

Exploring barriers to off-campus outdoor recreation among International and Domestic students attending the Dalhousie University Studley campus.

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Executive Summary

The aim of our research was to address the question: What are barriers to accessing off-campus recreational outdoor activities among Undergraduate students attending the Dalhousie Studley Campus? Is there a significant difference between the barriers identified by International students compared to Domestic students? In our study, we compared demographic and statistical data between International and Domestic undergraduate students who attend the Dalhousie Studley campus to reveal if there were any significant trends or differences in barriers to accessing the outdoors. To answer our research question we developed four categories of qualitative and quantitative data to collect which include: a) self-identification/demographics, b) outdoor participation, c) barriers in accessing outdoor recreation and d) open-ended reflection questions. Our primary research tool was a google survey that established questions in each respective category. Our results indicated general consensus among all undergraduate students that “lack of transportation” was the most significant barrier to outdoor recreation. Our statistical t-test results compared rankings of barriers to outdoor recreation and suggest there is a significant increase in the severity of barriers experienced by International students compared to Domestic. The four barriers depicted as most significant amongst international students were “lack of information or guidance,” “language barriers,” “extreme or adverse weather” and “fear of discrimination and/or racialization.” Using linear regression calculations we discovered a significant negative correlation between the average weekly time spent outside and the participation rate of visible minorities. The R^2 trendline indicated that there was an overall 81% rate of decrease in participation amongst visible minorities compared to a 36% decrease in the general student body, as reported time spent outdoors increased in 2 hour increments. International student respondents were 65% self-identified visible minorities, so many of the barriers identified above could relate to challenges experienced by visible minorities amongst the International student population. In terms of qualitative results, students mostly reflected on personal barriers and issues. Some clear suggestions were identified that include Dalhousie increasing funding, transportation options and affordability, and for student societies to be more inclusive and accessible. To further our research we propose that Dalhousie University conducts a larger scale survey of outdoor participation that compares barriers in outdoor participation faced specifically by visible minority groups to that of the population of the general student body. Further, we recommend taking action to address the barriers outlined in our research that impact vulnerable student populations, to a) alleviate the cumulative impacts on students facing inequities on campus and b) to create a more welcoming and inclusive space in outdoor recreation for all.

Key words: Outdoor recreation, participation, barriers, student, International, Domestic, demographic, Dalhousie University

Introduction

Incoming International students face many cross-cultural transitions which can impair their abilities to adapt and connect with their new environment. Cultural transitions have been associated with physical and mental stress, depression, and anxiety (Poyrazli and Grahame 2007) as a result, this impaired ability or barrier may limit any necessary integration efforts ultimately affecting the overall well-being and development of the student, in terms of their education and livelihoods in a new country. Research suggests that outdoor activities enable people to engage physically, intellectually, emotionally, and spiritually with other people within outdoor environments (Carpenter 2016). Participants in outdoor programmes generally eat healthy diets, complete daily physical activity, have lowered distractions or stress from their usual daily living, and subsequently provide their bodies with an opportunity to cleanse and heal (Carpenter 2016). The constant physical demands of the environment requires a moderate level of physical activity which has been suggested as the most effective approach to reaching and maintaining physical health (Dubbert, 1992; Hansen, Stevens, & Coast, 2001). Research in outdoor programmes has consistently demonstrated improvements in adolescent wellbeing as measured by mental health standards (Hattie, Marsh, Neill, & Richards, 1997; Russell 2003; Bowen & Neil 2013). Outdoor adventures can also foster at least some of the psychological concepts related to resilience, most notably, self-efficacy and mindfulness (Mutz and Müller 2016).

The benefits of engaging in outdoor recreational studies have been thoroughly studied over the years, however there are few studies currently available highlighting the contrast between International and Domestic students' accessibility opportunities. Outdoor recreation often increases physical activity, which can contribute to international students' ability to reduce stress, make social connections, improve language skills, and learn about the Canadian environment (Brunette, Lariviere, Schinke, Xing and Pickard 2011). As suggested in other research analyses, participation in outdoor recreation can help international students adapt to a new cultural environment and ease their transitions into the university community. However, without an adequate analysis of potential barriers faced by International students at Dalhousie it is hard to identify if they exist and how they could be being implemented, which could be detrimental in the case of a potential deficit in access. As International students transition to Canada, they are introduced to a new landscape filled with uncertainty and unfamiliar settings, however, getting out of the comfort zone is necessary for one's growth and transformation (Brunette, M.K., 2017).

