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Social media influence and occurrence of injury from extreme sport participation in UVM undergraduates

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University of Vermont

Honors College Senior Thesis

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Abstract

Extreme sports have become increasingly popular in the age of social media as individuals have more access and awareness of these activities and may cater them to their specific interests. There is an established idea among social media users and consumers that extreme sports can be experienced by anyone. However, the rise in extreme sports engagement may lead to unforeseen consequences. These sports have inherent risks that may not be explicitly understood by novice athletes. The state of Vermont has high rates of outdoor recreation participation due to its landscape. Young students at the University of Vermont may be targeted to get involved in these sports through clubs, advertising, and social influences. The researcher is interested in studying why UVM students were influenced to ski, snowboard, hike, and/or rock climb in the state of Vermont, and if this participation caused any injuries.

Introduction

Social media has established a worldwide connection of human experience. These media outlets host varieties of “influencers” who post videos and images that attract hundreds to millions of viewers daily. This has been important, particularly for participation in extreme sports, or sports perceived as having a high degree of risk. Sports corporations, athletic wear companies, and athletes have a much larger platform than they did ten years ago. The ability to post live updates on social media sites like Instagram, Snapchat, YouTube, Twitter, Facebook, etc. allows any user of these applications to participate in their adventure. It has been noted that Instagram in particular is used among action sports athletes to share their sport with their followers.¹ The ease of this new technology allows athletes to post something personal, whereas before, their sport was previously only viewed through major sporting events.

As action sports continue to grow and thrive, advertisers and major corporations have latched on to their public appeal. They have utilized media to combine their company's message with sports to entice consumers. Due to this, media and advertisements can be held partially responsible for sports becoming successful as they are developed as platforms for a brand.² The goal of the company is to sell their product, and they often do so by means of sports. For example, Red Bull frequently uses the excitement of extreme sports to promote their brand image. Their slogan, "Red Bull Gives You Wings," promotes the company's message that drinking their product will give the consumer the energy and confidence to do anything.

In 2012, Red Bull invested in a media event costing millions of dollars to capture footage of BASE jumper Felix Baumgartner's "space dive" of 120,000 feet with a helium balloon. BASE jumping is known as parachuting, or free falling, off of some surface, and is dangerous due to high risk of tumbling and malfunction.¹ This Red Bull event attracted more than eight million people who watched the live footage on YouTube. Although this event was successful, injuries are very common among extreme athletes who are known to partake in activities deemed nearly impossible, which was unfortunately the case for BASE jumper Shane McConkey in 2009. McConkey died while performing a jump for another similar Red Bull event. With such technical, unique sports becoming more popular, it is viable to question whether the safety of these activities is understood by participants.

Young individuals are targeted through the media to invest and engage in these activities. Known as Generation Y, these young people have consumed action sports more than any previous generation.² Teenagers are frequently used in sports advertising due to youth consumer rates, encouraging this population to purchase sports equipment or partake in these

activities. The media promotion of these events may be a leading factor to the staggering rise of sports such as snowboarding. In the 1990's, the number of snowboarding participants rose from 1.8 million to 3.6 million.² Whether it be access or exposure to sports, there is an undeniable growth in interest.

Moreover, the *Journal of Orthopedic Surgery and Research* has specifically investigated injuries associated with extreme sports. They define extreme sports as dangerous and highly specialized and cite the importance of internet and TV promotion of these sports to the general public.³ Although these sports have increased in popularity, the epidemiology of extreme sports has not matched the speed of participation. Epidemiological studies have shown higher injury rates from new and inexperienced participants, but do not know the full extent of these injury patterns due to lack of records from these events.³ Some case studies have been done on extreme sports injuries, which will be detailed further on. While there is some data on sports injuries, it is not conclusive, and may be specific to the region of study.

In addition, a sports medicine doctor writing for *Current Sports Medicine Reports*, emphasized the newness of extreme sports and lack of medical training for physicians to oversee these injuries.⁴ For example, snowboarding injuries are quite different from skiing injuries. Without proper training or experience, it is possible for physicians to misclassify injuries they are unfamiliar with.⁴ However, it does not seem as though the public is aware that these sports could cause such injuries. One reason could be the media portrayal of these sports. Actors in movies or commercials engage in extreme sports even though they are not athletes and may have little experience, giving the sense that anyone can try these activities.⁵ Selling the appeal of a sports product or activity may not include labeling the degree(s) of risk.

The research that follows will analyze extreme sports participation from the young people of Burlington, VT. Background research on the importance of the recreation and sports industry of Vermont will be discussed. Similarly, the few extreme sports that were chosen to be studied in Vermont will also be addressed. The topography and environment of Vermont caters primarily to snowboarding, skiing, hiking, and rock climbing, which will be the focus of the study.

Background

The state of Vermont allows for a multitude of recreational opportunities. There are a variety of ski areas along the Green Mountains and Northeast Kingdom. These locations are also home to hiking and rock climbing. Furthermore, the Long Trail runs 272 miles down the length of the state, attracting hikers and tourists in the summer months. The western edge of the state along Lake Champlain creates opportunities to partake in water sports. The diverse landscape is a reason why Vermont attracts nine to eleven million out-of-state visitors each year, with roughly 10 to 30% of these trips motivated by nature-based recreation opportunities.⁶ This has greatly benefitted the Vermont economy, with these recreational activities valued at \$1.9 billion.⁶ In order to understand these recreation visitation rates in Vermont, researchers mainly from the Gund Institute and the Rubenstein School of the Environment at UVM used social media and geotagged photos to understand why people are choosing to visit these sites and how frequently the sites are being visited.⁶ Using social media and photos of these protected sites helped the researchers predict visits to these areas. It may be assumed that promoting and preserving these activities would be important for future economic prosperity of the state.

According to the 2017 Benchmark Report for Tourism in Vermont, visitation in Vermont is increasing. The winter tourism season of Vermont makes skiing and snowboarding the highest dollar value of recreation, with Vermont seeing more than 30% of all northeastern skier days.⁷ As visitors and participants increase, it can be estimated that participation rates will only continue to rise as these sites become more equipped for human use. Lodging has developed in these remote areas as well as routes of transportation. Furthermore, there are many incentives given for people to participate in these activities. Businesses like the private not-for-profit association Ski Vermont, provide Vermont skiers with options to discount their season pass. At the University of Vermont, the Ski and Snowboard Club (SSC) offers ski pass discounts to students and provides round trip transportation for club members. The accessibility and opportunity of extreme sports is a key indication that they are an integral part of the Vermont and UVM lifestyle.

Notably, the current president of the UVM SSC informed the researcher that there are roughly 2,500 students with club memberships for the 2019-2020 academic year. With about 13,000 undergraduate and graduate students at UVM, that means at least 20% of the student population actively participates in skiing and/or snowboarding. Along with the aforementioned discount passes, the club also hosts events on campus to promote winter sports and creates opportunities for trips to ski resorts in other parts of the country. The UVM Outing Club (OC) is another outlet for students to engage in outdoor sports. For instance, every first-year student at UVM has the choice to join a "Wilderness TREK " sponsored by the OC and their trip leaders. The TREK involves hiking, canoeing, and rock climbing, to name a few, and takes place before the semester begins. Like the UVM SCC, the OC promotes events on campus and transports

club members to destinations around Vermont and other parts of the country to experience outdoor activities. Is frequent promotion of these activities along with social influences what attracts students to join these clubs and participate in these extreme sports?

