

UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

**Recreation Opportunities for Chinese and Chinese-Canadian Women in UBC Undergraduate Studies**

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**KIN 464**

**Themes: Community, Health, Wellbeing**

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Recreation Opportunities for Chinese and Chinese-Canadian Women in University of British

Columbia Undergraduate Studies

Final Report

Assignment #4: Group #27

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## Executive Summary

The objective of this research project is to explore the recreation opportunities for Chinese and Chinese-Canadian women undergraduate students at UBC Vancouver and to further understand the underlying factors that contribute to their physical activity participation rates.

A large proportion of UBC's undergraduate student population is composed of both domestic and international Chinese and Chinese-Canadian women (University of British Columbia, 2012). The literature has identified several barriers that limit physical activity participation among Asian and Chinese female students enrolled in university, related to culture (Suminski, Petosa, Utter, & Zhang, 2002), lack of comprehensive physical education in Chinese schools (Liang, Housner, Walls, & Yan, 2012), and both academic and social pressure (Cheung & Chow, 2010; and Yan & Cardinal, 2013). Low rates of physical activity are linked to various negative health outcomes (Racette, Deusinger, Strube, Highstein, & Deusinger, 2005; and Conklin & Lambert, 2005), which makes this research vital for this demographic. Chinese and Chinese-Canadian women undergraduate students were identified as a target population by UBC Recreation for this study.

Chinese and Chinese-Canadian women undergraduate students at UBC Vancouver were invited to complete a survey that explored both their previous and current participation rates, demographics, perceptions of UBC Recreation, as well as barriers and motivators experienced when participating in physical activity. The survey was distributed through multiple social media platforms such as Facebook, Instagram, lectures, the UBC Kinesiology research website, and directly to other undergraduate students. The survey had 47 complete responses, with the majority of respondents being between the ages 21 to 23, in year level four, and domestic UBC students. Various descriptive statistical measures were employed including measures of frequency, measures of central tendency, and measures of dispersion for data analysis.

The findings revealed that almost three quarters of participants were not meeting Canadian Physical Activity Guidelines, which refers to engaging in 150 minutes of moderate to vigorous physical activity (MVPA) each week (CSEP, n.d.). Before attending UBC, 46.8% of students were meeting these guidelines, and currently only 27.7% are meeting these guidelines. 66.0% stated that UBC had a negative impact on their MVPA levels. The themes drawn from the statistical analysis provide further insight on the experiences of Chinese and Chinese-Canadian undergraduate students when seeking physical activity opportunities on and off campus.

Furthermore, themes from survey responses allow for recommendations to be made on how to address these experiences shared in the survey. Three recommendations were made to UBC Recreation to provide suggestions on how they can improve participation rates from Chinese and Chinese-Canadian women at UBC. The first recommendation is to provide off-campus resources to students as 44.7% of surveyed students currently use off campus fitness gyms and studios. The second recommendation is to create more online resources for students to help them feel more confident creating exercise routines and using exercise equipment. Finally, it is recommended that UBC Recreation creates a Student Recreation Ambassador position to provide assistance and guidance to students in UBC Recreation facilities and ultimately improve health literacy.

## **Introduction & Literature Review**

UBC's Vancouver campus has approximately 44,000 undergraduate students enrolled in over 180 academic programs (University of British Columbia, 2019; & University of British Columbia, n.d.). 28.1% of undergraduates are international students (University of British Columbia, 2019) and over 55% are female (Mukherjee-Reed & Szeri, 2019). Of those international students, over one third identify as Chinese and 45% of domestic students identify as being of either Chinese, Japanese, or Korean descent (University of British Columbia, 2012). This demographic information refers to a relatively large proportion of undergraduate students at UBC's Vancouver campus. The size of this demographic therefore identifies a need to better understand undergraduate Chinese and Chinese-Canadian women's experience as a subpopulation surrounding physical activity participation and access on campus.

In a study conducted by Yoh, Yang, & Gordon (2008), it was determined that Asian female university students in the United States were the least physically active of the demographics assessed in their study. It was also found by Yan, Cardinal, & Acock (2015) that female Chinese students were less likely to meet physical activity (PA) guidelines than their male counterparts. Reasons for lack of participation in PA, specifically in Chinese female university students, possibly include discouragement from traditional Chinese culture due to the belief that sport and physical activity are masculine in nature (Suminski, Petosa, Utter, & Zhang, 2002), lack of comprehensive physical education in Chinese school systems (Liang, Housner, Walls, & Yan, 2012), and various social and academic pressures (Cheung & Chow, 2010; and Yan & Cardinal, 2013). An additional consideration is that this demographic of students face the

intersectionality of their race as well as gender and when it comes to leisure and recreation, contexts and activities are rarely gender or racially neutral (Zou & Scott, 2017).

The factors that predisposed students to low participation rates in previous studies support the assessment of participation rates, motivators, and barriers for Chinese and Chinese-Canadian women in UBC undergraduate studies. Health related outcomes due to low physical activity rates, specifically weight gain, during university has been linked to an increased risk for overweight and/or obesity later in life (Racette, Deusinger, Strube, Highstein, & Deusinger, 2005; and Conklin & Lambert, 2005). Of equal importance is the exploration of the motivational and participatory barriers specific to Chinese and Chinese-Canadian women as these may be gender specific (Weinberg & Gould, 2015; and Egli, Bland, Melton, & Czech, 2011).

There is very little information available regarding the specific use of UBC Recreation programs and facilities by Chinese and Chinese-Canadian women in UBC undergraduate studies as well as general PA rates and behaviours of this specific demographic. For this reason, this study aims to gain insight into physical activity rates (measured by time and exertion) and PA behaviours (defined as ways in which individuals are participating in physical activity) of Chinese and Chinese-Canadian women in UBC undergraduate studies; as well as identify potential barriers for participation in and utilization of UBC Recreation programs and facilities for this particular demographic. This information will then be utilized to form recommendations for UBC Athletics and Recreation to use for informing program development and outreach strategies.