This paper presents information on two main demographics (i) International students and (ii) Domestic students both of which investigate barriers to accessing off-campus recreational outdoor activities among Undergraduate students attending the Dalhousie Studley Campus. To further define the above demographics, an International student is a student attending Dalhousie from outside of Canada, while a Domestic student is a Canadian student attending Dalhousie within the country. And as to what

constitutes “recreational outdoor activities”, they are physical outdoor and off-campus exercise completed on one’s own time not including commuting time to complete a required task or on-campus activities. Theoretically, this paper aims to identify and address inequity gaps among students and the societal paradigms surrounding the environment. Environment-based approaches to improve health and wellbeing are acknowledged to offer more encompassing and long lasting effects than many individual-based measures (Ward Thompson, 2013). Furthermore, respective Dalhousie board authorities may use these findings to address and reduce inequity among students and develop inclusion programs which advocate for and improve both mental and physical health among students, improve social connection and improve one’s sense of belonging.

Methods

Our primary method of collection was a google forms survey that aimed to collect demographic data to contrast a) outdoor participation trends as well as b) the identification of potential barriers in accessing outdoor recreation, amongst the international and domestic attending the studley campus. For the purpose of our survey we defined outdoor recreation as time spent outdoors and off campus, specifying that this did not include the completion of errands but instead leisure time. We made our survey accessible by sharing it through posters hung in various locations across campus, such as the student union building, the killam library, and the International students center. Additionally we also shared our survey on social media sites such as Instagram, imessage, and snapchat. We contacted 16 clubs such as dal outdoors society, dal health and wellness, dal student life and more, asking them to share our survey on their social media or in whichever way they felt most comfortable. The club with the largest following that shared our survey was Dal Student life which has a following of nearly 10,000 Dalhousie Students. The general avenues of data we collected to analyze and statistically compare include:

- a) Self-identification/Demographic data
 - i) International or domestic student
 - ii) Self-identification as a visible minority and/or person with a disability
 - iii) Access to transportation
- b) Outdoor participation data
 - i) Frequency of outdoor participation
 - ii) Types of recreation
 - iii) Attraction to outdoors
- c) Barriers in accessing outdoor recreation
 - i) Identifying obstacles that prevent/discourage outdoor recreation
 - ii) Opportunity to input other obstacles faced that were not specified in our questions

- d) Open-ended and self-reflection questions
 - i) Identification and relevance of key barriers
 - ii) Awareness and reflections
 - iii) Suggestions for change

All applicable responses used to develop our research will be posted on the Dalhousie University website under the “Past ENVIS 2502 Projects” page. Responses were not mandatory and anonymous, respondents were given the option to refrain from participating in the survey or in any questions that they did not feel comfortable answering. To ensure the consent of our participants we developed a form at the beginning of our survey that was composed of descriptions of the use of our data and ended with a declaration of consent.

Several of the survey questions in our research are based on the Dalhousie Self-Identification Questionnaire (2021) and Outdoor Participation Trends Report (2022) to ensure clarity, cohesion and relevance in our data collection. We provided definitions of demographic groups based on those provided by the university to limit the possibility of conflict or confusion among respondents.

The responses collected from the survey are used to address any significant barriers and/or demographic trends that emerged among student respondents. Our research includes quantitative results through a variety of graphs and their corresponding statistics as well as qualitative results which were analyzed primarily through coding trees. We utilized our results to support recommendations that we plan on sharing with the sustainability office, dean of equity and inclusion, and other relevant societies to improve access to outdoor recreational activities.

Sampling and Collection

In the distribution of our survey, we conducted non-probabilistic sampling of the undergraduate student body on the Dalhousie Studley Campus, aiming for an approximate representative sample size of 250 students, as determined through a Sample Size Calculator. It is important to note that an average of 24% of students at Dalhousie identify as international students, so there was a significantly smaller rate of respondents that formed the international student proportion of our population (Dalhousie University, 2019). To tackle this barrier and refrain from bias we made sure to place our survey through a variety of locations across campus, and through clubs that represented all demographics as a whole and separately. To combat this potential skew in our data we reached out to the international students association and displayed our survey at international student specific events. However, as was expected we did still receive a lower response rate of international students and would have ideally established more opportunity to acquire a larger population. Overall, we still feel as though our main sampling methods were developed to maximize variation and diversity amongst the student body as a whole.

Results

Demographics

The undergraduate student respondents of the survey were 76% Domestic students and 24% International students. The demographics of our respondent sample aligned with the Dalhousie “Facts, Figures and Rankings” page, where 24% of the total student body is estimated as International (Dalhousie University, 2019). 65% of students in the International student respondent groups self-identified as visible minorities, while the Domestic student group included 13% visible minorities.