It is important to consider whether students are aware of the risks associated with the activities they participate in Vermont. In the past few years, three undergraduate UVM students tragically died while engaging in extreme sports. The *Vermont Cynic* reported the death of UVM junior Rebecca Ryan who died in the fall of 2017 while rock climbing in Bolton, VT.⁸ According to *Seven Days*, Ryan was an experienced climber who was climbing with friends when miscommunication with her partners led her to fall off the cliff. While climbing, Ryan and her two partners were using a “top rope” technique; the climbing rope was looped through a secure anchor at the top of the cliff, with one end of the rope attached to the belayer on the ground and the other attached to the climber.⁹ The belayer controls the rope for the climber, and acts as a counterweight as the climber descends down the rock face.⁹ At the end of their climbing day, Ryan’s partners believed Ryan was going to do the final ascent to retrieve their gear at the top of the cliff and then rappel down the mountain. Rappelling does not involve the assistance of a belayer. However, it seemed that Ryan forgot her rappelling harness on her final ascent and did not hear her partners shout that she was not safe to descend. Ryan fell down the face of the mountain and did not survive. The article states that there are signs leading to the climbing area indicating that rock climbing is dangerous and that participants climb at their own risk. Nonetheless, accidents are always possible. As this sport grows in popularity, it is likely that accidents will become more frequent. Safety precautions must be addressed to prevent dangerous situations.⁹

In March of 2018, UVM junior Trent Ferguson drowned at Bingham Falls in Stowe, VT. Ferguson and a friend were hiking directly around the water when he slipped on icy ground near the top gorge of the falls and fell into one of the deep pools.¹⁰ Rescuers were immediately called, but were unable to find Ferguson for hours. The morning after the fall, Ferguson was found pinned underneath the water. There are no ropes or nettings to block people from getting close to the falls and the pools. It is especially dangerous in winter months as icy conditions make it tough to navigate the rocks and ledges surrounding the falls. Bingham Falls is a popular destination, with hiking trails and summer swimming in the watering holes. The head of Stowe Mountain Rescue reported to Vermont *News and Citizen* newspaper that he wished people were made more aware of the dangers of this natural area. Although rescue teams have warned people about the risks of swimming, the swimming holes have become more popular each year.¹⁰

In February of 2017, UVM senior Brett Cohen died while snowboarding at Stowe Mountain. Cohen was the second person to die at a Vermont ski resort that month. While snowboarding, Cohen got trapped under deep snow. This was caused by snow immersion or getting stuck in snow when there is loose powder. It is impossible to move or get out of the snow when this happens, thus likely leads to suffocation. Cohen was missing for hours before rescuers were able to find him and died later at the hospital. As stated in the *Burlington Free Press*, Cohen was following safe practices on the mountain that day; he was boarding within the trails lines and was accompanied by a friend.^{11, 12}

It appears these students were experienced in the respective sport they were participating in.^{10, 11, 12} These shocking and fatal accidents remind us that these tragedies are

possible, and we must be aware of potential dangers. The three students were very involved at UVM and left lasting impacts on the community. The researcher sends deepest condolences to their family and friends. Due to the popularity and promotion of these activities among the UVM community, the sports of primary interest to this study are skiing (downhill or cross country), snowboarding, hiking, and rock climbing (roped or free solo). The survey conducted for this study collected the number of participants in the sample that participate in each sport while gauging the reasons why the respondent has chosen to partake in the activity. Their awareness of risk for the sports they participate in was addressed, along with their history of injury. In order to better understand why these sports are considered dangerous, each sport will be discussed more in depth.

Extreme Sports Injuries

Hiking

Hiking is a sport that only continues to increase in popularity due to access and relatively low intensity.¹³ As participation increases, the number of injury and illness from the sport has continued to increase as well. Hiking was reported as 48% of all search and rescue missions in US National Parks.¹³ While these injuries are typically minimal, there is a lack of injury reports and documentation of serious injuries and death from hiking. This makes it difficult to fully understand how natural areas may be dangerous for hikers. Two researchers analyzed a few separate case studies of deaths from hiking in US parks and reported their findings in *Medicina Sportiva*. The deaths studied were caused by weather, lack of experience, unfamiliarity with the region, and “acute bad judgement syndrome.”¹³ The thrills of the sport can lead to athletes overestimating their abilities, making quick decisions to do something they

weren't physically prepared to do.^{13, 14} This is likely a cause of accident for any extreme sports. In order to decrease the number of injuries and fatalities from this sport, hikers need to understand the common misperceptions of hiking; new research has described hiking as a high incident activity.

In 2017, the *Journal of Outdoor Recreation and Tourism* gathered 91 studies that pertained to hiking injuries to compare methods of prevention. They compiled the prevention strategies from prior research to determine what may be causing these injuries and what hikers should know before they partake.¹⁵ Most of the recommendations were in terms of educating the hikers; most studies found that hikers were not prepared or knowledgeable about safe hiking practices, such as failure to read posted warnings or carry proper gear.^{15, 16} Moreover, social norms play a role in injury incidence as well. Groups of people tend to follow the behaviors of the other group members; if people are ignoring warning signs or messages, the others may follow suit.¹⁵ Signs need to be strategically placed for people to notice and be influenced to follow the rules.

The *Wilderness and Environmental Medicine* Journal conducted a study in 2002 on hiking injuries from the Vermont Long Trail. Americans who completed the Long Trail between 1986 and 1998 were sent a survey by the Green Mountain Club to detail their hiking experience, journey, and occurrence of injury.¹⁷ The survey findings concluded that roughly 70% of respondents experienced illness or injury at some point of the hike. The most common injury among hikers were musculoskeletal injuries. Blisters, gastrointestinal issues, and hypothermia were also common.¹⁷ Although the survey had some biases including response

bias and low response rate, it was clear from their findings that hikers who were prepared with safety equipment and means to cook food overall managed better on the trail.¹⁷

Rock Climbing

The most common injuries of rock climbers are upper extremity injuries. Whether people rock climb free solo or with aid, it is necessary to hold the weight of the upper body using one's fingers and hands to grip the rock or, in the case of indoor rock climbing, the rock-climbing wall. According to the *Continuing Medical Education Journal*, wrist and hand injuries make up almost 73% of all rock climbing injuries.¹⁸ Tendonitis is frequent among climbers along with other injuries that develop from repeated stress in the fingers. As the sport continues to increase in popularity, it is important to understand the prevalence of injuries to the flexor pulleys and tendons of the fingers.¹⁸

Rock climbing injuries from 2009 to 2012 were analyzed by orthopedic doctors in the *Wilderness and Environmental Medicine* journal. Over the four years, there were 911 climbing injuries that were treated and included in the study. The most common location of injury was in the hand or fingers, with pulley injuries in the finger being the most frequent. The study found that older climbers were more likely to have overstrain injuries or injuries associated with chronic pain. The average climber was 26 years old, with younger climbers experiencing acute injuries.¹⁹ Rock climbing injuries are more frequent in natural or outdoor spaces. Data collected at Yosemite National Park in 1984 found that 47% of rock climbing injuries occurred on rock ledges or the rock face. Falls to the ground made up 27% of injuries and falling rocks caused 10% of injuries.²⁰ Most of the injuries included in this study were minor. However, due to some of the remote climbing locations, medical rescue was often delayed for more serious injuries,

potentially causing injuries to get worse.²⁰ For outdoor rock climbers, it is important to have proper gear and be aware of weather. The most serious cases involved death from hypothermia.^{19, 20}

Skiing and Snowboarding

There are similar risks of injury for skiing and snowboarding due to the landscape and climate factors on ski mountains. The combination of speed, cold temperatures, nature, overcrowding, and lack of appropriate gear are some of the factors that make it difficult to perform perfectly and without accident while skiing and snowboarding. According to the Epidemiology of Pediatric Sports Injuries, skiing is one of the leading causes of pediatric sports related injuries and is of the most severe sports related injuries.²¹ Case studies of injury reports showed that for adolescent skiers, the most common injury involved the lower extremities. Medical center reports show lower extremity injuries between 43.5% to 66% of injuries in young skiers. For snowboarding, upper body injuries like arm and wrist injuries were most common; when snowboarders lose balance, catching the fall can cause sprains or breaks in the arm.

These case studies report frequencies of injury higher during January and February, which tends to be the busiest time of the ski and snowboard season. This adds to the difficulty of the sport, as one must navigate the movements of other skiers and snowboarders. One study found that 83% of low extremity injuries were of skiers who had been skiing a week or less. The most common findings in the case studies were of young people that were less experienced. Using wrist guards, helmets, and proper fitting bindings were recommended for young skiers

and snowboarders. They also recommend lessons and knowing personal capabilities to recognize when runs are too difficult for experience level.²¹

A nine-year comparison of skiing and snowboarding injuries in Japan reported that snowboarding injuries were more severe than those from skiing. The injury rate of snowboarding between 1988 and 1997 was 2.03 per 1000 visits, while the rate of skiing injuries was 0.35 per 1000 visits. Among injured snowboarders, 90% of them were considered novices, or people who snowboarded 10 times or less.²² 82% of these people had not received any professional instruction. Like the case studies above, the most common snowboarding injuries were fractures that affected the upper body, while skiing injuries were mostly lacerations and fractures that affected the lower body.²² Although this study was done over 20 years ago and is in a very different part of the world than Vermont, these injuries are still common today and similar to those found at other ski areas.