## Methods

### Population and Sampling

Purposive sampling was utilized for the purpose of developing and implementing a needs assessment regarding physical activity opportunities on campus at UBC Vancouver. Sampling methodology included the entire population of Chinese and Chinese-Canadian women in undergraduate studies at UBC's Vancouver campus. Participants were recruited through several pathways including: social media posts on Facebook, Twitter, and Instagram, verbal recruitment in various UBC Vancouver undergraduate lectures, announcement posts in online course management system Canvas, as well as person-to-person recruitment. Surveys were collected over the course of 15 days in March 2020. 62 participants responded to the survey, 10 survey responses were rejected for not meeting demographic requirements and 5 survey responses were rejected as they were not complete submissions, leaving a sample population of N=47. **Table 1** provides a breakdown of the sample demographics. Within the age demographic, 68.1% (n=32) were 21 to 23 years old, 23.4% (n=11) were 18 to 20 years old, and 8.5% (n=4) were 24 years or older. Over half of participants reported being of year level 4 in undergraduate studies (53.2%; n=25), this majority was followed by year level 5 (17.0%; n=8), year level 1 (12.8%; n=6), year level 3 (10.6%; n=5), then year level 2 (6.4%; n=3). Most study participants were domestic students (89.4%; n=42) with only 10.6% (n=5) reporting being international students. This study was supervised by Principal Investigator Dr. Andrea Bundon as part of a course-based research project (KIN 464: Health Promotion and Physical Activity) with UBC Vancouver's Office of Research Ethics approval. Passive and informed consent was given by participants reading the opening consent page before completing the survey.

<b>TABLE 1. Percentiles and Frequency of Study Participants' Demographic Characteristics (N=47)</b>		
<b>Variable</b>	<b>n</b>	<b>%</b>
Age		
Under 18 years	0	0.0
18-20 years	11	23.4
21-23 years	32	68.1
24-26 years	2	4.25
27 years +	2	4.25
Year Level		
Year 1	6	12.8
Year 2	3	6.4
Year 3	5	10.6
Year 4	25	53.2
Year 5	8	17.0
Residency		
Domestic	42	89.4
International	5	10.6

Instrument

A complete and detailed version of this instrument used in this study can be found in

**Appendix B.**

An online Qualtrics survey was completed by each participant using a computer, tablet or mobile device. The quantitative survey consisted of seventeen individual questions and five subsections: Target Demographics, General Demographics, PA and UBC Recreation Engagement, Themes Related to UBC Recreation and, Perceived Motivations and Barriers to PA. A variety of response items were used depending on the nature of each question, including yes or no, multiple choice, multiple answer and Likert-type scale questions. As the survey was

fundamentally quantitative, no open ended questions were asked.

Participants who selected “no” to the first demographic question of “do you identify as a Chinese or Chinese-Canadian woman, enrolled in an undergraduate program at UBC Vancouver” were automatically directed to the end of the survey and had their survey responses rejected from analysis. The survey results of those who answered “yes” were included in the analysis and participants were directed to answer further questions. Demographic information including age, year level and residency status was collected through participants’ answers to multiple choice questions.

The following section included multiple choice questions to determine PA levels before attending UBC, current PA levels, and perceptions of whether UBC as a whole has had a positive or negative or no impact on PA levels overall. When collecting information on PA levels, participants selected their answer choice based on time spent per week engaged in moderate-to-vigorous physical activity (MVPA) (defined for participants as being “equivalent to exercising or working at 60-80% effort. Some examples include running, jumping, shovelling, playing soccer, etc.”). These answer selections will later be compared to Canadian PA guidelines set by the Canadian Society for Exercise Physiology (CSEP) to determine how many participants are considered to be reaching PA recommendations at the time. Following this, multiple answer questions were asked to collect information on which programs and/or facilities were utilized by participants both on- and off-campus in the last 6 months before completing the survey. Participants were asked to select all programs and/or facilities applicable.



Questions with Likert-type scale answers gave 7 score options from strongly agree to strongly disagree (Strongly disagree [1], Disagree [2] Somewhat disagree [3], Neither agree or disagree [4], Somewhat agree [5], Agree [6], Strongly agree [7]). The overarching themes of these questions were accessibility of and perceptions of current UBC Recreation programs. The first question collected participants' perceptions of accessibility to PA opportunities provided by UBC Recreation programming. The next two questions collected participants' perceptions of UBC Recreation's concern about their personal wellbeing and whether they serve individuals "like them." Lastly, two further questions collected feelings of confidence and comfort participants experience while using and participating in UBC Recreation facilities and programs.

In the final section of the survey, perceptions of motivators and barriers that impact PA participation were collected using multiple answer questions that allow participants to select all factors that apply. The motivators listed for selection were: weight loss and/or weight-management, physical appearance, physical health, mental health, social interactions/friendships, stress management, sport performance and enjoyment. The barriers listed for selection were: safety, access, distance, cost, I do not know how to operate exercise equipment and/or create exercise programs for myself, I do not know what facilities programs are available on campus, I do not feel confident exercising in public, I do not like or want to, I feel like I do not have time, I do not have anyone to go with, and I do not enjoy the physical activity opportunities available. Participants were instructed to select all motivators and barriers applicable.

## Data analysis

Outcome measures of this survey include previous and current MVPA levels, use of UBC Recreation facilities and/or programs, use of alternative on- and off-campus facilities and/or programs, perceptions pertaining to UBC Recreation, and perceived motivators and barriers to PA on-campus and in general. Previous MVPA levels and demographic information served as independent variables for many analyses, as well as the impact (positive, negative, no impact) UBC had on their MVPA levels. Various descriptive statistical measures were employed including measures of frequency, measures of central tendency, and measures of dispersion. Measures of frequency were used generally throughout the analysis to compare which facilities were used most often and which motivations and barriers affected the most participants. Measures of central tendency and measures of dispersion were engaged to analyse the Likert-scale questions related to themes and perceptions of UBC Recreation. The data was analyzed using built-in software of the Qualtrics program.

