

**Engagement in Physical Activity: Exercising in Groups
Encouraging Student's Participation, Compliance, and Satisfaction**
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University of British Columbia
PSYC 321
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**Engagement in Physical Activity: Exercising in Groups
Encouraging Student's Participation, Compliance, and Satisfaction**

The Dream Team

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Executive Summary

The research conducted in this study examines whether participation in group fitness activities has an effect on participants' compliance rates with their self-report measures for weekly fitness goals. Specifically, we measured whether exercising in the BirdCoop Fitness Centre alone, as a group (defined as two or more people), or participating in the boot camp classes had the highest compliance and satisfaction rates. We issued our survey in the UBC Student Recreation Centre using in-person, digital surveys and gathered data from 187 participants. We rejected our hypothesis that exercising in groups results in increased compliance rates, but retained our hypothesis that exercising in groups results in increased satisfaction rates.

Research Question

Do students who exercise in groups have higher compliance rates (i.e. frequency) and higher overall satisfaction than those who exercise individually?

Hypothesis

Students who exercise in groups will have a higher compliance rate and greater satisfaction due to social engagement.

Methods

Participants. The participants in this study consisted of 187 BirdCoop Fitness Centre members, 94% of which were students ($n=186$) and 6% that were non-students ($n=176$). The population consisted of 57% male ($n=106$) and 43% female ($n=81$). Out of the sampled individuals, 87% were gym goers ($n=163$) and 13% had participated in a boot camp class ($n=24$). Of the sampled participants, 82% reported a fitness level of 3+ on a scale of 1-5. Out of those who reported a 3+, 31% reported a 3 ($n=58$), 38% reported a 4 ($n=72$), and 12% reported a 5 ($n=22$). Of the surveyed participants, 64% arrived to the facility individually ($n=12$), and 35% were in some form of group that consisted two or more people ($n=38$). Of the participants in the study, 60% participated in a gym exercise inside the BirdCoop Fitness Centre gym individually ($n=115$), 28% were in a social group at the BirdCoop Fitness Centre gym ($n=50$), and 12% participated in a boot camp class ($n=22$). Participants reported their satisfaction with their workout on a 1-5 nominal scale with 3% reporting a 1 ($n=6$), 9% reporting a 2 ($n=16$), 28% reporting a 3 ($n=52$), 41% reporting a 4 ($n=77$), and 19% reporting a 5 ($n=36$).

Conditions. There were three conditions for this study. The first condition consisted of participants who worked out inside the BirdCoop Fitness Centre gym individually, the second consisted of participants who exercised in a social group at the BirdCoop Fitness Centre gym, and the third consisted of those who participated in a boot camp class. For the purpose of this study, we divided our conditions into two groups: individual and group exercise. We measured the levels of participant satisfaction and compliance rates with their workout. The responses to the survey were analyzed and cross-referenced with each individual's attendance rate at the BirdCoop Fitness Centre gym and at the boot camp classes. To clarify, boot camp is a third condition, but it is still considered group exercise as the members are partaking in the same physical activity and are in a group of two or more people during the class.

Measures. From our sample of 187 participants collected from the BirdCoop Fitness Centre gym and boot camp classes, we developed three independent variables. These variables were selected based on the type of activity each member participated in. The three groups are as follows: exercising in a social group at the BirdCoop Fitness Centre gym, exercising individually at the BirdCoop Fitness Centre gym, or participating in a boot camp class. From these three groups, we formed a total of six dependent variables. Half of the dependent variables measured satisfaction and the other half measured compliance rates. The three satisfaction measures derived from exercising in a social group at the BirdCoop Fitness Centre gym, exercising individually at the BirdCoop Fitness Centre gym, and exercising at a boot camp class. To obtain actual measures we calculated the mean and compared each group's 1-5 rating from their responses on our survey. For measuring compliance, we analyzed the data from our survey comparing the two questions "How many times this past week did you *intend* to workout?" and

“How many times this week did you *actually* work out?” We then derived a percentage from the two questions for each participant. We were then able to form three dependent variables to measure compliance. These dependent variables included compliance rates of those who exercised at the BirdCoop Fitness Centre gym as an individual and as a group, as well as those who exercised at a boot camp class. We were then able to compare satisfaction between individual and group exercise, as well as compare compliance between individual and group exercise.

Procedure. We began by sampling participants at the Student Recreation Centre at the University of British Columbia. We created a post-workout survey for the participants. The survey was conducted during peak hours of the Student Recreation Centre (between the hours of 5:00 PM and 7:30 PM), and we sampled on three separate days throughout March 2017. Each survey consisted of 10 questions. For the purpose of this study, the participants were not aware of the hypothesis and were told that this experiment was being conducted in order to enhance individual experiences at the Student Recreation Centre. We sampled at two different fitness areas of the Student Recreation Centre. We sampled participants from the BirdCoop Fitness Centre gym, as well as participants leaving boot camp classes.

