings will be kept until they have been transcribed (turned into written records), and then they will be destroyed.

WILL THERE BE COSTS INVOLVED WITH PARTICIPATING IN THIS STUDY?

There are no foreseeable costs for your participation in this study.

WILL I BE COMPENSATED FOR PARTICIPATING IN THIS STUDY?

You will not be paid for taking part in this study.

WHAT ARE MY RIGHTS AS A PARTICIPANT IN THIS STUDY?

You will be told, in a timely manner, about new information that may be relevant to your willingness to stay in this study.

You have the right to be informed of the results of this study once the entire study is complete. If you would like to be informed of these results, please contact the researcher.



Your rights to privacy are legally protected by federal and provincial laws that require safeguards to ensure that your privacy is respected.

By signing this form you do not give up any of your legal rights against the hospital, researchers, sponsor, institutions or their agents involved for compensation, nor does this form relieve these parties from their legal and professional responsibilities.

IS THERE ANY CONFLICT OF INTEREST RELATED TO THIS STUDY?

There are no conflicts of interest declared between the researcher and funder(s) and sponsor of this study.

WHO DO I CONTACT FOR QUESTIONS RELATED TO THIS STUDY?

If you have questions about taking part in this study you should talk to the researcher, co-investigator or study nurse. These person(s) are:

Mannat Bansal

403-210-8482
Telephone

If you have questions about your rights as a participant or about ethical issues related to this study and you would like to talk to someone who is not involved in the conduct of the study, please contact the Office of the Health Research Ethics Board of Alberta.

Telephone: 780-423-5727

Toll Free: 1-877-423-5727

UNDERSTANDING AND SIGNATURES PAGE

	<u>Yes</u>	<u>No</u>
Do you understand that you have been asked to take part in a research study?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand why this study is being done?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand the potential benefits and risks/discomforts of taking part in this study?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand what you will be asked to do should you decide to take part in this study?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand that you are free to leave the study at any time, without having to give reason or without penalty?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand that we will be collecting information about you for use in this study only?	<input type="checkbox"/>	<input type="checkbox"/>
Do you understand that by signing this consent form that you do not give up any of your legal rights?	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel that you had enough time and opportunity to consider the information provided to you by way of asking questions, having conversations with others and considering your options?	<input type="checkbox"/>	<input type="checkbox"/>

*If a potential participant has answered “no” to any question above, please make sure to go over the relevant information with them until they do understand it. **Only once they are comfortable with all the information can you accept their decision to participate in the study.***
 By signing this form I agree to participate in this study.

 Signature of Participant Printed Name Date

STUDY TEAM ACKNOWLEDGEMENT

I believe the person signing this form understands what is involved in this research study and has freely decided to participate.

 Signature of Person Conducting the Consent Discussion Printed Name Date

Dr. Nicole Culos-Reed, Health and Wellness Lab, University of Calgary 2500 University Dr NW, Calgary, AB, <https://kinesiology.ucalgary.ca/labs/health-and-wellness/home>

TRANSLATOR/INTERPRETER ACKNOWLEDGEMENT

This section is to be completed only if the participant requires the assistance of a qualified oral translator/interpreter. The interpreter must be impartial.

- The informed consent discussion was accurately explained to, and apparently understood by the research participant.
- A sight translation of the consent document was provided by the interpreter as directed by the research staff conducting the consent process.

Signature of Interpreter

Printed Name

Date

You will be given a copy of this signed and dated consent form prior to participating in this optional research.

APPENDIX D

Intake Questionnaire

General Intake Questionnaire

Name:

Contact Email:

Contact Phone:

Please indicate preferred means of contact: Phone Email

Country of Ethnic Origin:

Afghanistan, Pakistan, India, Sri Lanka, Bangladesh, Nepal, Bhutan.