A similar study was conducted at Finland's largest ski resort. Injury data was collected between 2006 and 2012. The researchers found that snowboarding injuries occurred at a rate of 4 to 16 per 1000 snowboarding days.²³ Again, lower body injuries were the most common among skiers and upper body injuries were the most common among snowboarders.²³ Both skiing and snowboarding accidents on the slopes were caused by falling, colliding with immovable objects, colliding with other skiers/snowboarding, and losing control from speed.^{22,}

²³ In all of these studies, researchers encourage skiers and snowboarders to wear proper gear before partaking in these sports. Helmets are critical to prevent head injury and should be worn by anyone participating in these sports. They also emphasize the importance of signs and safe passages at these ski resorts. Participants should be aware of these posted signs and know their

surroundings before they participate. While most of these injuries are not severe, extreme sports participants have died while skiing or snowboarding. An article from 2017 reported rising fatalities at Vermont ski resorts. Five deaths from skiing or snowboarding were reported in 2017 across Vermont. These deaths were caused by crashes into trees, falling into deep snow, and natural causes.¹¹

Methods

To understand sports participation among undergraduate students at UVM, quantitative methods were used. To compare and generalize student behavior and activities, it was necessary to ask questions to a range of students at the University of Vermont. Roughly 1,700 students at UVM who participate in recognized club sports were asked to take part in the study. The director of club sports sent the survey to club sports members via email, along with a brief description of the intent of the research. A link to the LimeSurvey questionnaire was attached. Before taking part in the survey, students read an information sheet which gave details regarding respondent confidentiality and voluntarism. Student's privacy was retained through an identification number that was unassociated with the respondent once the research analysis was complete. There was no part in the survey in which the respondent gave explicit personal identification information. Respondents were given the contact information of the principal investigator and the UVM Research Protections Office for further questions.

The questions in the study were used to determine if students participate in extreme sports, what influenced them to do so, and if they were injured from the activity. The questionnaire was formed of 15 questions to assess these behaviors. There were four main

sections of the survey that will be outlined below. For reference, the full survey can be found in the appendix.

1: Personal Information

This section was used to gauge an understanding of the club sports population at UVM. The first question asked whether the respondent is a student of the University of Vermont, and if so, which college they are in within the university (out of the 7 colleges at UVM and the Larner College of Medicine). The respondents also submitted their age group to determine the scope of respondents. Each respondent of the survey was between the ages of 18 and 30.

2: Sports Participation

It was asked whether the respondent participates in skiing (cross country or downhill), snowboarding, hiking, rock climbing, and/or un-roped climbing in the state of Vermont. The respondent was asked if they would be interested in participating in any of those sports in the state of Vermont. This may perhaps indicate that students may engage in more extreme sports in the near future. The respondents were also asked to rank the top 3 reasons they chose to participate in these sports. This was used to understand whether social media, advertisements from outdoor lifestyle brands, and/or social influences like clubs at UVM were a factor in student's engagement in these activities.

3: Social Media Participation

This section questions the respondent's engagement with social media and whether extreme sports have an influence in their social media use. Respondents were asked what social media accounts they have, whether they follow outdoor lifestyle brands, and how frequently

they see these advertisements on social media. These questions also hopefully made students aware of how often extreme sports might play a role in their daily life, perhaps subconsciously.

4: Injuries from Sports

This segment regards the occurrence of injury. It was asked whether the respondent was made aware of risks (meaning potential injury and/or natural disasters) before they participated in any of the sports listed previously in the survey. The respondent was asked whether they were injured from participating in any extreme sports, what kind of injury they had, and if they knew anyone who has died from participating in extreme sports.

The survey was sent via email to students actively involved in club sports at UVM, who were invited to respond anonymously. There are 64 different active club sports at UVM, with few students in more than one club sport. There are traditional sports like baseball and soccer, dance groups such as Jazbaa and Orchesis, and co-ed team sports such as water polo and Quidditch, to name a few. Therefore, it can be assumed that the sample is a diverse representation of the overall undergraduate population at UVM. The students had 2 weeks to take the survey from when it was first sent to them. There were 163 respondents out of the 1,700 club sports participants, with 146 complete responses and 17 incomplete responses. Only complete responses were included in the study.

The purpose of the survey was to see if social media has some influence on undergraduate student's participation in extreme sports in Vermont, and whether their participation led to injury. The hypothesis for the study is that social media does influence people to participate in extreme sports, and that participants may not have experienced the

sport with enough skill or awareness to avoid injury. This survey does have the following limitations.

Limitations

First, the sample is a small population of undergraduate students at UVM and may not be the best representation of the entire undergraduate student body. Time constraints and access to student records limited the ability to contact every undergraduate student. However, using a smaller population of the undergraduate student body (1,700 students in club sports) provided a more feasible method to contact students. However, the response rate was a little less than 10% of club sports participants. Because the sample is so small, it might not be representative of the undergraduate student population, or even the 1,700 students that were sent the survey. The students who were sent the survey are already active members of a sport, thus could be more inclined to partake in extreme sports. However, looking at the distribution of respondent's colleges, there is representation from each college. Knowing the diversity of students within these colleges, hopefully that indicates a variety of extreme sport participation, though that is not foolproof. Another potential limitation in this study is response bias. Respondents may not have responded to each question completely truthfully or exactly, and this must be noted. However, the questions were structured to limit wording bias in hope that respondents answer honestly and to the best of their ability.

Moreover, the study is only conducted over a short period of time. It is not a longitudinal study in which respondent's behaviors can be looked at over the course of many years. Finally, respondents answered questions that only indicated their past participation in extreme sports in Vermont, and whether they would be interested in participating in any other

sports in the future. We are not able to track any of the respondents' behavior to see if they do decide to partake in more extreme sports.

Statistical Methods

Descriptive Statistics: To understand the data and the tendencies of the respondent's behaviors, certain descriptive statistics will be used. Most of the data collected for this survey is nominal data, a classification of categorical variables. The variables for this data are mostly labeled as "yes" or "no", thus are classified as 1 or 0, respectively. Simple counts are used to measure responses and percentages are used to measure the frequency of those who answered yes or no.

Confidence Interval: The confidence interval gives a range of possible values for the parameter of interest. For example, a 95% confidence interval was constructed on participants in extreme sports to capture the mean number of participants in each sport.

Margin of Error: Margin of error calculations are used to determine the sampling error from the results of the survey. In order to determine the margin of error for the results of the survey the

margin of error (ME) formula will be used. $ME = z \sqrt{\left(\frac{p(1-p)}{n}\right)}$

Z is the z-score of our confidence level. The desired 95% confidence level has a z-score of 1.96.

Pearson's Chi-Square Test: The chi-square test is a non-parametric test used to determine if there is a relationship between two nominal variables. The frequencies of these variables are represented in a contingency table. The null hypothesis for this test is the row and column variables are independent, while the alternative hypothesis is the row and column variables are dependent. For this test, a 0.05 level of significance will be used, meaning if a p-value less than 0.05 is calculated, there is evidence to suggest acceptance of the alternative hypothesis.

Fisher's Exact Test: Fisher's test is another non-parametric method used to determine associations between two categorical variables. This method is very similar to the chi-square test but should be used when sample sizes are quite small. If the sample size is large enough, the results will be nearly the same as the chi-square test. The same null and alternative hypotheses will be used along with the same level of significance.

Logistic Regression: This method is used to estimate the probability that a characteristic is present. We want to understand how the predictor variable is associated with the occurrence of an event.

Results

Using the statistical methods above with statistical computing tools R and Excel, analyses were conducted on the data. First, descriptive analysis was conducted (Table 1). The sample size was 146 from the population of club sports athletes. Of these respondents, 130 (89.04%) actively participate in hiking in Vermont, 66 (45.21%) actively participate in rock climbing in Vermont, 113 (77.4%) actively participate in skiing in Vermont, and 38 (26.03%) actively participate in snowboarding in Vermont (Figure 1). Furthermore, 124 (85.52%) reported they would be interested to hike and rock climb in Vermont and 123 (84.83%) reported they would be interested to ski and snowboard in Vermont (Figure 1). Some respondents who reported that they currently participate in a sport also reported that would be interested to participate in the sport. This was not the same for every respondent. Therefore, there is some overlap between respondents who are current participants and interested participants. Almost every respondent who selected they were interested to hike also said they would be interested to rock climb. This was the same for skiing and snowboarding, thus these activities were

combined for respondent interest. Overall, it seems this sample of undergraduates at UVM are active participants in extreme sports, with hiking and skiing being the most frequent extreme sport activity. A large percentage of the respondents said they were interested in participating in these activities, indicating students may want to be more involved with extreme sports.