Results

For participants that attended the BirdCoop Fitness Centre gym ($n=115$), we saw an average compliance rate of 95.2% ($M=0.95209$) with an average satisfaction of 3.4 on a scale of 1-5 ($M=3.4084$). For participants that attended the BirdCoop Fitness Centre gym in a social group ($n=50$), we saw an average compliance rate of 89.5% ($M=0.89509$) with an average satisfaction of 3.7 on a scale of 1-5 ($M=3.6938$). For participants that attended a boot camp class ($n=22$), we saw an average compliance rate of 94.1% ($M=0.94139$) with an average satisfaction of 4.6 on a scale of 1-5 ($M=4.6298$). To address our research question, which compares individual exercise versus group exercise, we combined “social group” and “boot camp” to be defined as “group exercise.”

There was a potential confounding variable of experience level affecting compliance rates. The assumption was that if a person has a higher experience level (when compared to a beginner), they will be more motivated and inclined to go to the gym due to habitual practices. To eliminate this potential confounding variable, we ran correlation tests between experience level and compliance rate. For participants that exercised individually, the correlation was extremely weak ($r=0.02$). For participants that exercised in a social group, the correlation was weak ($r=0.18$). For participants that exercised in a boot camp class, the correlation was also small ($r=0.18$). Therefore, we can conclude that this correlation is insignificant and the experience level had no effect on compliance rates. Our obtained $p=.265$ for compliance between the two groups (more than .05). With an alpha level of $\alpha=.05$ we can reject our hypothesis that people who exercise in groups have a higher compliance rate than those who workout individually. Our obtained $p=.04$ for satisfaction between individual and group (less than .05) with an alpha level of $\alpha=.05$ we can retain our hypothesis of a higher satisfaction related to those who exercise in groups. We obtained a T-value of 0.431 for our compliance and a T-value of -4.256 for satisfaction.

Discussion

Upon analysis of the responses to the survey, two conclusions can be drawn regarding compliance and satisfaction rates as it relates to the original research question: Exercising in groups does not in fact increase compliance rates of regularly exercising, but it does increase the self-reported satisfaction levels of the participant, regardless of their source of exercise. While these findings support only half of the hypothesis, it does align with other research findings that also suggest satisfaction and social support are better indicators of attendance. This implies that having a social support group to encourage and facilitate positive experiences is more effective than the sheer desire of one individual to maintain a healthy lifestyle through regular exercise.

Like all research, this study had several limitations that can be evaluated and used as suggestions for future research. One of the most significant limitations is that this research was not an experimental design, thus we are unable to make a causal claim as to whether high compliance and/or satisfaction rates are caused by social encouragement or vice versa. For the purpose of our study, it was not necessary to implement an experimental design; however, these preliminary findings can be used to further the exploration of both compliance and satisfaction in terms of individual and/or group exercise. Should a causal relationship be found, it would be possible to provide further recommendations to the client that could be used to continue benefitting and improving the UBC Recreation programming. Another significant limitation is the response bias in the form of socially desirable responses that was seemingly apparent. Socially desirable responding is defined as the tendency to respond in such a way that improves the positive representation of the participant. We attempted to reduce the occurrence rate of socially desirable responding by assuring the participants that the survey was entirely anonymous, which was enforced by the complete lack of any questions that could identify an individual to any set of responses. This issue can be seen in the results where participants were asked for their fitness experience levels, where a large majority reported a 3+ score on a 1-5 scale. That being said, this limitation exists in all cases where researchers rely on self-reported, subjective data; however, this issue could be reduced if an objective measure of fitness level were implemented within a future study. For example, having each participant partake in a fitness test that provides results on both their cardiovascular and muscular health would allow for a more objective measure. There were also some limitations in terms of data collection, including things such as only collecting survey responses from boot camp classes and the inclusivity of non-students in our analysis. For the simplified purpose of our study, we selected boot camp classes as a source of data collection because it is a popular class choice and it aligned with peak hours of the BirdCoop Fitness Centre. However, the lack of data collected from other classes offered by UBC Recreation leaves some unexplored territory and is worth investigating in the future as different group classes may yield differing results that could then be analyzed to conclude why such differences exist or the further support our preliminary findings. Only 10% of responses to our survey were collected by non-students, so while their effect is minimal, there exists the possibility that their responses as a whole vary from the responses of our targeted sample of students only. To rectify this issue, our data could be re-evaluated after excluding the data from non-students, or future research could immediately screen non-students and prevent them from participating in the study that is irrelevant to that population. Alternatively, the non-student data could be evaluated independently and used to draw conclusions that are relevant to that population. Lastly, there are limitations to the measures that we used to measure and analyze our data, in both compliance and satisfaction rates. Compliance was measured using self-reported data from the previous seven days before participating in the survey, which does not allow for a long-term compliance rate to be determined. Additionally, satisfaction was measured following

the completion of exercise, which according to Heitkamp et al. (1996) can produce more positive results due to the increased level of released endorphins caused by exercise. Monitoring participants over a longer period of time and/or collecting data before and after exercise could help rectify these limitations.