Age:

Gender:

Preferred Language: English, Hindi, Punjabi

Cancer Diagnosis:

Type:

Date of diagnosis:

Treatment – please check that which applies:

- Currently receiving active treatment
- Completed treatment
- Receiving long-term hormone therapy
- Other: Please Explain _____

ਦਾਖਲੇ ਲਈ ਪ੍ਰਸ਼ਨਾਵਲੀ

ਨਾਮ:

Email:

Phone:

ਤੁਹਾਨੂੰ ਕਿਵੇਂ ਸੰਪਰਕ ਕਰਨਾ ਚਾਹੀਦਾ ਹੈ?

Phone

Email

ਤੁਹਾਡਾ ਪਰਿਵਾਰ ਕਿਹੜੇ ਦੇਸ਼ ਤੋਂ ਹੈ?

ਅਫਗਾਨਿਸਤਾਨ, ਪਾਕਿਸਤਾਨ, ਭਾਰਤ, ਸ਼ਿਰੀਲੰਕਾ, ਬੰਗਲਾਦੇਸ਼, ਨੇਪਾਲ, ਭੂਟਾਨ

ਉਮਰ:

ਲਿੰਗ:

ਤੁਸੀਂ ਇਟਰਵਿ ਕਿਹੜੀ ਭਾਸ਼ਾ ਦੇ ਵਿਚ ਕਰਨਾ ਚਹੁੰਦੇ ਹੋ?

ਅੰਗਰੇਜ਼ੀ, ਹਿੰਦੀ, ਪੰਜਾਬੀ2

ਕੈਂਸਰ

ਤੁਹਾਨੂੰ ਕਿਸ ਕਿਸਮ ਦੀ ਕੈਂਸਰ ਹੈ?

ਤੁਹਾਨੂੰ ਕਦੋਂ ਪਤਾ ਚੱਲਿਆ?

ਇਲਾਜ - ਕਿਰਪਾ ਕਰਕੇ ਚੋਣ ਕਰੋ ਜੋ ਲਾਗੂ ਹੁੰਦਾ ਹੈ:

- ਅਜੇ ਇਲਾਜ ਚੱਲ ਰਿਹਾ ਹੈ
- ਇਲਾਜ ਪੂਰਾ ਹੋ ਗਿਆ ਹੈ
- ਲੰਮੇ ਸਮੇਂ ਦੇ ਹਾਰਮੋਨ ਥੈਰੇਪੀ ਚੱਲ ਰਿਹੀ ਹੈ
- ਕੁਝ ਹੋਰ: ਕ੍ਰਿਪਾ ਕਰਕੇ ਸਮਝਾਓ _____

प्रवेश के लिए प्रश्नावली

नाम:

Email:

Phone:

आपको कैसे संपर्क करना चाहिए? Phone Email

आपका परिवार किस देश से है?

अफ़ग़ानिस्तान, पाकिस्तान, भारत, श्रीलंका, बांग्लादेश, नेपाल, भूटान

उम्र:

लिंग:

आप किस भाषा में इंटरव्यू देना चाहते हैं?

अंग्रेज़ी, हिंदी, पंजाबी

कैंसर

आपको किस प्रकार का कैंसर है?

आपको कब पता चला?

इलाज - कृपया लागू होने वाले का चयन करें:

- अभी इलाज चल रहा है
- इलाज पूरा हो गया है
- दीर्घकालिक हार्मोन थेरेपी चल रही है
- कुछ और: कृपया समझाएँ _____

APPENDIX E

Interview Guide

Example Interview Guide

Hi, thank you for taking the time to be interviewed today. I have some information that I am going to share with you now just so you are clear as to what your participation involves. Feel free to interrupt me at any time if you need or want me to slow down or repeat anything.

I would like to understand your experience with exercise while living with cancer by asking you some questions about your activity levels, your experiences with physical activity, and your understanding of the benefits of physical activity in helping those living with cancer. You previously read the consent form when you agreed to participate, and I can email you a copy of the consent for if you would like. Your responses and identity will be kept anonymous. As a member of the research team, I will know your identity, but I will assign a code to your name so that no one else from the research team can identify what you will share with me in the interview today.