Most of the respondents had at least three (43.15%) or four (34.93%) social media accounts (Facebook, Twitter, Instagram, Snapchat). Furthermore, 100 (68.49%) people responded that they follow a professional extreme athlete on social media (Table 1). For the most part, respondents saw outdoor lifestyle and sports advertisements once or more a day (51.37%) or once every few days (32.19%) on their social media account(s) (Figure 2). Few respondents saw these advertisements less frequently than that (16.44%). There were varying results for the influence social media had on extreme sport participation. For hiking and rock climbing, 73 (50 %) respondents reported that social influences (social media, outdoor lifestyle advertising, and/or UVM Outing Club and UVM Climbing Team) were part of the reason they partake in the sport. For skiing and snowboarding, 61 (41.78%) respondents reported that social influences (social media, outdoor lifestyle advertising, and/or UVM Ski and Snowboard Club) were part of the reason they partake in the sport (Figure 3). It is evident that social media use is common among these undergraduate students, and that extreme sports and outdoor lifestyles are frequently advertised on these platforms. While social media may not be the sole factor in extreme sport participation, it certainly plays a large role, whether we are aware of these virtual interactions or not.^{1, 2} Interestingly, most of the respondents reported that they were aware of the risks of extreme sports before they participated (93.84%), with risks primarily being occurrence of injury or natural disasters. More than half of the respondents had

been injured (53.42%), with 78 (53.42%) of these people experiencing one or more injuries from participating in these sports. Of the respondents, 56 (38.36%) reported that they knew someone that had died from participating in an extreme sport (Figure 4).

The purpose of the study is to understand how people are influenced to participate in these activities and whether they experienced an injury. Chi-square tests and Fisher's exact tests were conducted between each extreme sport and injury. These non-parametric tests are used to analyze nominal data. The intent was to determine injuries for one sport independent of the other sports. However, due to the wording of the questions, these injuries may have also been caused by other sports as the injury questions were not specific to one sport.

Nonetheless, the statistical analyses have been carried out for the sake of the research question. Out of hiking, rock climbing, skiing, and snowboarding, rock climbing and occurrence of injury was the only statistically significant. The null hypothesis was that the proportion of rock climbers in risk of injury is equal to the proportion of non-rock climbers in risk of injury. With an alpha level of significance at 0.05, the null hypothesis was rejected based on a chi-square test statistic of 5.825 and p-value of 0.016 (Table 3). Therefore, we believe there is a difference between rock climbers and non-rock climbers' incidence of injury. Similarly, the Fisher's exact test reported that rock climbing injury occurrence was statistically significant with a p-value of 0.012 (Table 3). Fisher's exact tests were conducted for hiking, rock climbing, skiing, and snowboarding with each specific injury to see if acute hand/wrist/finger injuries, lacerations, strains/sprains, fractures/breaks, injuries that required surgery, concussion/head injuries, or other reported injuries were significant for the extreme sport. After conducting tests for with each type of injury for each extreme sport, we conclude that hand injuries in rock

climbers, strains and sprains in rock climbers, fractures or broken bones in rock climbers, strains and sprains in hikers, and fracture or broken bones in hikers were statistically significant (Tables 6-10). This means that the proportion of those that participated in hiking/rock climbing who experienced these injuries were different from those that did not participate in hiking/rock climbing who experienced these injuries.

A chi-square test was run between people who participate in extreme sports and those who do not and whether they were influenced by social media (Tables 11, 12). The results were statistically significant indicating that those who participate in extreme sports are influenced by social media differently than those who do not participate. Logistic regression was used to determine if prior awareness of risks of extreme sports affected the injury rate (Table 14). The results were not statistically significant with a p-value of 0.579, thus failing to reject the null hypothesis that there is no relationship between awareness of risk and occurrence of injury. Refer to tables 1 through 14 for all statistical analyses.

Discussion and Conclusion

The results found from this survey design are not conclusive to undergraduate students at UVM participating in extreme sports in Vermont, however, can raise awareness of the perceptions and risks associated with these activities. The results did provide an understanding of how frequently students are using social media and how often they see promotion of sports on these accounts. Well over half the respondents had more than three social media accounts and saw advertisements for outdoor lifestyle brands at least once every few days. While this does not mean that students necessarily participate in these sports due to what they see on their social media accounts, it may be a factor due to brands using sports and recreation to

promote their products. Over half the respondents also reported that they follow an extreme sports athlete on social media. These respondents may frequently see these athletes post pictures and videos of their sport, sometimes even in real time. Such direct exposure to the athlete and their sport may intrigue people enough to participate themselves.¹ Furthermore, many respondents reported that social influences such as social media, advertisements, and/or UVM sports clubs, were part of the reason they began to participate in extreme sports. Again, social influences may not be the primary or sole cause of participation, but it is important to note that respondents felt like they were impacted by them in some way.

Moreover, the results showed that respondents felt like they were aware of risks from extreme sports before participating. If this study were repeated, it would be beneficial to ask respondents their level of experience before they participated in their respective extreme sport(s) in Vermont. As stated previously, many injuries occur due to athletes being overconfident in their abilities.^{13, 14} The athlete could underestimate the risk or be unaware how dangerous their actions can be. The extent of the risk could be dependent on nature, experience level, and use of proper gear. Many of the respondents had been injured from extreme sports in some way, indicating injury is possible for any kind of extreme sport. If the study were repeated, the injury questions would be written for the respective sport the respondent participates in. The injury results from this study did not take that into account, however, the researcher conducted the analysis as though it was. The results found that rock climbing injuries were the only statistically significant, meaning injuries for rock climbers were different from those who were not rock climbers. For this sample, the number of respondents who rock climb had a greater disparity of injury. As stated previously, common injuries may be

different among the sports. The results from this study indicate that hand/finger/wrist injuries were significant in rock climbers, which was noted as the most common occurring injury for these athletes. Strains/sprains and fractures/broken bones were also found to be significant among rock climbers. This could indicate that injuries were more frequent among rock climbers in this sample, which leads the researcher to question the experience level these athletes had before partaking in the sport. Sprains/strains and fractures or broken bones were also significant among hikers. While it may be easy to perceive hiking as a fairly low risk sport due to the access and ease of participation, participants have suffered from the risks this sport poses.

Ultimately, it is tough to predict how and why accidents occur and what measures can be taken to prevent them in the future. Clearly, people enjoy the thrills, exercise, and natural beauty that come from extreme sports. This level of enjoyment has only continued to rise as people have more access and ability to try it out themselves. Vermont particularly appears to be a place where people can engage in recreational opportunities, which many seek out. A large part of Vermont and the University of Vermont's culture is engaging with nature. The tourism industry can certainly attest to this.^{6,7} The outdoors also plays a large role in student life at UVM, indicated by the large number of students participating in extreme sports and involved with UVM clubs like Ski and Snowboarding and the Outing club. Being a current undergraduate student, the researcher personally believes these sporting activities are frequently promoted to UVM students. It is encouraged for undergraduates to use sports and nature as an outlet from school, with these sports frequently being extreme sports. There could be many reasons one decides to partake in an extreme sport, but social media and promotion of these sports through social channels does seem to be an influencer.

Future analysis with social media data could help indicate the frequency with which extreme sports are promoted and viewed on these accounts. Longitudinal studies of this phenomenon would be useful in determining the extent with which social media has influenced participants across the country. A follow-up survey would be the next step in the process of this study. Further questioning with a larger population is integral. A larger sample of UVM students, residents of the state, and tourists traveling to these extreme sports destinations would be acquired. This pool of people would limit response bias as there is a larger targeted audience and would include a more diverse range of participants in extreme sports. These responses would indicate if these sports participation and injury trends exist among all of Vermont participants.

In conclusion, it is very important for this type of research to develop a survey with explicit goals in mind. For those interested in conducting a similar study, it is critical to fully understand the process and work it takes to get everything off the ground. Implementing a survey does require months of preparation. After learning the process firsthand as an undergraduate student, the following steps are deemed the most important for conducting a survey study. First, the researcher must think critically about what information is needed from respondents in order to analyze and study relationships in the data. Before writing the survey, one should develop research questions regarding the topic in mind and determine what kind of data is needed to answer these questions. Once that is determined, a survey platform is needed to create the questionnaire. Lime Survey was used for this study, but there are other services like this to choose from. Then, it would be useful to test the survey with a small trial sample.

Analyzing the small sample of data will help the researcher determine if the questions they posed are worth studying and can provide fruitful results.

To conduct a study like this with students at a university, the Institutional Review Board must review and approve the project first. This process is time consuming as there may be multiple rounds of corrections and revisions. Only after this process is complete can the researcher send the survey to the population they want to gather information from. However, that is no easy feat. For this project, it was not possible to send the survey to every undergraduate student at UVM because the university could not grant access to student records in this way. The next attempt was reaching out to the Student Government Association to ask if every student involved in a recognized club could be sent the survey. Again, this was not a feasible method as chairs of the SGA were hesitant to distribute student information. Finally, the Associate Director of Student Life at UVM was contacted about reaching out to students. They connected with the club sports director, who was willing to send out the survey to club sports members. This was one of the largest challenges in terms of figuring out who to contact and how to distribute the study. Clearly, there are many steps prior to the actual process of collecting survey data. Creating intentional questions that will conclude with useful results is key. Utilizing advisor's knowledge and on-campus resources is another integral part to the process. A project such as this will be successful if this is all kept in mind.