## **Findings**

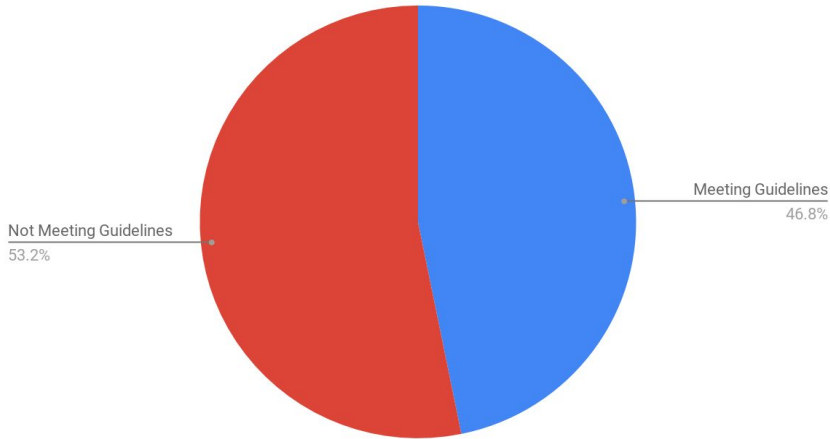
### Physical Activity and UBC Recreation Engagement

#### ***Physical Activity Guidelines***

Before attending UBC, 46.8% of students (n=22) reported that they were meeting the Canadian Physical Activity guidelines of 150 minutes (2.5+ hours within survey) of aerobic MVPA per week (CSEP, n.d.). 53.2% of participants in the survey were not meeting the national PA guidelines before attending UBC (n=25).

## Figure 1: Previous Physical Activity Behaviour

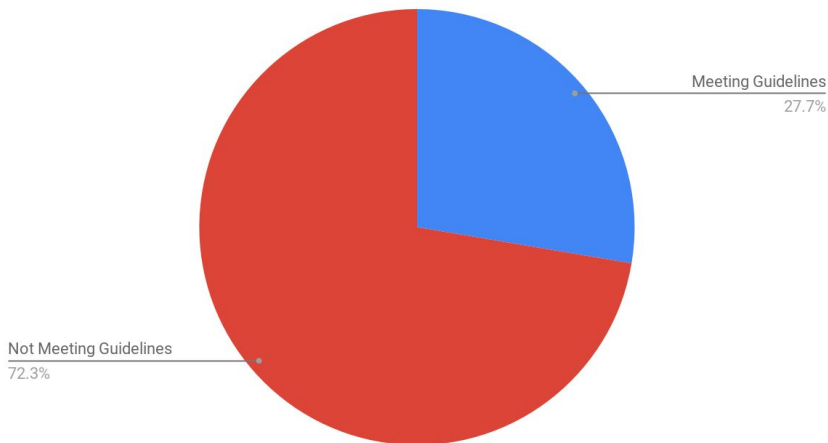
Physical Activity Behaviour Before Coming to UBC



Currently, 27.7% of survey participants are meeting the MVPA guidelines (n=13), meaning 72.3% of survey participants are currently not meeting MVPA guidelines (n=34).

## Figure 2: Current Physical Activity Behaviour

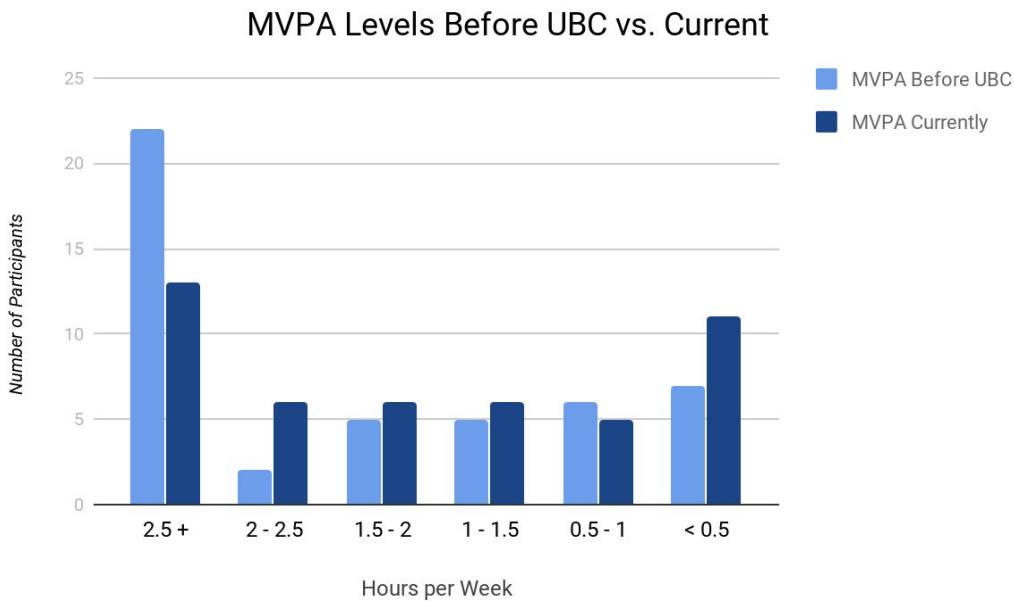
Current Physical Activity Behaviour



The individuals engaging in 2.5 or more hours of MVPA represented in **Figure 3**, are those who are meeting Canadian PA guidelines. Those in the other categories are therefore not meeting the

guidelines. Before attending UBC, 4.3% of students (n=2) engaged in 2 - 2.5 hours of MVPA per week, 10.6% of students (n=5) engaged in 1.5 - 2 hours of MVPA per week and 10.6% of students (n=5) also engaged in 1 - 1.5 hours of MVPA per week. 12.8% of students (n=6) engaged in 0.5 - 1 hour of MVPA per week and 14.9% of students (n=6) engaged in less than 0.5 hours. Currently, 14.9% of students (n=6) participate in 2 - 2.5 hours of MVPA per week, 14.9% of students (n=6) participate in 1.5 - 2 hours of MVPA per week and 14.9% of students (n=6) participate in 1 - 1.5 hours per week. Finally, 10.6% of students (n=5) currently engage in 0.5 - 1 hour of MVPA per week and 23.4% (n=11) engage in less than 0.5 hours per week.