Your participation is voluntary, and you can withdraw at any time and without any prejudice to you. In the event that you withdraw, or are withdrawn from the study, all information collected up until that point for the purpose of this study may be used in order to preserve the scientific integrity of the study. There are no right or wrong answers. Your perspectives will help us create exercise programming for individuals of South Asian heritage living with cancer. Know that you can always skip a question if it makes you feel uncomfortable.

The interview will be audio recorded and used only for the purposes of data analysis by myself.

The audio recording will be stored in an encrypted database. Do you have any questions related to this interview? [if yes, address; if no, continue to next question]. Do you agree to participate in the interview? [if yes, verbal consent is obtained; if no, terminate interview after asking if they have a reason and thanking them for their time].

First question, where [what country] does your family originate from?

Were you born in Canada? Did you immigrate? How long has it been since you immigrated to Canada?

I understand you were diagnosed with cancer, can you tell me about your diagnosis?

In your personal experience, do you think it is appropriate to have discussions about cancer and cancer related-side effects in your culture?

Can you describe your physical activity levels before your diagnosis? What did you do? How often? What is your preferred activity?

How has your cancer diagnosis changed your day-to-day lifestyle?

Can you describe your current physical activity levels? What do you do? How often? What is your preferred activity?

What do you know about exercise for cancer?

What do you think about doing exercise during your treatment? What do you think exercise might do to you while you're undergoing treatment? After treatment?

Are you aware of how exercise can help with the side effects of cancer treatment?

PROBE: If yes, what intensity/frequency of exercise do you think is appropriate for attaining these benefits?

Has anyone ever spoken to you about these benefits?

PROBE: If yes, what? Have they ever asked for resources – if yes, what did they receive.

Are you aware of the ACE program? Has anyone ever told you about it?

What sorts of resources, do you believe would be most useful in reaching [ethnic identity] individuals? E.g., print materials at the Tom Baker in different languages, radio advertisements, etc.

What barriers to physical activity have you experienced since your diagnosis?

Has time been a barrier? Has work?

PROBE: Do you find that you have difficulty in determining safe exertion levels independently?

PROBE: Do you find fatigue and weakness to be barriers to physical activity?

PROBE: Do you prefer informal exercise over structured exercise?

PROBE: Do you have family and friends who are able to support you to become or physically active?

What type of people do you feel most comfortable doing physical activity with?

What type of people would you not feel comfortable exercising with?

What type of exercise do you most enjoy? Would group classes be enjoyable to you?

What helps you engage in physical activity?

What do you think would be needed to get individuals who have cancer and are [insert ethnic identity] more physically active?

Is there anything else you would like to talk about or anything you'd like to add?

APPENDIX F

Additional Quotes

Theme	Participant Quote
Culture	<p><i>The Role of the Family</i></p> <ul style="list-style-type: none"> • P1: <i>If you tell my children, then they will say “mummy, you must do this. Have to.</i> • P1: <i>One time, my husband said a lot... ‘you- have to- have to do this [exercise]’</i> • P1: <i>They all got upset. Like I was, of course, upset. Then they hugged me and said ‘it will be okay, it will be okay’.</i> • P1: <i>[He] supported me a lot. My husband supported me a lot.</i> • P1: <i>But still, sometimes, when I see my kids, I feel anxious, right?</i> • P1: <i>[my kids] don’t mind [translating] but I feel that I am constantly disturbing them.</i> • P2: <i>Like for example on for my surgery, I remember my brother- both brothers came. My sister couldn’t come because she has four children. My parents were there. My husband was there. I think one of my sister-in-law was there...[the nurse said] oh, you can bring your family and I’m like this- all of these people are my family. Which one do you want me to choose? Because I’m sure you don’t want all of them in the ultrasound room.</i> • P2: <i>We are all here. You have to think about that too. I think as a unit, we need to, we need to also target the unit, because it’s never one person.</i> • P2: <i>We are thinking of other people too, because we are so I guess we are very community oriented. So nobody’s like one person, they have family, they have siblings, they have, like, you</i>

know, parents that are always in the appointment or visiting or things like that. So we have to think about the whole dynamic. As a whole because that's not just one person. It's a whole family.