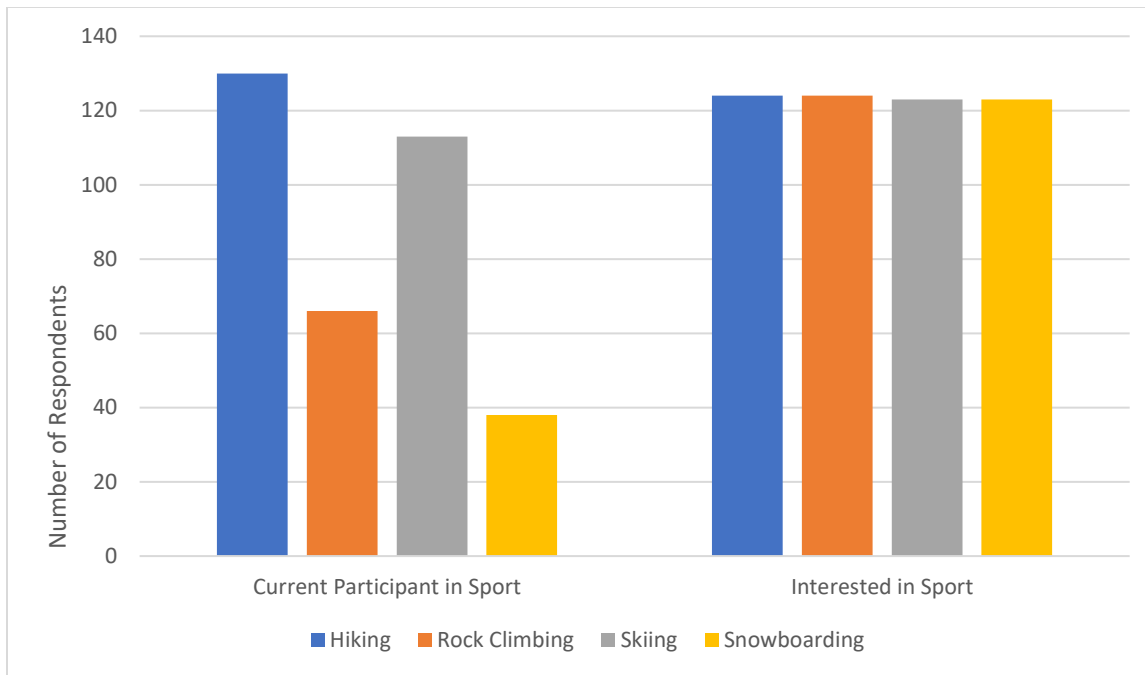
References

1. Thorpe, H. (2017). Action Sports, Social Media, and New Technologies: Towards a Research Agenda. *Communication & Sport*, 5(5), 554–578.
2. Bennett, G., & Lachowetz, T. (2004). *Marketing to Lifestyles: Action Sports and Generation Y*. Sport Marketing Quarterly.
3. Laver, L., Pengas, I. P., & Mei-Dan, O. (2017). Injuries in extreme sports. *Journal of Orthopaedic Surgery and Research*, 12(1), 59. <https://doi.org/10.1186/s13018-017-0560-9>
4. Young, C. C. (2002). Extreme Sports: Injuries and Medical Coverage. *Current Sports Medicine Reports*, 1(5), 306–311.
5. Palmer, C. (2004, August 26). *Death, danger and the selling of risk in adventure sports*. Understanding Lifestyle Sport. <https://doi.org/10.4324/9780203646069-8>
6. Sonter, L. J., Watson, K. B., Wood, S. A., & Ricketts, T. H. (2016). Spatial and Temporal Dynamics and Value of Nature-Based Recreation, Estimated via Social Media. PLOS ONE, 11(9), e0162372. <https://doi.org/10.1371/journal.pone.0162372>
7. Jones, K. (2018). *2017 Benchmark Report Tourism in Vermont*. Vermont Department of Tourism and Marketing.
8. Schnepf, L. (2017, September 18). UVM student dies after climbing accident. *The Vermont Cynic*. Retrieved March 1, 2020, from <https://vtcynic.com/news/uvm-student-dies-after-climbing-accident/>
9. Walsh, M. (2017, October 11). *A Rock Climber's Death Highlights Dangers of an Increasingly Popular Sport*. Seven Days. Retrieved March 1, 2020, from <https://www.sevendaysvt.com/vermont/a-rock-climbers-death-highlights-dangers-of-an-increasingly-popular-sport/Content?oid=8971182>
10. Gardner, T. (2018, March 8). *UVM student dies at Bingham Falls*. Vermont Community Newspaper Group. Retrieved March 1, 2020, from https://www.vtcng.com/news_and_citizen/news/local_news/uvm-student-dies-at-bingham-falls/article_af51e1b4-22e3-11e8-81bd-479e0562bc27.html
11. Silverman, Adam. (2017, February 20). *Fatalities rise at Vermont ski resorts*. Burlington Free Press. Retrieved October 22, 2019, from <https://www.burlingtonfreepress.com/story/news/2017/02/20/fatalities-vermont-ski-resorts/98003266/>
12. *Snowboarder dies after rescue at Stowe*. (2017, February 14). Burlington Free Press. Retrieved March 9, 2020, from <https://www.burlingtonfreepress.com/story/news/2017/02/14/snowboarder-dies-after-rescue-stowe/97904074/>
13. Heggie, T. W., & Heggie, T. M. (2012). Dead men hiking: Case studies from the American wilderness. *Medicina Sportiva*, 16(3), 118.
14. Nyland, John & Dave, Lee. (2013). Preventing Injuries in Extreme Sports Athletes. 10.1007/978-1-4471-4363-5_16.
15. Kortenkamp, K. V., Moore, C. F., Sheridan, D. P., & Ahrens, E. S. (2017). No Hiking Beyond this Point! Hiking Risk Prevention Recommendations in Peer-Reviewed

- Literature. *Journal of Outdoor Recreation and Tourism*, 20, 67–76.
<https://doi.org/10.1016/j.jort.2017.10.002>
16. Kogut, K. T., & Rodewald, L. E. (1994). A field survey of the emergency preparedness of wilderness hikers. *Journal of Wilderness Medicine*, 5(2), 171–178.
<https://doi.org/10.1580/0953-9859-5.2.171>
 17. Gardner, T. B., & Hill, D. R. (2002). Illness and Injury Among Long-Distance Hikers on the Long Trail, Vermont. *Wilderness & Environmental Medicine*, 13(2), 131–134.
[https://doi.org/10.1580/1080-6032\(2002\)013\[0131:IAIALD\]2.0.CO;2](https://doi.org/10.1580/1080-6032(2002)013[0131:IAIALD]2.0.CO;2)
 18. Merritt, A. L., & Huang, J. I. (2011). Hand Injuries in Rock Climbing. *The Journal of Hand Surgery*, 36(11), 1859–1861. <https://doi.org/10.1016/j.jhsa.2011.08.020>
 19. Schöffl, V., Popp, D., Küpper, T., & Schöffl, I. (2015). Injury Trends in Rock Climbers: Evaluation of a Case Series of 911 Injuries Between 2009 and 2012. *Wilderness & Environmental Medicine*, 26(1), 62–67. <https://doi.org/10.1016/j.wem.2014.08.013>
 20. Bowie, W. S., Hunt, T. K., & Allen, H. A. (1988). Rock-Climbing Injuries in Yosemite National Park. *Western Journal of Medicine*, 149(2), 172–177.
 21. Hagel, B. (2005). Skiing and Snowboarding Injuries. *Epidemiology of Pediatric Sports Injuries*. 46.
 22. Dohjima, T., Sumi, Y., Ohno, T., Sumi, H., & Shimizu, K. (2001). The dangers of snowboarding: A 9-year prospective comparison of snowboarding and skiing injuries. *Acta Orthopaedica Scandinavica*, 72(6), 657–660.
<https://doi.org/10.1080/000164701317269111>
 23. Stenroos, A., & Handolin, L. (2015). Incidence of Recreational Alpine Skiing and Snowboarding Injuries: Six years experience in the largest ski resort in Finland. *Scandinavian Journal of Surgery*, 104(2), 127–131.
<https://doi.org/10.1177/1457496914532249>