Outdoor Recreation Participation Trends

It was reported that walking, followed by running and biking, were the three activities that undergraduate students participated in most frequently in a month. Roughly 75% of students reported walking recreationally 6 or more times in a month, or 1-2 times per week. City parks (i.e. Halifax Commons) and botanical gardens (i.e. Halifax Public Gardens) were the two most visited locations in a month for outdoor recreation among undergraduate students.

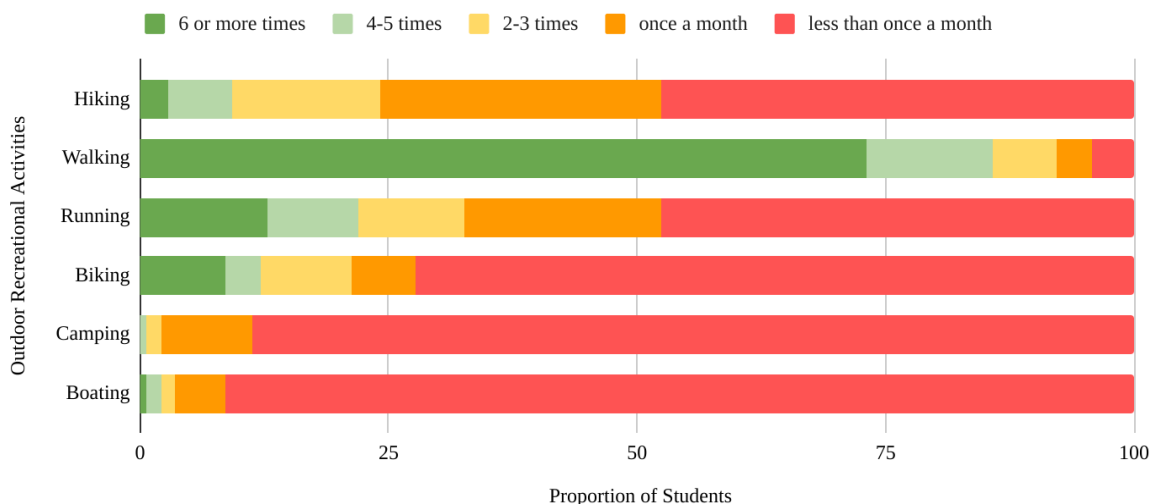


Figure 2. Monthly time spent participating in listed outdoor recreational activities among undergraduate students at Dalhousie University.

Students reported 36% participation in Dal Outdoors Society and 16% participation in Dal Health and Wellness, with 49% of students not participating in any of the listed clubs related to outdoor recreation. 72% of Dal Outdoors participants were Domestic students, while 57% of Dal Health and Wellness participants were International students.

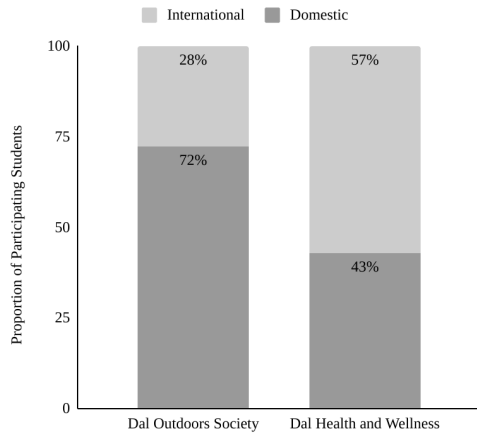


Figure 1. Participation trends in the Dal Outdoors Society and Dal Health and Wellness Society among Domestic and International students at Dalhousie University.

Statistical Trends

Outdoor Recreation Time

Figure 3 demonstrates that the largest proportion of undergraduate students spend 2-4 hours participating in outdoor recreation per week, or roughly 15-30 minutes per day.

Linear regression calculations were conducted to determine weekly trends of outdoor recreation and to compare International versus Domestic student participation. No notable difference was found between the regression trends of the two student populations. Thus, the regression results were considered applicable to all undergraduate student respondents.

The regression equation demonstrates that, for every 2 hour increase in time spent in outdoor recreation, the proportion of students participating decreases by 4.1% ($\text{prop} = -4.1(t) + 27$). The regression output indicates a negative relationship between the two variables—as time increases, proportion of students decreases. The calculated R^2 value of ~ 0.5 indicates that roughly 50% of the decrease in the student proportion can be explained by an increase in reported time outdoors.