**Figure 3: Breakdown of MVPA Before UBC vs. Current MVPA**



***Previously Reported High Levels of Physical Activity***

Of the participants who were meeting the MVPA guidelines before coming to UBC (n=22), less than half (n=10, 45.6%, ) reported that they are currently being physically active for 150 minutes per week.

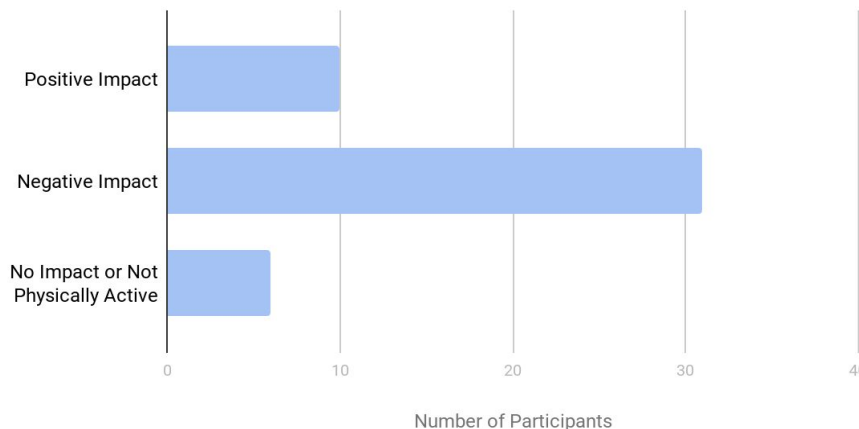
### ***Previously Reported Low Physical Activity Engagement***

Individuals who previously engaged in less than an hour of MVPA per week (n=13) reported that they currently engage in various levels of MVPA. Of these respondents, 46.2% of participants (n=6) currently participate in less than 0.5 hours of MVPA and no participants (n=0) engage in between 0.5 hours to 1 hour of physical activity. Only 7.7% (n=1) of participants currently meet the guidelines of 150 minutes of MVPA per week.

### ***Impact of UBC on PA Levels***

(Figure 4) 21.3% of survey respondents reported that UBC had a positive impact on their physical activity levels (n=10). 66.0% indicated that UBC negatively impacted their physical activity levels (n=31), meaning that they are less physically active while studying at UBC. 12.7% of the other participants reported that studying at UBC had no impact or they are not physically active (n=6). Of the participants who reported that they were meeting the MVPA guidelines before coming to UBC, 18.2% (n=4) stated that UBC had a positive impact on their physical

Has UBC Had a Positive or Negative Impact On Your MVPA Levels?



activity levels, 68.2% of participants (n=15) stated that UBC had a negative impact on their physical activity levels, and 13.6% of participants (n=3) said that UBC had no impact on their

**Figure 4: UBC's Impact on MVPA Levels**

physical activity levels. Additionally, no participants from this group are not physically active. Of the participants who indicated that they were not meeting the guidelines prior to studying at UBC, 24.0% of participants (n=6) responded that UBC had a positive impact on their physical activity levels, 64.0% of participants (n=16) responded that UBC had a negative impact on their physical activity levels, and 12.0% of participants (n=3) responded that UBC had no impact on their physical activity levels or that they have not been active during this time.

UBC Recreation facilities and programs listed in the survey included the Birdcoop, the ARC, UBC Aquatic Centre, UBC REC fitness classes (i.e. Zumba, bootcamp), UBC REC Events (i.e. Day of the Longboat, Storm the Wall) and Intramural leagues. 40.8% of participants (n=20) indicated that they use the UBC Aquatic Centre, making it the most popular choice, followed by the ARC with 36.73% (n=18), the Birdcoop with 30.6% (n=15), UBC REC events bringing in 16.3% (n=8), UBC REC fitness classes with 14.3% (n=7), intramural sports with 12.2% (n=6) and 8.16 (n=4) selecting 'other'. Within this 'other' category, 75.0% (n=3) of responses indicated that they did not participate in any of the above programming, and the other 25.0% (n=1) stated that they attended UBC REC drop-ins, not specifying where.

Individuals who indicated that UBC has had a positive impact on their PA levels (n=10) are using UBC Recreation facilities and programs multiple times per week (n=4, 40.0%) or once per week (n=5, 50.0%). However, 10.0% of individuals (n=6) use UBC Recreation facilities once per month. Other participants reported that UBC had a negative impact on their MVPA levels (n=31). Although some of these participants frequent UBC Recreation facilities and programs multiple times per week (n=4, 12.9%), 3.2% of respondents (n=1) go once per week,

and 6.5% go more than once per month (n=2). **Table 4 in Appendix A** is a visual representation of the facilities that participants who use UBC Recreation facilities and programs at least once a week engage in and those that use the facilities and programs less than once per week.

### ***Other Recreation Programs***

Programs and facilities on or off UBC campus, not affiliated with UBC Recreation explored in this survey included AMS clubs, on/off campus private gyms and studios, and UBC Bodyworks. 97.9% participants utilized facilities and programs not affiliated with UBC Recreation (n=46), 19.6% of participants (n=9) are engaging with AMS clubs, 8.7% (n=4) are utilizing on campus private gyms and studios, nearly half (45.7%, n=21) are attending off campus private gyms and studios, 6.5% (n=3) attend UBC Bodyworks and 19.6% (n=9) selected 'other'. Survey respondents who indicated that UBC had positively impacted their physical activity levels (n=10, 21.3%) are making use of a variety of programs and facilities not affiliated with UBC Recreation. From the positive group, 30.0% of participants (n=3) responded that they use private gyms/studios on campus, while 40.0% participants (n=4) responded that they use private gyms/studios off campus. 10.0% of respondents (n=1) responded that they attend programs offered by AMS clubs, and another 10.0% (n=1) responded that they use the facilities offered by UBC Bodyworks. 40.0% of participants responded that (n=4) they use other programs and facilities not associated with UBC Recreation that were not mentioned in the survey.