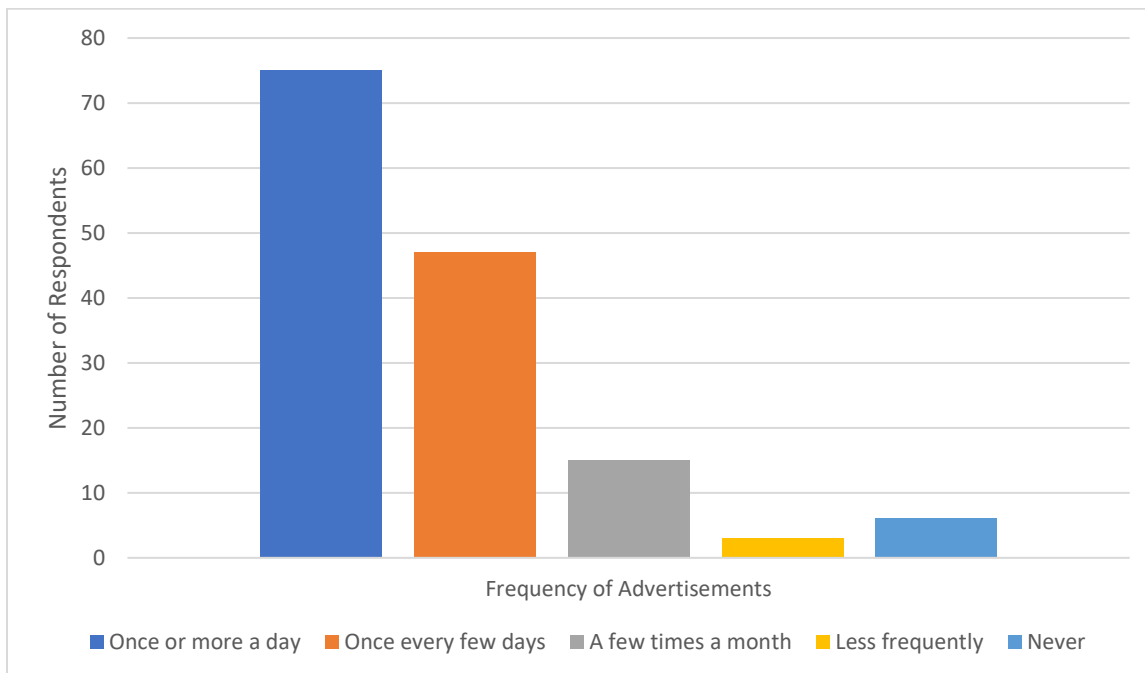
Appendix

Figure 1.



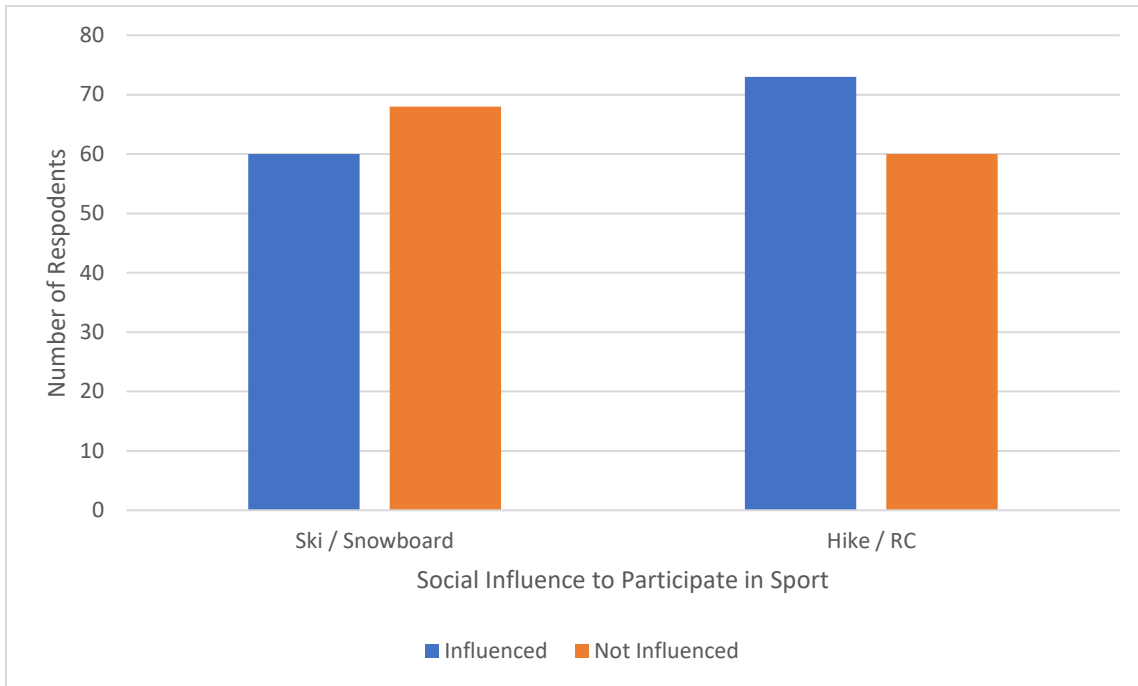
The number of respondents that participate in each extreme sport is detailed above along with the number of respondents interested to participate in each sport.

Figure 2.



The number of respondents who see advertisements on their social media accounts.

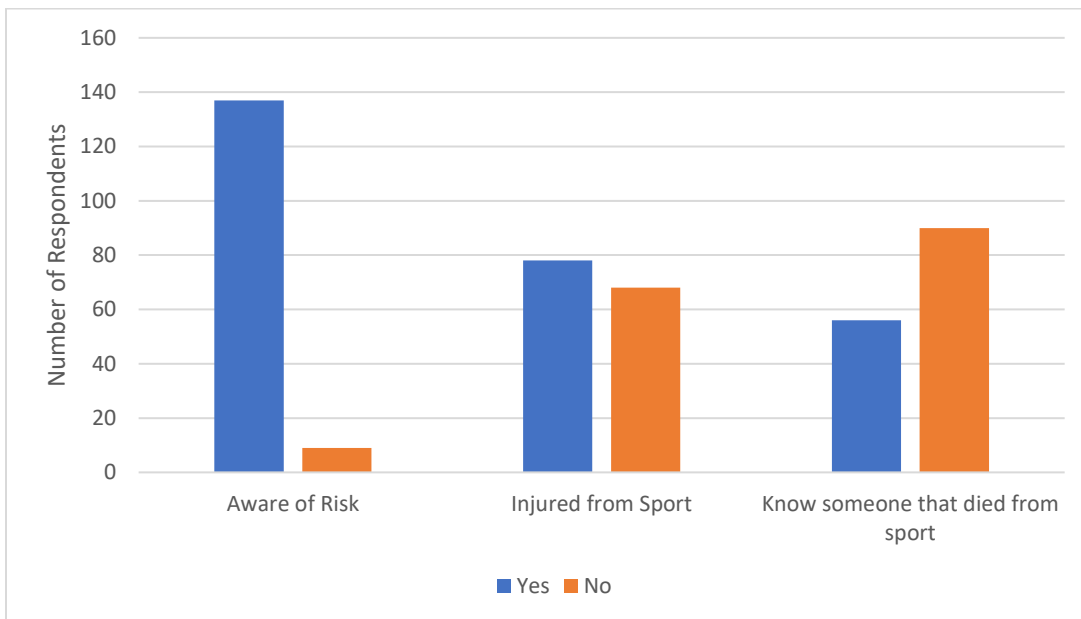
Figure 3.