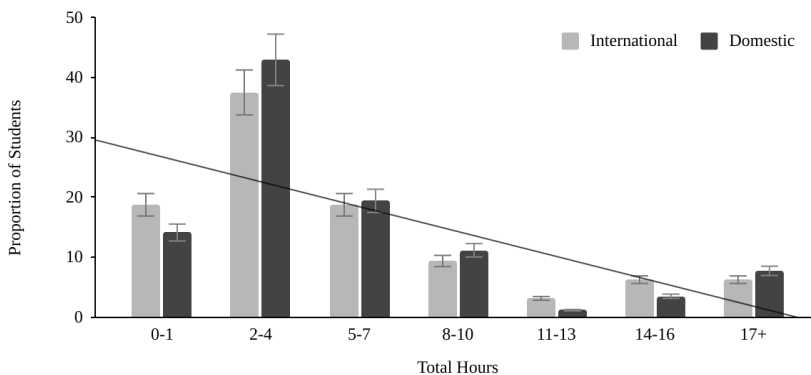


Figure 3. Total hours spent participating in outdoor recreation per week among International and Domestic students at Dalhousie University.

Linear regression calculations were conducted to further compare weekly trends in outdoor recreation among students that self-identify as visible minorities versus the general student body.

The regression trend lines and R² values were found to differ significantly between the two populations. Among students who do not self-identify as visible minorities, for every 2 hour increase in time spent in outdoor recreation, the proportion of participating students decreased by 3.9% (prop=-3.9(t)+25.9). In the visible minority population, for every 2 hour increase in time spent in outdoor recreation, the proportion of participating students decreased by 5.6% (prop=-5.56(t)+30.9).

For both populations, the regression results indicate a negative relationship—as time spent outdoors increases, the proportion of students in the category decreases. As time outdoors increased, the proportion of visible minority students decreased ~2% more rapidly than the general student body. In terms of the R² values, the increase in time in outdoor recreation explains 81% of the decrease in visible minority students participation rate and only 36% of the decrease in the general student body participation rate.

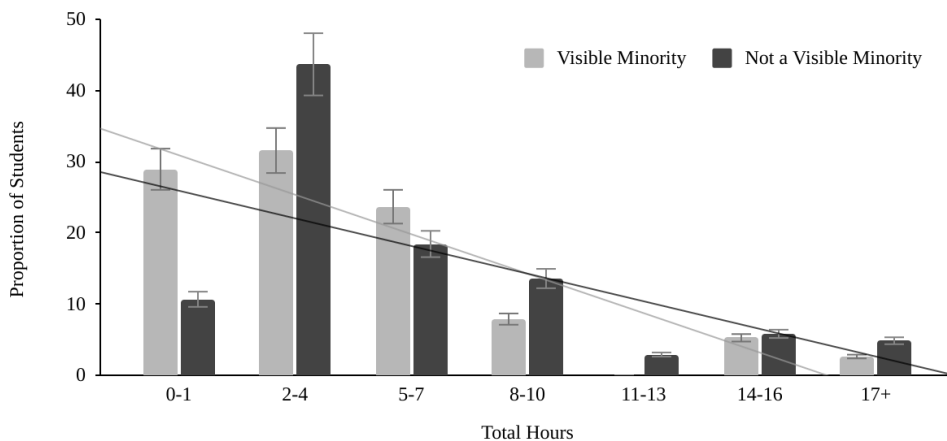


Figure 4. Total hours spent participating in outdoor recreation per week among undergraduate students self-identified as visible minorities and the general student body at Dalhousie University.

Barriers to Outdoor Recreation

As illustrated in Figure 5, lack of transportation was reported as the “most discouraging” or severe barrier to undergraduate students participating in outdoor recreation, with an average ranking of 3.7 among all students.

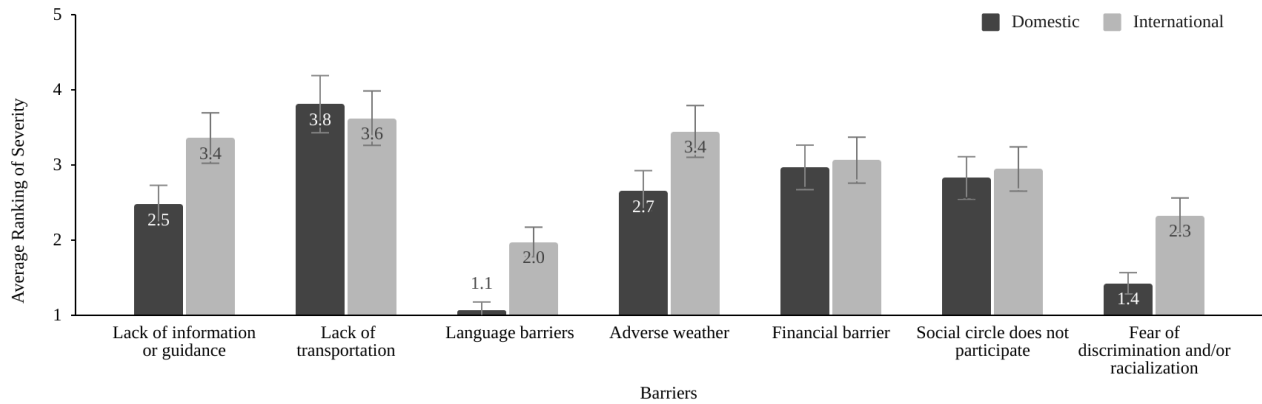


Figure 5. Average ranking of severity of barriers to accessing outdoor recreation among International and Domestic undergraduate students at Dalhousie University, 5 being “very discouraging” and 1 being “not discouraging at all.”