Survey respondents who indicated that UBC had a negative impact on their physical activity levels (n=31) are also making use of some of the programs and facilities not affiliated with UBC Recreation. Amongst the negative impact group 3.2% of participants (n=1) responded that they go to private gyms/studios on campus, while 51.6% of participants (n=16) responded

that they attend private gyms/studios off campus giving this category the highest mode amongst them. AMS clubs was the second highest category, with 19.4% of respondents (n=6) indicating that they use the programs offered. 12.9% of participants (n=4) indicated that they use other programs and facilities not affiliated with UBC Recreation that were not given as a survey option.

### Themes Related to UBC Recreation

To understand participants' feelings and perceptions about UBC Recreation, five questions were answered using a likert scale with items including Strongly disagree (1), Disagree (2) Somewhat disagree (3), Neither agree or disagree (4), Somewhat agree (5), Agree (6), Strongly agree (7). The most commonly chosen answer for these questions was "agree," however there was some variance in the data. "Somewhat agree" was the highest average and relates to feelings of accessible physical activity participation (M=5.10) and programming for "people like me" (M=5.10). Participants also "somewhat agree" that UBC Recreation cares about their wellbeing (M=4.74) and "somewhat agree" that they feel comfortable accessing UBC Recreation facilities and programs (M=4.71). Confidence using facilities and participating in programs had the lowest score with the average of "somewhat disagree" (M=3.35). Refer to **Table 5** in **Appendix A** for UBC Recreation Theme and Perception Questions response frequency.

### Perceived Motivations and Barriers to PA

Survey participants were asked to select which factors motivated them to participate in physical activity (**Table 2**), such factors included weight loss/weight maintenance, physical appearance, physical health, mental health, social interaction/friendship, stress management, sport performance, and enjoyment. Physical health had the highest mode with 85.1% of



participants (n=40) selecting it as a motivating factor. Weight loss and weight maintenance had the second highest mode with 70.2% (n=33) selecting both as motivating factors. Mental health and stress management were the third most frequently selected categories, with 68.1% of participants (n=32) choosing both.

From the 27.7% survey participants that are currently reaching the MVPA guidelines (n=13), 84.6% selected mental health as being the main motivating factor for participating in physical activity (n=11). 76.9% of participants (n=10) amongst this group selected physical appearance, physical health, stress management and enjoyment as one the motivating factors amongst participants currently reaching the MVPA guidelines. For participants currently not reaching MVPA guidelines (n=34, 72.3%), physical health had the highest mode (n=30, 88.2%), indicating that this was the largest motivating factor amongst this group. Weight loss and/or weight management came in as the second greatest motivating factor, with 70.6% survey respondents (n=24) selecting it.

Amongst the 21.3% of participants who stated that UBC had a positive impact on their physical activity levels, 90.0% of them selected stress management as the greatest motivating factor (n=9) and 80.0% of respondents chose mental health as a motivating factor (n=8). 70.0% of respondents amidst the positive impact group (n=7) chose weight loss and/or weight management, physical appearance, physical health and enjoyment as motivating factors.

From the 66.0% of survey participants (n=31) who said that UBC had a negative impact on their physical activity levels, physical health had the highest mode with 90.3% of participants selecting it (n=28). Weight loss and/or weight management had the second highest mode with

74.2% of participants choosing it (n=23). 71.0% of participants in the negative impact group selected physical appearance as a motivating factor for participating in physical activity (n=22).

Survey participants had a range of barriers (**Table 3**) to select from for the obstacles that prevent them from participating in physical activity on campus. Access, such as hours of operation and event times, had the highest mode, with well over the majority of participants selecting it (70.2%, n=33). The second most frequently selected barrier was distance to opportunities, such as living off campus, with 60.0% of participants (n=28) of participants selecting it as a barrier they encounter to being physically active on campus. 55.3% of respondents selected “I feel like I do not have time to” (time) as a barrier (n=26), whereas 40.4% of respondents chose that they do not know how to operate the exercise equipment/create exercise programs ( n=19).

Of the 27.7% of participants that are currently meeting MVPA guidelines (n=13), access and distance were their number one barriers, with 69.2% of respondents choosing it (n=9). Time to be physically active had the second highest mode amongst this group, with 53.8% of participants (n=7) selecting this as a barrier. Participants who are not currently meeting MVPA guidelines 72.3% (n=34) selected access as being their number one barrier with 70.6% of participants (n=24) selecting it. Following access was distance and time with 55.9% of individuals in this category selecting it. (n=19). The third highest mode amongst this group was feeling like they do not know how to operate the exercise equipment nor create exercise programs, with 50% of participants selecting this as a barrier (n=17). Interestingly, not having anyone to go with had 41.2% of votes (n=14) amongst those not currently reaching the MVPA guidelines, making it their fourth highest barrier. However, only 15.4% of participants (n= 2) for

those that are currently reaching the guidelines selected not having anyone to go with, making it their second lowest barrier.

Amongst 21.3% of participants that stated that UBC had a positive impact (n=10), 70.0% of respondents chose access and distance were the most frequently picked barriers for participants in this group. Furthermore, amidst the 66.0% of participants that selected UBC as having a negative impact on their PA levels, 74.2% of individuals chose access as their largest barrier (n=23), followed by 67.7% of participants selecting that they feel like they do not have time to (n=21). Distance was the third most frequently picked barrier amongst those in the negative impact group, with 61.3% of participants (n=19) selecting it as a barrier.