(social influences: social media, advertisements from outdoor brands, UVM Ski/Snowboard club, UVM Outing club, UVM Climbing team)

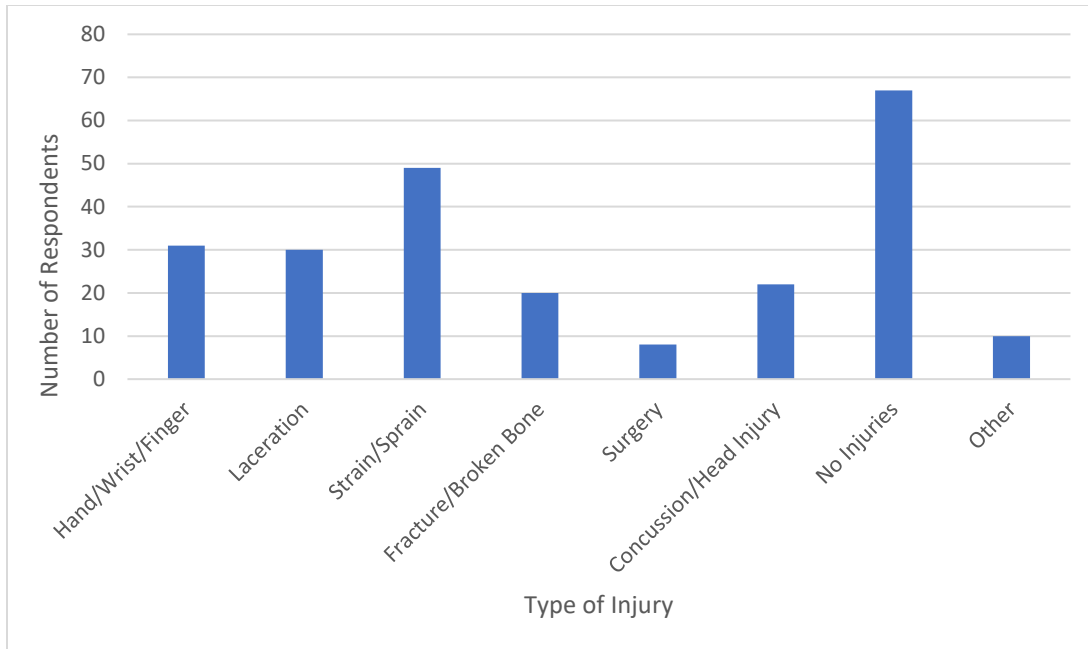
The number of respondents that were influenced by social media to participate in each sport.

Figure 4.



The number of respondents that were made aware of risks before participating, injured from the sport(s), and know someone that died from extreme sports.

Figure 5.



The number of respondents that experienced various injuries from extreme sports.

Table 1: Survey Response Summary

College		Number Respondents	Percent of Total		
	Agriculture	18	12.33%		
	Arts and Sciences	55	37.67%		
	Education	6	4.11%		
	Engineering	27	18.5%		
	Grossman	9	6.16%		
	Nursing	11	7.53%		
	Rubenstein	18	12.33%		
	LCOM	0	0		
	Not a Student	2	1.37%		
Current Participant in Sport		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	Hiking	130	89.04%	0.0507	(83.97%, 94.1%)
	Rock Climbing	66	45.21%	0.0807	(37.14%, 53.28%)
	Skiing	113	77.4%	0.0678	(70.62%, 84.18%)
	Snowboarding	38	26.03%	0.0711	(18.91%, 33.15%)
Interested Participant in Sport		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	Hiking / Rock Climbing	124	85.52%	0.0571	(79.81%, 91.23%)
	Skiing / Snowboarding	123	84.83%	0.0582	(79.01%, 90.65%)
Frequency of Advertisements		Number Respondents	Percent of Total	Margin of Error	Confidence Interval

	Once of more a day	75	51.37%	0.0812	(43.36%, 59.48%)
	Once every few days	47	32.19%	0.0758	(24.61%, 39.77%)
	A few times a month	15	10.27%	0.0492	(5.35%, 15.19%)
	Less frequently	3	2.05%	0.023	(-0.25%, 4.35%)
	Never	6	4.12%	0.0322	(0.89%, 7.34%)
Number of Social Media Accounts (Facebook, Twitter, Instagram, Snapchat)		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	All 4 accounts	51	34.93%	0.0773	(27.2%, 42.66%)
	3 accounts	63	43.15%	0.0803	(35.12%, 51.18%)
	2 accounts	23	15.75%	0.0591	(9.84%, 21.66%)
	1 account	6	4.12%	0.0322	(0.89%, 7.34%)
	No accounts	3	2.05%	0.0229	(-0.25%, 4.35%)
Follow Extreme Athlete on Social Media		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	Yes	100	68.49%	0.0753	(60.96%, 76.02%)
	No	46	31.51%	0.0753	(23.98%, 39.04%)
Social Influence - Participation in Sport		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	Yes – Hike / Rock Climb	61	41.78%	0.08	(33.78%, 49.78%)
	No – Hike / Rock Climb	85	58.22%	0.08	(50.22%, 66.22%)
	Yes – Ski / Snowboard	73	50%	0.0811	(41.89%, 58.11%)
	No – Ski / Snowboard	73	50%	0.0811	(41.89%, 58.11%)
Aware of Risks in Sports		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	Yes	137	93.84%	0.0389	(89.94%, 97.74%)
	No	9	6.16%	0.0389	(2.26%, 10.06%)
Injured from Sport		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	Yes	78	53.42%	0.0809	(45.33%, 61.51%)
	No	68	46.58%	0.0809	(38.49%, 54.67%)
Know Someone that has died from Sport		Number Respondents	Percent of Total	Margin of Error	Confidence Interval
	Yes	56	38.36%	0.0789	(30.47%, 46.25%)
	No	90	61.64%	0.0789	(53.75%, 69.53%)
Number of Injuries		Number Respondents	Percent of Total		
	Zero	68	46.58%		
	One	27	18.49%		
	Two	23	15.75%		
	Three	16	10.96%		
	Four	11	7.54%		
	Six	1	0.68%		

Chi-Square Tests of Independence and Fisher's Exact Test

Table 2: Hiking by Injury

Group	Reported Injury Occurrence from Extreme Sports	
	Not Injured	Injured
Not a Hiker	10	6
Hiker	58	72

Chi-Square Test: $\chi^2(1) = 1.25$, $p = 0.263$

Fisher's Exact Test: $p = 0.195$, 95% confidence interval: 0.634 – 7.323

Table 3: Rock Climbing by Injury

Group	Reported Injury Occurrence from Extreme Sports	
	Not Injured	Injured
Not a Rock Climber	45	35
Rock Climber	23	43

Chi-Square Test: $\chi^2(1) = 5.825$, $p = 0.016$

Fisher's Exact Test: $p = 0.012$, 95% confidence interval: 1.16 – 4.983

Table 4: Skiing by Injury

Group	Reported Injury Occurrence from Extreme Sports	
	Not Injured	Injured
Not a Skier	18	15
Skier	50	63

Chi-Square Test: $\chi^2(1) = 0.714$, $p = 0.398$

Fisher's Exact Test: $p = 0.326$, 95% confidence interval: 0.645 – 3.568

Table 5: Snowboarding by Injury

Group	Reported Injury Occurrence from Extreme Sports	
	Not Injured	Injured
Not a Snowboarder	53	55
Snowboarder	15	23

Chi-Square Test: $\chi^2 (1) 0.691$, $p = 0.406$

Fisher's Exact Test: $p = 0.348$, 95% confidence interval: 0.655 – 3.392

Table 6: Hand/Finger/Wrist Injuries in Rock Climbers

Group	Reported Hand Injury from Rock Climbing	
	Not Injured	Injured
Not a Rock Climber	70	10
Rock Climber	45	21

Chi-Square Test: $\chi^2 (1) 6.956$, $p = 0.0084$

Fisher's Exact Test: $p = 0.008$, 95% confidence interval: 1.32 – 8.47

Table 7: Strains and Sprains in Rock Climbers

Group	Reported Strains or Sprains from Rock Climbing	
	Not Injured	Injured
Not a Rock Climber	60	20
Rock Climber	37	29

Chi-Square Test: $\chi^2 (1) 4.993$, $p = 0.0254$

Fisher's Exact Test: $p = 0.022$, 95% confidence interval: 1.10 – 5.05

Table 8: Fractures or Broken Bones in Rock Climbers

Group	Reported Fractures or Broken Bones from Rock Climbing	
	Not Injured	Injured
Not a Rock Climber	74	6
Rock Climber	52	14

Fisher's Exact Test: $p = 0.028$, 95% confidence interval: 1.10 – 11.17

Table 9: Strains and Sprains in Hikers

Group	Reported Strains or Sprains from Hiking	
	Not Injured	Injured
Not a Hiker	16	0
Hiker	81	49

Fisher's Exact Test: $p = 0.001$, 95% confidence interval: 2.19 - inf

Table 10: Fractures or Broken Bones in Hikers

Group	Reported Fractures or Broken Bones from Hiking	
	Not Injured	Injured
Not a Hiker	32	1
Hiker	94	19

Fisher's Exact Test: $p = 0.046$

Table 11: Social Influences on Ski and Snowboard Participation

Group	Reported Participation by Social Media Influence	
	Not Influenced by Media	Influenced by Media
Not a Skier / Snowboarder	17	1
Skier / Snowboarder	68	60

Chi-Square Test: $\chi^2 (1) 9.443, p = 0.002$

Fisher's Exact Test: $p = 0.0006$, 95% confidence interval: 2.192 – 635.224

Table 12: Social Influences on Hiking and Rock-Climbing Participation

Group	Reported Participation by Social Media Influence	
	Not Influenced by Media	Influenced by Media
Not a Hiker / Climber	13	0
Hiker / Climber	60	73