Unpaired t-tests between two independent population means were conducted to determine if there was a significant difference in the average ranking of each barrier for International versus Domestic student respondents. A p-value <0.01 was considered “significant” in our results.

International students, compared to Domestic students, had an average ranking that was significantly higher or “more severe” for four of the barriers to outdoor recreation (Table 1). The barriers include “lack of information or guidance,” “language barriers,” “extreme or adverse weather” and “fear of discrimination and/or racialization.” The remaining barriers, including “lack of transportation,” “financial barriers” and “social groups not participating” (Figure 5) did not demonstrate a significant difference in average ranking between the two populations.

Table 1. T-test summary statistics for barriers in Figure 5 with a significant difference between the average rankings of International versus Domestic students at Dalhousie University. Mean indicates the population averages, SD represents standard deviation measure, t is the T-test statistic with degrees of freedom=139, and p as the significance test value.

Barrier	Mean	SD	t	p
Lack of information or guidance				
Domestic	2.48	1.18	t(139)=3.55	<0.001
International	3.35	1.47		
Language barriers				
Domestic	1.07	0.28	t(139)=6.60	<0.001
International	1.97	1.34		

Extreme or adverse weather	Mean	SD	t	p
Domestic	2.65	1.24	t(139)=3.14	0.002
International	3.44	1.35		
Fear of discrimination/racialization	Mean	SD	t	p
Domestic	1.42	0.85	t(139)=4.55	<0.001
International	2.32	1.41		

Open-Ended Qualitative Analysis

The two open ended questions that we presented in the survey and further analysed addressed the following, a) If the desire to participate in outdoor recreation is properly met through current opportunities offered by Dalhousie on the Studley campus, and b) Suggestion for Dalhousie community that can address these barriers and make it easier to access the outdoor recreation.

In order to analyse the data, we have used a posteriori coding method where the coding themes were based upon the suggested responses. Further on, we summarized the results into a bar graph dividing the data based on International versus Domestic students.

Student Suggestions for Improvements

As illustrated in Figure 7, (i) Increasing funding and (ii) Increasing/improving transportation networks seem to be the two of the most prominent suggestions among Dalhousie Students. Out of the 140 respondents, 20% suggested improved funding for societies and 35% suggested improved and/or increased transportation networks as a means to expand outdoor recreational activity participation. Out of the 35% response rate for improved transportation networks, 89.8% were Domestic students and 77% (out of the 89.8%) were out of province Domestic students.

In addition to the suggestions listed above, students also recommended (iii) Increasing/improving information availability (28%) and (iv) Increasing inclusion (11.4%) as a means of expanding accessibility and participation levels. The data collected showed that out of this 11.4%, 62.5% of respondents were International students.

The remaining suggestions were (v) Improving resources (2.1%), (vi) Increasing event frequency (4.3%), (vii) Planning more adverse weather events (0.7%), (viii) Increasing campus/indoor green spaces (1.4%), (ix) Prioritizing student/campus outdoor participation (1.4%), and (x) 4.3% of the respondents were unsure of possible suggestions. It is also important to note that 3.6% of respondents stated that they were unable to freely participate in outdoor recreational activities due to personal reasons.