**Table 2: Motivators Related to Physical Activity (N=47)**

<b>Motivators</b>	<b>n</b>	<b>% of Participants who Identified this Motivator</b>
Weight loss and/or weight maintenance	33	70.2
Physical appearance	33	70.2
Physical health	40	85.1
Mental health	32	68.1
Social interaction/friendships	14	29.8
Stress management	32	68.1
Sport performance	12	25.5
Enjoyment	30	63.8

**Table 3: Barriers Related to Physical Activity (N=47)**

<b>Barriers</b>	<b>n</b>	<b>% of Participants who Identified this Barrier</b>
Safety	5	10.6
Access (ie. hours of operation, event times, class schedule)	33	70.2
Distance (ie. I do not live on campus)	28	59.6
Cost	16	34.0
I do not know how to operate exercise equipment and/or create exercise programs for myself	19	40.4
I do not know what facilities or programs are available on campus	10	21.3
I do not feel confident exercising in public	16	34.0
I do not like or want to	5	10.6
I feel like I do not have time to	26	55.3
I do not have anyone to go with	16	34.0
I do not enjoy the physical activity opportunities available	2	4.2

## Discussion

Less than half (46.8%; n=22 ) of the surveyed population were meeting Canadian physical activity (PA) guidelines before coming to UBC, whereas now even less of survey respondents are currently meeting guidelines (27.7%; n=13). This indicates that overall, this population is not meeting Canadian PA guidelines. This is supported by the majority of participants' (68.2%) indicating that UBC has had a negative impact on their physical activity levels. While both students who were and who were not previously meeting the national PA guidelines largely indicated a negative impact on their PA levels, it appears the students who were previously meeting guidelines were more likely to see a decrease. Students overwhelmingly indicated that access (70.2%) and distance (60.0%) are the two highest barriers to participating in recreation programming. Moreover, slightly over half of those who particularly stated that UBC had a negative impact on their PA levels, indicated that they access off-campus physical activity programming (51.6%) more than private on campus programming (3.2%). This data brings attention to the fact that a good portion of UBC students are choosing to engage in private gyms and studios off campus rather than on. Furthermore, this data conveys that although students may not be participating in physical activity on campus, they are seeking opportunities off campus to do so.

For approximately a quarter of the surveyed population, starting their studies at UBC resulted in a decrease in PA below Canadian guideline levels. This adds more insight to the partner's interests on the participation rates of Chinese and Chinese-Canadian women enrolled in UBC undergrad degree programs. The results do in fact reveal that this population is not meeting Canadian PA guidelines during their time at UBC. Students in this population experience

common barriers such as time and distance of programming, while also experiencing lack of confidence, lack of accessibility and lack of knowledge of the space and equipment. To facilitate more physical activity engagement in this population, UBC Recreation should take into account these identified barriers. Suggestions as to how to address these barriers will be provided in the recommendations section below. When considering this data, partners must be aware that the survey samples may not be representative of the broader population of Chinese and Chinese-Canadian women in undergrads at UBC.

When looking at the PA behaviours of participants before beginning their studies at UBC, it is clear that with only 46.8% of the surveyed population achieving the Canadian guidelines, some of the barriers suggested by the literature could be at play. These include discouragement from traditional Chinese culture (Suminski, Petosa, Utter, & Zhang, 2002) or lack of comprehensive physical education curriculum in Chinese school systems (Liang, Housner, Walls, & Yan, 2012). The further 45% decline after beginning studies at UBC could be in part attributed to the social and academic pressures of attending university, as suggested by Cheung & Chow (2010) as well as Yang & Cardinal (2013) resulting in negative effects on health outcomes.

This survey enhances the understanding of the experiences that Chinese undergraduate women at UBC encounter when accessing UBC Recreation facilities and programs. For instance, it reveals that a fair number of those surveyed use private gyms or studios off campus, 44.7% (n=21), compared to the 8.5% of respondents who use private gyms and studios on campus (n=4). These results can be interpreted in many ways such as commuter students preferring to go to off campus locations or students gravitating to various physical activity opportunities not

available on campus. Additionally, the survey reveals that there has been a 19.1% decrease in students that are reaching the Canadian Physical Activity guidelines. Amongst the 27.7% of participants that are currently meeting MVPA guidelines at UBC (n=13), they selected access, such as hours of operation or event times, and distance, such as living off campus, as their number one barriers to being physically active on campus. Having this knowledge can be used as guidance in the future when creating future programs and events when attempting to target this demographic. As well, it shows the perspectives of this specific demographic on the barriers preventing them from participating in UBC Recreation physical activity opportunities.

Additionally, these results also allow for a better understanding of the perspectives of those who are currently not reaching the MVPA guidelines and the barriers that they are encountering when engaging in physical activity. For example, 50.0% of participants in this group (n=17) selected feeling like they do not know how to operate the exercise equipment nor create exercise programs for themselves as a barrier for not being physically active on campus. This data is pivotal because it sheds light on the possibility that there could be an increase in physical activity engagement from this demographic if there were more resources or programs available.

Recruiting a large number of students who fit the target demographic requirements presented a challenge in this study given the short time frame. To reach as many students as possible, various UBC clubs were contacted, the survey was posted on several UBC Facebook groups, and first year residence advisors were given the survey information.

One limitation in this study was ensuring the accuracy of each respondent when they selected their MVPA levels before and during UBC. There is a possibility that response bias and

self-reporting may have contributed to some participants' survey responses being different from reality, such as opinions on Likert-scales or MVPA levels. Another limitation is the fact that only 47 responses were collected out of the thousands on campus that fit into this demographic. Furthermore, from these 47 participants, the majority of them (53.2%) were in their upper years. Since UBC only guarantees on campus housing to first year students and most survey participants are in upper level, there is an increased possibility that those participants live off campus which could contribute to the appearance lower than actual physical activity participation rates with UBC Recreation. The majority (80.9%) of participants were upper level students (years 3, 4, and 5) and recruited by Kinesiology students, leading to the possibility that findings only represent students in health-related studies and over-represent students of higher year levels. Therefore, these findings may neglect to address the opinions, barriers, and needs of a large portion of UBC Vancouver's student body. A limitation regarding the study design is the fact that there was no control group used that could serve as a comparison to further prove the gaps in physical activity rates between different demographics. As well, there are more questions that could have been asked in the study to get a better understanding of the participants' experiences, such as if the student is a commuter student, questions related to Chinese culture and PA and what changes participants would like to see in UBC Recreation facilities and programming. However, to ensure a high completion rate from participants only questions deemed absolutely necessary were kept in the survey.