- P4: *Yes, she will push me [to attend exercise classes if they were available in Punjabi].*
- P8: *We are always hesitant to give ourselves time...I already haven't given family enough time.*
- P8: *I think family members need to be made aware [of exercise oncology]. You'll have to motivate them like if there is a patient or a survivor or whatever- you need support from the rest of the family members in order to motivate them [to exercise].*

Health and PA Norms

- P1: *Lots of people are the type to give encouragement. They say 'it's nothing. Nothing will happen. It will be okay.' Lots of people say 'this happened to that person, this happened to that person'. Then, my heart breaks. Then I don't- I only talk to my family about everything.*
- P2: *I've had cancer. But yeah, I think it's a taboo issue. Like people just don't want to talk about it. And if they're going through this disease, they don't want other people to know.*
- P2: *I think that's also one of the reasons until- women don't like to share, because there's so much opposition and so many opinions and I'm sorry, I'm being negative but that's how I feel like, community treats each other. It's very not kind.*
- P4: *If someone asks, I can tell them [about my cancer]*
- P4: *No. Not one [doctor told me to exercise]*
- P7: *But I do feel safe talking about certain things that do bother me with the side-effects of cancer. Like the general aspect of it. I can- it is okay to talk about it for sure.*
- P8: *Somewhere where a person can easily approach. I felt a lot of hesitation to ask any one or to join a group, I thought it would be a burden and increase my negativity or whatever.*

	<p>Religion</p> <ul style="list-style-type: none"> • P1: <i>I always keep faith in God...beyond that it's all God's decision. We can't do anything about it.</i> • P1: <i>I keep faith in God because before too [from first diagnosis], He made me better. Now [after second diagnosis] too, He made me better.</i> • P4: <i>First, I go to the Gurudwara in the morning. I wake up at 3.</i>
<p>Informational Needs</p>	<p>Need More PA for Oncology Education</p> <ul style="list-style-type: none"> • P1: <i>They didn't tell me any thing about [the benefits of exercising for cancer]</i> • P1: <i>No I don't know [what intensity I should exercise at]</i> • P2: <i>After ACE, I felt like you know, when I worked out I had a much more positive impact on my life like, because coming out of treatment, you're more fatigued and things like that you have neuropathy, chemo brain, and I felt improvement in my side-effects. So that helped, for me to continue...I can see the results too right. It makes you more inclined to keep on doing it.</i> • P3: <i>I think that there- some education would be helpful as well because I feel like people of this background typically don't know that much about exercise. So incorporating more exercise- I mean more education, doing exercises that are less complex because a lot of these people may not- may not have that exposure to exercise.</i> • P8: <i>After that [treatment], the energy level - fatigue is at its highest</i> • P8: <i>...when you get treatment from the hospital, just the booklet is not enough. If there was some sort of compulsory session...where you can say everything on your mind when someone is sitting directly in front of you and can guide you and say 'your exercise level is this, when you feel</i>

fatigued, you should do this. Eventually you will feel better...’ That’s where it should start. Rather than a person having to self search.

- *P8: Because I don’t know if I am doing right or wrong [exercise]. I feel pain, I feel swelling, so much going on.*

Barriers to Exercise Oncology Educational Resources Identified by Individuals of South Asian Heritage

- *P1: It would be better [if resources were in Punjabi]. Otherwise, I have to keep on asking my kids...what is this? Yes, then they have their own studies too.*
- *P1: Paper- I didn’t receive anything like that [exercise oncology resources/information]. Maybe they did give it. My daughter- she handles all the paperwork. There might have been but I don’t know.*
- *P2: You need to just not have in a paper, that’s just, that’s not gonna serve anything, because that’s a lot of papers, you get pamphlets on you know, how to deal with stress, how to do this, how to do- not everybody reads it. There’s a big booklet that you get for breast cancer...That’s too much information. And then in that time, where you are distressed, and sometimes your brain cells are not working. So not easy to comprehend that much information. So I think you should target multi-level. Because you need to hear that information multiple times.*
- *P2: There’s language barrier, the most important [barrier for people of South Asian heritage]. People don’t understand English. Then what are you to do?*
- *P7: It’d be nice to see more people with different cultures for sure.*