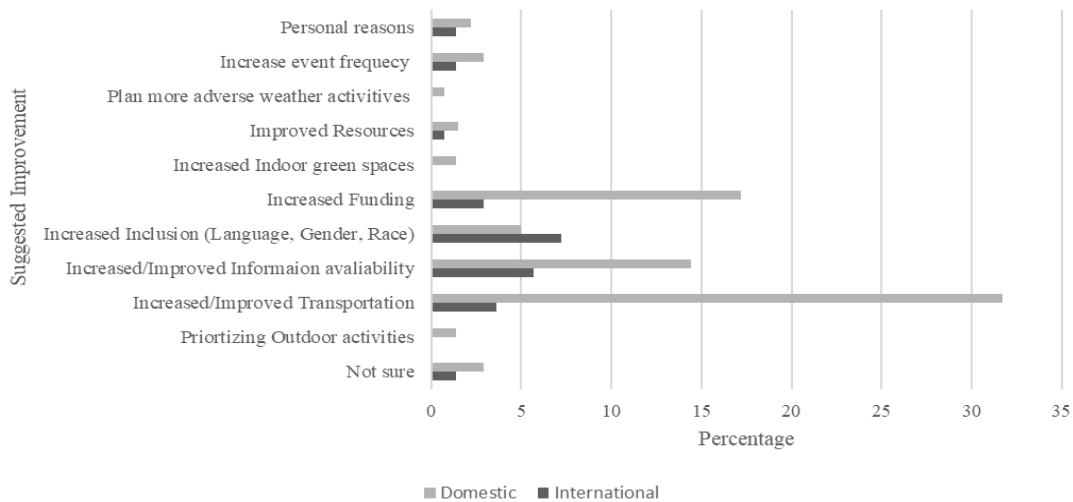


Figure 6. Suggestions made by Dalhousie Students (Domestic and International) to improve accessibility to outdoor recreational activities.

Reflection on Dalhousie Meeting Needs

As illustrated in Figure 8, overall for both populations their desire to participate was properly met by the Dalhousie community, out of 140 respondents, a positive result accounted for 43.5%, out of which 29% were for International students and 14.5% for Domestic Students. The two of the most prominent responses fell under (i) Personal issues, of the overall 23.4%, the International students accounted for 13.7% while Domestic students accounted for 9.7%. (ii) Lack of opportunities, which had an uneven dynamic, out of the 21.8%, the Domestic students accounted for 14% while International students only accounted for half of that with 7.8%.

In addition to the concerns listed above, students also faced concern in (iii) Information access and availability (15.5%) and (iv) Negative, which accounted for the lack of Dalhousie community to meet the demands and desire to participate in outdoor recreation, being 21.1% of the overall respondents.

The remaining significant concerns were (v) Improvements associated with Dal Outdoors society, 14.5%, (vi) Accessibility and Accommodation barriers, 10.16%, and lastly, (vii) More green spaces on Campus, 2.4%, (viii) Lack of resources or rentals with 0.97% respondents, respectively these two concerns only had Domestic Students response.

Is the desire to participate in outdoor recreation, properly met?

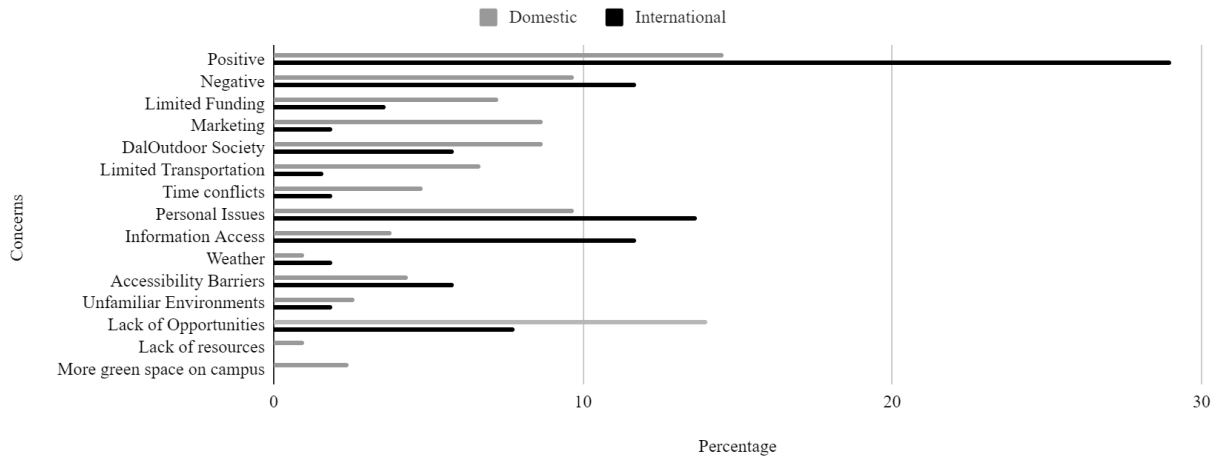


Figure 7 . Reflections of Dalhousie Students (Domestic and International) regarding desire to participate in outdoor recreation and whether their needs are met through current opportunities endorsed by Dalhousie University on the Studley campus.

Discussion

Significant Findings

In the exploration of our initial research question, we began by asking: What are barriers to accessing off-campus recreational outdoor activities among Undergraduate students attending the Dalhousie Studley Campus? Is there a significant difference between the barriers identified by International students compared to Domestic students?