## **Recommendations**

### 1. Off-Campus Programming

Given that off-campus studios and gyms were popular among participants (44.7%), a



recommendation is the implementation of forms of off-campus programming. With distance being the second most commonly raised barrier (59.6%) affecting physical activity participation, this could be a consideration that students of this demographic prefer to participate in PA closer to home (i.e. off-campus). Fitness studios such as Orangetheory, Barre Belle, F45 and Modo Yoga have participated in MOVE UBC's off-campus challenge program and could be considered for future partnerships with UBC Recreation. Introducing student discounts or shared memberships for off- and on-campus classes at certain gyms, studios, or fitness centres could encourage students living further from campus to be more physically active, allows students to try more variety of fitness mediums, and would likely bring more students to studios they otherwise might not be able to afford. This would honour UBC's commitment to the Okanagan Charter, and more specifically follow the Charter's guiding principles, such as using a settings and whole system approach for health interventions (Okanagan Charter, 2015). Since "health is created and lived by people within the settings of their everyday life" it is crucial that UBC guarantees that everyone in the campus community is targeted when using these approaches to ensure comprehensiveness in programs and policies (Okanagan Charter, 2015). As additional benefits, students will be able to familiarize themselves with off-campus fitness facilities and programming in their own neighbourhoods, which would lead to lifelong physical activity engagement. Interconnectedness between UBC Campus and the off campus environment could be promoted by having studio instructors provide promotion classes on campus at UBC fitness facilities.

## 2. Online Fitness Resources

Another recommendation would be for UBC Recreation to develop online fitness resources. This could include workout templates, online tutorials on how to construct a workout plan, exercise demonstrations, as well as video fitness routines or classes such as aerobics or Zumba. Development of these resources has the possibility to address a few separate barriers identified by participants: distance, confidence, and knowledge of equipment and exercises. It would address the barrier of distance in that it allows individuals to exercise in the comfort of their own homes or neighbourhood fitness facilities. For example, a user could set up an aerobics video on their laptop and participate in a fitness class from their own room. Confidence and knowledge while exercising could be improved by allowing individuals to work on an exercise form or try a new exercise in privacy before doing it in a campus gym. It would also show individuals how to use hand weights, exercise bands, or body weight to have a gym session at home. This recommendation is extremely timely as while this report was being developed, UBC Vancouver was essentially shut down amid the COVID-19 pandemic. Students have been forced to exercise on their own at home or outside of fitness facilities, highlighting the need for resources like this to allow individuals to stay or become more active with no facilities available.

Evidently, digital media has the advantage of increasing health literacy and increasing health promotion information due to its accessible nature (Struik, Haines-Saah, & Botorff, 2017). Since current health education campaigns use digital media as a medium to deliver information, UBC Recreation could continue to make use of this medium by

providing online fitness resources (Struik et al., 2017). Struik et al (2017) explains that “eHealth has the potential to improve access and efficiency of health promotion efforts”, hence this would take UBC one step closer to honouring their commitment to the Okanagan Charter.

### 3. Student Recreation Ambassadors

The final recommendation offered in this report would be the creation of a new Student Kinesiologist position within UBC Athletics and Recreation, which will be referred to as Student Recreation Ambassadors. The nature of this position (i.e. work-learn, permanent, etc.) is set to be decided by the employer. Responsibilities of this role would include: development and creation of online resources, one-on-one creation of individual student work out plans, and circulation in UBC Recreation facilities to offer support with form, equipment use, and social support. This recommendation also includes the additional recommendation of prioritizing the hiring of diverse individuals; and in the case of addressing the findings of this report, special prioritization in hiring women students of Chinese descent. It is possible that the barriers of confidence and perceptions of disclusion in UBC fitness facilities could be addressed by having women of the same demographic leading others in their fitness journeys. Creating this position would offer even more opportunities for students to be successful at leading healthy day-to-day lives and, hopefully, meet their daily MVPA recommendations. UBC Recreation Ambassador’s main role would be to assist with fitness in on-campus gyms such as the ARC and Birdcoop. They would be expected to circulate the gym as a friendly face able to assist with adjusting and using equipment and machines, suggesting new exercises or

lifts, and helping individuals safely adjust form. These responsibilities would directly address the concerns raised by participants around confidence, knowledge, and hopefully improved rates of enjoyment all while improving health literacy within the student body to set them up for healthier life-long fitness behaviours. With this role, UBC Recreation would be able to offer one-on-one personalized exercise plans created with a Kinesiology student. Not only would this allow students to create a fitness plan tailored to their interests but it, and all other roles and responsibilities, also allows Kinesiology Students opportunities to apply their knowledge and gain valuable work experiences in a fitness setting which will prepare a future generation of health promoters.