Need New Ways to Spread Information

	<ul style="list-style-type: none"> • P7: <i>...maybe there's just not the awareness or the understanding of that physical activity is beneficial they are not getting that information somehow.</i> • P8: <i>Because I wanted to exercise. So, I was looking for guidance so luckily before that, you had your talk on the radio...otherwise you have no way to know [about current exercise oncology programming]</i>
<p>The Nature of Exercise Oncology Programming</p>	<p><i>Barriers to Exercise Oncology Programming Identified by Individuals of South Asian Heritage</i></p> <ul style="list-style-type: none"> • P1: <i>If it's Punjabi then we can understand our own language.</i> • P3: <i>I think like maybe if you had an instructor who was of similar background and/or spoke the language, that would help</i> • P6: <i>[Exercise oncology classes should be] in Punjabi. In Punjabi. Because [I] do not understand English. In Punjabi.</i> • P7: <i>there could be one [exercise oncology class] of people who... who speak the same language could be together and it could be hosted by like say, you with all the people from India or wherever.</i> • P7: <i>It would be nice to be with someone who has a similar culture as me, but I have not found anyone that has like breast cancer who is from South Asia.</i> <p><i>Need Various Exercise Oncology Programming Options</i></p> <ul style="list-style-type: none"> • P1: <i>[I can go] anywhere. Finding the address - I've had this [problem] from the beginning. I never went anywhere far. When I go, I take my husband with me. I can drive around nearby. So I cannot find an address too quickly. I get nervous.</i>

- P2: *Like I mean, how easy it is to have a Zoom class in your home. You have in the house. With bottle milk jugs or things like that. I mean, [ACE has] been easy as it could be, how easy you want it to be?*
- P3: *[Technology] could initially be a barrier but I think that is something that could be worked around. I feel like joining a Zoom link is so easy like you just have to teach them once or twice and that could be done- you could even like, like do a session to teach them online or make a quick video or talk to one of their family members to help them out. Like I think there are ways to work around that. I think the difficulty of learning how to join a Zoom meeting is less than the difficulty of regularly getting to an exercise class.*
- P4: *Now if you say that go do it at home yourself, no one does it. I don't do it either. I'm actually telling the right thing. If you set the program saying "let's get together on the 15th at 3", then patients will come. If you say, do it at home, then no one does it. I don't do it either. if you call them there, then the person will come and do it with everyone else.*
- P4: *It depends. If the exercises are normal and we can all do it together, then ladies and gents can. Now what are the exercises like- I don't know, I don't know. It depends if everyone can do them together, then they can, no problem.*
- P5: *Kids don't teach us [how to use technology]. If kids teach us only then it'll make a difference.*
- P5: *I used to go [walk] every day. I used to walk for 50 minutes every day. Every day I went for sure. I used to only walk, nothing else. Yoga or anything else- nothing...I want to start [yoga] now.*
- P6: *[Men and women can do exercise classes] together. It's not a problem.*

- | | |
|--|--|
| | <ul style="list-style-type: none">• P7: <i>I guess the age thing when I first started with ACE. I was like 'oh I feel so young' ...I just didn't feel like I connect with other people like- and I'm at a different stage of my life, whereas like a lot of people it seemed like they were older and ready to retire, and they had grandkids and I just felt like I have all this stuff still to do with my life, you know. I am not married; I don't have any kids and like I have a mortgage to pay and so it's kind of- I was in school so it's just kind of like I just didn't feel like initially I connected with people [in ACE].</i>• P8: <i>I think there should be strength [exercises], a little bit of weights and then after that you can do anything. I do everything.</i> |
|--|--|