It was observed that International students do face different barriers to Domestic students, and face these different barriers at a statistically significant increased ranking of severity. Four barriers in particular were found to be ranked as “more discouraging” on average by International students compared to Domestic students, which include: a) Lack of information or guidance, b) Language barriers, c) adverse weather and d) Fear of discrimination, exclusion and/or racialization.

Our survey results indicate that International undergraduate students may face cumulative barriers when seeking out and participating in outdoor recreation. Cumulative barriers to outdoor recreation could lead to decreased participation rates among students.

While no significant difference was found in the average time International versus Domestic students spend in outdoor recreation, our results suggest that International students must overcome a greater extent of barriers to reach equality in participation rates. We can infer that international students are required to put in greater effort and energy to overcome these barriers and continue participating in the outdoors. Our findings show that International students experience inequity in accessing outdoor recreation at Dalhousie, which could contribute to stress and negative impacts on quality of life.

It was further observed that visible minorities spend less time on average participating in outdoor recreation than the general student body. 65% of International student respondents self-identified as visible minorities. In this case, visible minorities at Dalhousie experience lower rates of participation in outdoor recreation compared to the general student body that could be related to the barriers identified in our research. Visible minorities are a population closely related to the International student body at Dalhousie that likely requires additional support in overcoming barriers and accessing outdoor recreation.

Dalhousie must take action to address the unique barriers to outdoor recreation faced by International students, while acknowledging that visible minorities are a related population with lower average rates of participation in the outdoors. Our survey results suggest that both undergraduate student populations require appropriate support and empowerment where possible in outdoor recreation at Dalhousie.

On another note, the highest ranked or “most discouraging” barrier to outdoor recreation among all undergraduate students was found to be “lack of transportation.” In the qualitative results involving student suggestions for addressing barriers to outdoor recreation, “increasing/improving transportation networks” and “increasing funding” were the top two results. Our findings indicate that Dalhousie should invest in more affordable and accessible transportation systems for undergraduate students in order to provide avenues for increased outdoor recreation and enjoyment.

Societies are an effective way to provide student support and to increase participation in outdoor recreation as a community. In terms of existing Dalhousie societies related to outdoor recreation, it was observed that Dal Outdoors and Dal Health and Wellness are two societies with high student participation rates. Unfortunately, our results still indicate that 49% of students do not participate in any outdoor-related societies at all. To delve deeper into these results, the majority (72%) of Dal Outdoors participants were Domestic students, while a slight majority (57%) of Dal Health and Wellness participants were International students. It is important to note these trends in participation in order to take action to improve inclusivity. Among student reflections on if their desires to participate in outdoor recreation are met at Dalhousie, “improvements associated with Dal Outdoors society” as well as “accessibility and accommodation barriers” emerged in the qualitative results. Our research identifies Dal Outdoors as one example of a society at Dalhousie that requires more inclusion and awareness of the barriers faced by International students. With increased awareness and changes made to overcome accessibility/accommodation barriers, student societies could be effective tools to improve outdoor recreation participation rates and create a more welcoming and equitable climate at the university. Dalhousie must further invest in and work collaboratively with these societies to improve information flows and increase the low participation rates among all undergraduate students.

Interpretation of Findings

As concluded by previous research, accessing the green outdoors can reflect positively on an individual's wellness status. Namely (i) a person's self-concept and identity, (ii) group affiliation and connection to others, (iii) acquisition of skills and competencies, (iv) prosocial norms and behaviors, and (v) changes in outlook and attitude (Mutz and Müller 2016). It is evident that there are many aspects to consider when determining how much of a difference there might be between a group's ability to access a certain resource. And whilst broadly focussing on factors such as disability and self-identity, this paper mainly provided information on two university demographics (i) International students and (ii) Domestic Students. Of the two main demographics studied, both demonstrated that there were barriers which limited their accessibility to outdoor recreational activities. This study intended to highlight these specific barriers and address whether there were any levels of inequity present between the two demographics (International versus Domestic Students).

Our findings have confirmed our main hypothesis and also aligned closely with the prior research conducted in this field, which is understanding the main barriers in accessing outdoor recreational activities between the two demographics and whether there is a significant difference between the two demographics. As stated previously, International students face new environmental challenges when transitioning to Canada, which in turn affects their growth and transformation (Brunette, M.K., 2017).

The main barriers for international students were (i) lack of information (ii) language barriers (iii) Adverse weather (iv) fear of discrimination, these show a significant connection to international students because they immigrated from a country that speaks a different language and follows different culture/traditions, which in turn increases the likelihood of being discriminated or racialized.

Our hypothesis was in alliance with the International students along with the visible minority, as they face barriers that need more assistance versus the Domestic students in accessing outdoor recreational activity. As stated in the article, "International college students, challenges and solutions", the barriers that our students face align closely with the challenges mentioned in the article, which emphasize that the higher proportion of International Students are prone to face such circumstances when immigrating to a new country (Mireya Nadal-Vicens, 2022).