It can be confidently assumed that increased compliance and satisfaction rates are associated with increased overall health, both physically and mentally. Encouraging group exercise ensures that people stay physically fit, while also maintaining strong mental health through the support of their social group. This is of particular importance when speaking in terms of university students because most face significant levels of stress and suffer from an assortment of mental health issues, often times going undiagnosed or untreated due to the stigma that exists surrounding mental health. The findings of this study further support the idea that exercise positively benefits mood through satisfaction measures, but it also suggests that the social support received through exercising in groups increases satisfaction to a greater extent. While we did not specifically study the lasting effects of these social support systems, it can be assumed that the relationships built or strengthened through shared exercise have the ability to serve as a support system outside of the exercise facilities, therefore benefitting all aspects of a healthy lifestyle, including social relationships and mental health maintenance.

Recommendations

UBC Recreation plays a large role in the University of British Columbia campus and in student life. UBC Recreation offers opportunities for students to engage in activity, sports, and exercise, all which have the potential to increase overall health. With the results of our research, we can confidently recommend some possible future projects and programs to cater to the growing student population. Our results provided evidence that exercising in groups resulted in increased satisfaction. Despite having to reject our hypothesis in regards to compliance, we still achieved high compliance results nonetheless. Consistent to our results, Fraser & Spink's (2002) study also found that high scores of social support predicted better attendance behaviour. They emphasized that higher perceptions of reliable alliance led participants to perceive that others can provide them with aid if the need arose (a sense of security), which translates into continuation of exercise on a daily basis.

Thus, we recommend implementing programs for encouraging students to use exercise as a social function. "Buddy-Up," "BirdCoop Buddies," or "Squat Squad" campaigns will be highly effective in not only increasing facility attendance, but also in safety, such as spotting partners. To further facilitate this, we also suggest using social media platforms, such as Facebook, to create a group or forum specific to UBC Recreation where students can post and find gym partners. For example, a student can post that they typically exercise on Tuesdays and Thursdays at 6:00 PM, beginner level, and is looking for a lifting buddy. This will facilitate relationship building and school spirit, while also promoting exercise.

Furthermore, our results showed slightly higher compliance rates in boot camp classes. This data shows interesting trends that could be applied to other classes. We suggest offering special rates or incentives for signing up for classes with a partner. This could include greater discounts for larger groups or receiving a free water bottle if they recruit a friend to participate with them. Not only will this increase class size, attendance, and sign-up rates, but it will also promote sociability. Friends who sign up for these classes together will be further incentivized to attend these classes and promote amongst their friends to increase the number of sign-ups. We also suggest "Bring a Buddy" promotional days, particularly for smaller sized classes, as a

marketing technique to promote the programs that UBC Recreation offers. This will be especially effective for beginners, as Fraser & Spink (2002) noted that for beginners, positive group cohesion is especially effective in promoting regular exercise. Thus, fostering a positive group dynamic and creating a community of student support will be effective in promoting exercise on campus. We hope that our preliminary findings will help UBC Recreation facilitate and offer tailored programs, classes, and incentives to promote healthy lifestyles and to create a welcoming space for beginners.

References

- Fraser, S. N., & Spink, K. S. (2002). Examining the role of social support and group cohesion in exercise compliance. *Journal of Behavioural Medicine*, 25(3), 233-249. doi: 10.1023/A:1015328627304
- Heitkamp, H., Huber, W., & Scheib, K. (1996). Endorphin and adrenocorticotrophin after incremental exercise and marathon running-female responses. *European journal of applied physiology and occupational physiology*. doi: 10.1007/BF00242270

Appendix

BirdCoop Survey

This survey is completely anonymous, your identity will not be recorded.
This survey is being conducted in order to enhance students' experience in the fitness facilities.

Gender *

- Male
- Female

Are you a UBC Student? *

- Yes
- No

What type of activity did you participate in today? *

- BirdCoop Gym (weight lifting/cardio, etc.)
- Bootcamp Fitness Class

How would you rate your fitness experience level? *

	1	2	3	4	5	
Beginner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Advanced

Did you arrive at the Student Recreation Centre alone or in a group today? *

- Individually
- Group (2 or more people)

...

How many people did you exercise with today? *

- Individually (BirdCoop Gym)
- With a Social Group (BirdCoop Gym)
- Individually (Bootcamp)
- With a Social Group (Bootcamp)

In the past week how many days have you attended a bootcamp class and/or gone to the BirdCoop Gym? *

- 1. 1 time
- 2. 2 times
- 3. 3 times
- 4. 4 times
- 5. 5 times
- ⋮ 6. 6 times
- 7. 7 (everyday)

In the past seven days how many days did you intend to go to bootcamp and/or the BirdCoop Gym? *

- 1. 1 time
- 2. 2 times
- 3. 3 times
- 4. 4 times
- 5. 5 times
- 6. 6 times
- 7. 7 (everyday)

How happy are you with your workout today? *

	1	2	3	4	5	
Not Very Satisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

⋮

How would you rate your overall happiness? *

	1	2	3	4	5	
Not Very Happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Happy