Chi-Square Test: $\chi^2 (1) 12.16, p = 0.0005$

Fisher's Exact Test: $p = 0.0001$, 95% confidence interval: 3.492 – Inf

Table 13: College Enrollment and Injury Rate

Group	Reported Injury Occurrence from Extreme Sports	
	Not Injured	Injured
Agriculture	10	8
Arts and Sciences	22	33

Education	5	1
Engineering	10	17
Grossman	4	5
Nursing	7	4
Rubenstein	9	9
Not a Student	1	1

Chi-Square Test: $\chi^2 (7) 7.18, p = 0.4102$

Table 14: Awareness of Risk and Occurrence of Injury

Group	Reported Injury Occurrence from Extreme Sports	
	Not Injured	Injured
Not Aware of Risk	5	4
Aware of Risk	63	74

Logistic Regression:

	Estimate	Std. Error	Z value	Pr(> z)
(Intercept)	0.1609	0.1714	0.939	0.348
riskaware	-0.3841	0.6924	-0.555	0.579

Research Information Sheet

Title of Study: Studying how participation of extreme sports in Burlington, VT is influenced by social media and correlated with increased injury and death rates

Principal Investigator (PI): Tess Stopczynski

Faculty Sponsor: Abigail Crocker

Funder: UVM Honors College / UVM Math & Statistics Department

Introduction

You are being invited to take part in this research study because you are a UVM student, UVM staff/faculty, or member of the greater Burlington community that this research may pertain to. You must be over 18 years older to participate in this survey. This study is being conducted by Tess Stopczynski at the University of Vermont.

Purpose

This study is being conducted because the Principal Investigator (PI) is including it in her thesis research. The PI is studying extreme sports in Vermont and wants to acquire and analyze information about current individuals participating in hiking, climbing, skiing, and/or snowboarding. Whether you participate in any of the following sports or not, the PI wants to better understand your reasons for doing so and if you were made aware of any risks these sports may have.

Study Procedures

If you take part in the study, you will be asked to first read and fully understand this information sheet. Then, you will be asked to answer the questions to the best of your ability in the given survey. The survey will be taken independently and is a brief questionnaire. The questions regard your participation in a few different sports, your influences in partaking in these sports, your use of social media, your following and interest of extreme sports, your awareness of the risk of these extreme sports, and any injuries you may have had while participating in these sports. You should answer each question to the best of your ability. This is a one-time survey and will take you approximately 15-30 minutes. After you take the survey, you will not be asked to participate in any further part of the study.

Benefits

As a participant in this research study, there may not be any direct benefit for you; however, information from this study may benefit other people now or in the future.

Risks

We will do our best to protect the information we collect from you during this study. We will not collect any information that will identify you to further protect your confidentiality and avoid any potential risk for an accidental breach of confidentiality.

Costs

There will be no costs to you for participation in this research study

Compensation

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

Confidentiality

All information collected about you during this study will be stored with a code number so that we are able to match you to your answers. Your information will be kept secure by the PI and will only be accessible by the PI and her two faculty sponsors. Your identifiable information will no longer be identifiable once the analysis is complete. Until that time, the master list of code numbers will be kept confidential.

Voluntary Participation/Withdrawal

Taking part in this study is voluntary. You are free to not answer any questions or withdraw at any time. You may choose not to take part in this study, or if you decide to take part, you can change your mind later and withdraw from the study. If you choose to withdraw from the study, the PI will discard any information that you have provided for the study and none of your information will be used in the analysis.

Questions

If you have any questions about this study now or in the future, you may contact me, Tess Stopczynski, at the following phone number; (253) 509-8504. If you have questions or concerns about your rights as a research participant, then you may contact the Director of the Research Protections Office at (802) 656-5040.

Participation

Your participation is voluntary, and you may refuse to participate without penalty or discrimination at any time.

Please print this information sheet for your records before continuing.



Please read the following before participating in the survey. We ask that you only take the survey once.

Research Information Sheet

Title of Study: Studying social influences of extreme sports in Burlington, VT and related injury.

Principal Investigator (PI): Tess Stopczynski

Faculty Sponsor: Abigail Crocker

Funder: UVM Honors College / UVM Math & Statistics Department

Introduction

You are being invited to take part in this research study because you are a UVM student that this research may pertain to. You must be over 18 years older to participate in this survey. This study is being conducted by Tess Stopczynski at the University of Vermont.

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Section A: Personal Information

A1. Select one of the following:

I am a student at UVM.

I am a faculty/staff member at UVM.

I am not a student or faculty/staff member at UVM.

A2. Which of the following age groups are you in?

18 - 30

31 - 45

46 - 60

61 +

A3. If you are a student, which college are you in?

College of Agriculture and Life Sciences

College of Arts and Sciences

College of Education and Social Services

College of Engineering and Mathematical Sciences

College of Nursing and Health Sciences

Grossman School of Business

Rubenstein School of Environment and Natural Resources

Larner College of Medicine

I am not a student.

Section B: Sports Participation

B1. The following sports are considered "extreme sports", or sports that are perceived as involving a high degree of risk. Furthermore, these sports are some of the most common in Vermont. Select any of the following sports you have participated in the state of Vermont.

Hiking

Rock Climbing

Cross Country Skiing

Downhill Skiing

Snowboarding



Unroped / Free Solo Climbing

I have not participated in any of these activities.

B2. Select any of the following sports you would be interested to participate in the state of Vermont.

Hiking

Rock Climbing

Cross Country Skiing

Downhill Skiing

Snowboarding

Unroped / Free Solo Climbing

I am not interested in participating in any of these activities.

B3. If you have skied (cross country or downhill) or snowboarded in Vermont, rank the top 3 reasons you chose to participate. Place your rank in the box.

Previous experience skiing and/or snowboarding:

Influence from family or friends.

UVM Ski and Snowboarding Club.

Influence from social media.

Advertisements from outdoor brands.

Other.

I do not ski or snowboard.

B4. If you have rock climbed, hiked, and/or unrope or free solo climbed in Vermont, rank the top 3 reasons you chose to participate. Place your rank in the box.

Previous experience rock climbing, hiking, and/or unroped/free solo climbing:

Influence from family or friends.

UVM Outing Club.

UVM Climbing Team.

Influence from social media.

Advertisements from outdoor brands.

Other.



I do not hike, climb, or free solo climb.

Section C: Social Media Participation

C1. Select any of the following social media accounts you have.

Instagram

Facebook

Twitter

Snapchat

I do not use these social media outlets.

C2. The following outdoor/lifestyle brands are known for advertisements catered to outdoor activities. Select any that you follow on social media and/or purchase merchandise from.

Patagonia

Columbia

The North Face

REI

Nike

Camelbak

I do not follow any of these brands on social media nor do I purchase merchandise from them.

Please list any other relevant outdoor brands you follow/purchase clothing from.

Please list any other relevant outdoor brands you follow/purchase clothing from.

C3. Do you follow any athletes on your social media accounts who are recognized as "experts" in their respective sport? (For example, Lindsey Vonn is considered an expert female skier.)

Yes, I do follow at least one expert athlete on one (or more) of my social media accounts.

No, I do not follow any expert athletes on any of my social media accounts.

No, I do not have any social media accounts.



C4. How frequently do you see advertisements for outdoor activities or promotion of outdoor lifestyle merchandise on your social media account(s)?

Once or more a day

Once every few days

A few times a month

Less frequently

I never get advertisements from these brands on my social media accounts.

Section D: Injuries from Sports

D1. Before participating in any of these sports, were you made aware of any risks of participation? (Risk meaning potential injuries or natural disasters that can occur while partaking in these sports.)

Yes, I was made aware that there could be risks while participating in these sports.

No, I was never made aware that there could be risks while participating in these sports.

I do not partake in these sports.

D2. Have you ever been injured from participating in hiking, rock climbing, skiing, snowboarding, and/or unroped/free solo climbing?

Yes, I have been injured from participating in one or more of these activities.

No, I have not been injured from participating in one or more of these activities.

No, I do not participate in these activities.

D3. According to the Journal of Orthopaedic Surgery and Research, the following injuries are the most prevalent for these extreme sports. Select any of the following injuries you have incurred while participating in these activities.

Acute hand, finger, and/or wrist injury

Laceration

Sprain/strain

Fractured/broken bone

Injury that required surgery

Concussion or head injury

I have never been injured from these sports.



Other; please list what kind of injury you had.

Other; please list what kind of injury you had.

D4. Do you know anyone who has died from participating in any of these sports?

Yes, I do know someone who has died from participating in these sports.

No, I do not.

Contact Tess Stopczynski (tstopczy@uvm.edu) with any remaining questions.