Lastly, our findings still accounted for the challenges that Domestic students faced, however these barriers weren't as significant and rather focused on lack of transportation, resources and rentals. These barriers should be brought forward to the surrounding community, Dalhousie University, and each demographic group should have different approaches in order to overcome the accessibility barrier.

Implications for Theory & Practice

The above findings present significant statistical data between the two demographics, International and Domestic students, which can be used for further studies or implications into potential

practices. As our focus is on the University and its resources, our data could be used for creating outdoor recreational programs that focus on addressing the demographic disbalance, thus ensuring that equality is present when these programs are being established. As Dalhousie campus focuses on Equity, Diversity and Inclusivity, one of our goals was to implement our findings into diversifying the marketing strategies used around the campus in order to address the gaps present between International and Domestic Students. Since the results we gathered emphasised lack of information and resources with suggestions on improving marketing initiatives, Dalhousie community can take into account these findings and implement them into future practice. Overall, our research will assist in producing well-conceived models of environment-behavior interactions that can further identify knowledge gaps and presenting findings in ways that are supportive of outdoor recreation design practice (Ward Thompson, C., 2013).

Limitations

Whilst conducting this research, there were some limitations endured. As of 2023 there are 22,104 students enrolled at Dalhousie University with 16,895 being undergraduate students. In order for the data collected to be an approximate representative sample size, 250 students needed to participate in our research. However, we received a total of 140 student participants falling short of our goal by a mere 44%. And most significantly, out of the total student body only 24% are International students, this fact was represented in our findings as the participation percentage (23.7%) was significantly lower compared to Domestic students (76.3%). The statistics provided above emphasizes a gap in data collection that was not accounted for before conducting this study.

Suggestions for Future Research

Based on the potential of this study, there are certain aspects which need to be adopted to improve both the qualitative and quantitative data collected. Firstly, the study predicted that there would be a greater/more significant variance between the two demographics analyzed however, based on the results received the hypothesis of this study was disapproved. Whilst this could have been a result of the statistical gap (population distribution of Undergraduate students), in addition to the student demographic future research should consider focussing more strongly on other aspects such as visible minority versus non-visible minority in an attempt to more evidently address the social relationship between these barriers. Secondly, based on the responses received, financial reasons or lack of school funding seems to be a prominent factor, so to fully address this and improve response quality, interviews could be integrated into the data collection method. For example, interviews can be conducted with the different campus societies to further understand and address the financial limitations experienced.

When considering the population of our sample as whole there was a genuine consensus that on average Dalhousie students on the Studley campus did not feel as though their outdoor needs were being met as a result of a variety of barriers. The lack of support and information presented by Dalhousie may

be indicative of this outcome and it is highly encouraged that the university conducts a more thorough study as previously mentioned along with the promotion of the benefits of outdoor time. If the university were to execute a further analysis of our findings we suggest that they also assess the potential for a correlation between concern for environmental topics and outdoor satisfaction, amongst a variety of demographics. This way the university may acquire a more robust and representative analysis of the student body and its connection to the natural world.

Conclusion

Moving forward, several recommendations were drafted based on our key quantitative and qualitative findings, including:

- a) Improve information flows and guidance related to outdoor activities among vulnerable International student and visible minority populations
- b) Invest in accessible, affordable transportation options for undergraduate students to access off-campus outdoor recreation (shuttle bus, car share, free fares, etc.)
- c) Increase funding to outdoor-related societies
- d) Require accessibility and inclusion training in outdoor-related societies
- e) Share findings and recommendations with Dean of equity and inclusion, as well as interested student societies
- f) Increase awareness in the student body of the cumulative barriers and inequities experienced by International students and visible minorities
- g) Invest in further research to determine the feasibility of each recommendation and explore demographic barriers to outdoor recreation among students at Dalhousie

To conclude, we recommend Dalhousie University and relevant student societies take action to address the significant barriers outlined in our research that impact vulnerable undergraduate student populations, with the goal to a) alleviate the cumulative negative impacts on International and visible minority students facing inequities on campus and b) create a more welcoming and inclusive space in the world of outdoor recreation for all.

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Appendices

Appendix A: Survey

https://docs.google.com/forms/d/e/1FAIpQLSfMXee0tdvN4oPAaSGV9dtWuT1V38ALS_84-1_14-2KHR9raA/viewform?usp=sf_link

Appendix B: Survey Results Analysis

https://docs.google.com/spreadsheets/d/1YvQhUphvd0932O000_gR71Th_dZP0KQHnZDJ13kkFIM/edit?usp=sharing