## Resources

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## Appendix A

**Table 4: UBC Recreation Facility and Program Participation among Students**

UBC REC Facility/Program Utilized	Individuals who use facilities or programs at least once a week (N=17)	%	Individuals who use facilities or programs less than once per week (N=30)	%
Birdcoop	9	52.9	6	20.0
ARC	11	64.7	6	20.0
UBC Aquatic Centre	8	47.1	12	40.0
UBC REC Fitness Classes	2	11	5	16.7
UBC REC Events	5	29.4	3	33.3
Intramural Leagues	4	23.5	2	6.7
Other	0	0	4	13.3

**Table 5: UBC Recreation Theme and Perception Questions**

Question	Median	SD	Mode
UBC REC provides accessible opportunities for students to be physically active on campus.	5.10	1.37	6
UBC REC has programming on campus for people like me.	5.10	1.31	5, 6
UBC REC cares about my wellbeing.	4.74	1.38	6
I feel comfortable using UBC REC facilities and participating in UBC REC programs.	4.71	1.65	6



I feel confident using UBC REC facilities and participating in UBC REC programs.	3.35	1.61	6
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1 = *Strongly Disagree*

5 = *Somewhat Agree*

2 = *Disagree*

6 = *Agree*

3 = *Somewhat Disagree*

7 = *Strongly Agree*

4 = *Neither Agree or Disagree*

## Appendix B - Survey Questions & Answer Options

### Block 1

Q1 Do you identify as a Chinese or Chinese-Canadian woman, enrolled in an undergraduate program at UBC-Vancouver?

Yes (1)

No (2)

### Block 2

Q2 Are you an international student?

Yes (1)

No (2)

Q4 What is your age?

Under 18 (1)

18 - 20 (2)

21 - 23 (3)

24 - 26 (4)

27 + (5)

Q5 What is your year level?

Year 1 (1)

Year 2 (2)

Year 3 (3)

Year 4 (4)

Year 5 (5)

### **Block 3**

Q7 Moderate-to-vigorous physical activity is equivalent to exercising or working at 60-80% effort. Some examples include running, jumping, shovelling, playing soccer, etc. Before coming to UBC, how many minutes per week did you engage in moderate-to-vigorous physical activity?

2.5 + hours (1)

2 - 2.5 hours (2)

1.5 - 2 hours (3)

1 - 1.5 hours (4)

0.5 - 1 hours (5)

Less than 0.5 hour (6)

Q6 How many minutes per week do you currently engage in moderate-to-vigorous physical activity?

2.5 + hours (1)

2 - 2.5 hours (2)

1.5 - 2 hours (3)

1 - 1.5 hours (4)

0.5 - 1 hours (5)

Less than 0.5 hours (6)

Q9 Overall, has studying at UBC had a positive or negative impact on your physical activity levels?

Positive (i.e. I am more physically active) (1)

Negative (i.e. I am less physically active) (2)

No impact (3)

I am not physically active (4)

Q10 How often do you use UBC Recreation facilities or participate in UBC REC programs?

Multiple times per week (1)

- Once per week (2)
- More than once per month (3)
- Once a month (4)
- More than once per academic term (5)
- Once per academic term (6)
- Never (7)

Q11 Select all UBC Recreation facilities or programs you have utilized in the last 6 months.

- Birdcoop (1)
- ARC (2)
- UBC Aquatic Centre (3)
- UBC REC fitness classes (i.e. bootcamp, zumba, dance) (4)
- UBC REC events (i.e. Day of the Longboat, Storm the Wall, Great Trek Festival) (5)
- Intramural Sports (6)
- Other (7) \_\_\_\_\_

Q12 What other programs and/or facilities on campus or off campus do you use to be physically active that are not affiliated with UBC Recreation? Select all that apply.

- AMS Clubs (1)
- On campus private gym/studio (2)
- Off campus private gym/studio (3)
- UBC Bodyworks (4)
- Other (5) \_\_\_\_\_

**Block 4**

Q14 Consider the following questions.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
UBC REC provides accessible opportunities for students to be physically active on campus. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
UBC REC has programming on campus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

for people  
like me. (2)

UBC REC  
cares about  
my  
well-being.  
(3)

I feel  
comfortable  
when using  
UBC REC  
facilities and  
participating  
in UBC REC  
programs.  
(4)

I feel  
confident  
using UBC  
REC  
facilities and  
participating  
in UBC REC  
programs.  
(5)

**Block 5**

Q15 Which do you consider your top motivations for participating in physical activity at any level? Select all that apply.

Weight loss and/or weight-maintenance (1)

Physical appearance (2)

- Physical health (3)
- Mental health (4)
- Social interaction/friendships (5)
- Stress management (6)
- Sport performance (7)
- Enjoyment (8)

Q16 What do you consider to be a barrier(s) to participating in physical activity on campus at any level? Select all that apply.

- Safety (1)
- Access (i.e. hours of operation, event times, class schedule) (2)
- Distance (i.e. I do not live on campus) (3)
- Cost (4)
- I do not know how to operate exercise equipment and/or create exercise programs for myself (5)
- I do not know what facilities or programs are available on campus (6)

- I do not feel confident exercising in public (9)
- I do not like or want to (10)
- I feel like I do not have time to (11)
- I do not have anyone to go with (12)
- I do not enjoy the physical activity opportunities available (13)

## **Appendix C: Recruitment Materials**



Hi everyone!

As part of a course-based research project (KIN 464: Health Promotion and Physical Activity), we are conducting a study on the undergraduate experience of accessing UBC Recreation facilities and programs. If you identify as a Chinese or Chinese-Canadian Woman and UBC undergraduate student, we would love to hear from you by completing this survey. For more information and to complete the survey visit:

[https://ubc.ca1.qualtrics.com/jfe/form/SV\\_cOxSzFsSsbvX6p7](https://ubc.ca1.qualtrics.com/jfe/form/SV_cOxSzFsSsbvX6p7)

At the end of the survey you have the option to submit to win prizes such as gift cards or a Lululemon yoga mat!

Please note that this post is public and anyone who likes, comments, or shares the link will, by doing so, be associated with the study.

UBC.CA1.QUALTRICS.COM



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Hi Everyone!

As part of a course-based research project (KIN 464: Health Promotion and Physical Activity), we are conducting a study on the experience of accessing UBC Recreation facilities and programs. If you identify as

**A CHINESE OR CHINESE-CANADIAN WOMAN AT UBC IN YOUR UNDERGRADUATE**

**STUDIES**

We would love to hear from you by completing this survey!

**LINK IN MY BIO.**