Official Title: The UBC Socializing Together While Running InDEpendently (STRIDE) Pilot Trial: A Social Identity Informed Virtual Running Group Program

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Rationale: The current COVID-19 context has resulted in a decrease of physical activity behaviour among Canadian adults (Rhodes et al., 2020). The transition to post secondary education is also associated with decreases in physical activity (Winpenny et al., 2020). With that said, there is a need to support university students' physical activity behaviour, and provide safe opportunities for social interaction, as these are viable coping strategies during the current COVID-19 pandemic (Faulkner et al., 2020). In the proposed randomized controlled pilot trial, the purpose is to examine the feasibility and acceptability of social identity informed virtual running groups to support University of British Columbia (UBC) undergraduate students' well-being. Secondary outcomes include changes in UBC students' exercise identity, perceived social support, exercise behaviour, and well-being. Should the results suggest the intervention is feasible and acceptable, it can inform the development of a larger scale efficacy trial. The pilot intervention can also inform ideal ways to support university students' exercise behaviour and well-being during the pandemic.

Group-mediated interventions (i.e., intervention content is delivered in a social group setting) are a promising approach for promoting health behaviours such as exercise (Beauchamp & Rhodes, 2020). Based on social identity theorising and research, belonging to meaningful groups that with which one positively identifies can support well-being and health (Haslam et al., 2009). Positive group identification refers to individuals integrating a particular group membership (e.g., exercise group) as an important part of their identity, and positively identifying with members, values, and norms of that group. Meta-analytic evidence suggests group-mediated interventions that support individuals' positive identification with the group are effective in promoting a range of positive health outcomes including psychological health and well-being (Steffens et al., 2019). Therefore, a group-mediated exercise intervention that focuses on harnessing the participants' social identities could support university students' exercise behaviour and well-being.

Due to the pandemic, there have been various physical distancing protocols set in place such as the moving university classes to on-line platforms. Therefore, there has been diminished opportunities for university students to socially connect with one another. Physical distancing protocols have also put restrictions on recreational centers and programs that provide students opportunities to engage in exercise and socially connect with one another. Therefore, the use of 'virtual running groups' is one way to provide individuals, such as university students, with necessary physical activity and social connectivity during the pandemic. Walking and running are two of the most common forms of physical activity participated in by those living in North America (e.g., Canada, United States) (Hulteen et al., 2017), and is an activity that can be done in one's own residential area whilst following Covid-19 physical distancing protocols.

Aims: Given the proposed study is a pilot trial, the main purpose is to assess whether the intervention is feasible, and determine participants' acceptance of the program. Various markers of program feasibility and acceptability will be assessed, such as (a) university students' interest in the program, and feasibility of recruitment, (b) participant satisfaction with virtual running groups, (c) affective attitudes towards exercising, (d) participant adherence to the program and control condition, (e) participation rates of group activities, (f) completion rates of assessments, and (g) participants' perception of whether a virtual running group provided adequate social connection.

Although formal hypothesis testing of efficacy is ill-advised in pilot studies given their lack of power (Eldridge et al., 2016), we will examine secondary outcomes that have theoretical and practical importance for exploratory purposes, and calculate statistical information such as effect sizes and measurement variance for informing power analyses when planning future efficacy trials. The secondary outcomes include changes in perception of social support in the context of exercise, global well-being (i.e., flourishing), exercise related well-being (i.e., subjective vitality), exercise identity, and exercise behaviour. Participants' ratings of social identification with their running group will also be assessed at the end of the program (Week 8).

Research Design: The study will utilize a two-arm, parallel group, unblinded randomized controlled pilot trial design. UBC undergraduate students (N = 60) will be equally randomized to either an eight-week social identity building virtual running group (n = 30) or an eight-week control group (n = 30). The group component of the intervention will be delivered via Zoom to support social connection among running group members and the fitness/social media app Strava so participants can post their runs and walks for members of their running group to view and provide words of encouragement. The virtual component is utilized to adhere to physical distancing protocols associated with the current COVID-19 pandemic. The attention control group will receive information regarding physical activity guidelines, be encouraged to meet the Canadian physical activity guidelines, and be asked to record their runs and walks on Strava. The use of an attention control condition will enable us to control for any potential effect of tracking exercise on outcomes such as well-being, exercise identity, and exercise behaviour.

Study Population: The target population are UBC undergraduate students (18+ years and enrolled in part time or full time studies) that have been underactive (i.e., not meeting the Canadian guidelines of 150 minutes of moderate-to-vigorous exercise per week) in the past month. Participants must be able to speak and read English, be living in Canada, and not experience any health contraindication that might prevent that person from participating in moderate-to-vigorous intensity exercise. Participants must own a smartphone so they can record their runs and walks on Strava, and have access to the internet and own a device that has camera functionality (e.g., computer) for attending the virtual coffee chats hosted on Zoom.

Recruitment: Sixty UBC undergraduate students will be recruited using online tools such as social media (Facebook, Twitter, YouTube, and Instagram), announcements in UBC online undergraduate classes, and different UBC outlets (e.g., UBC Wellbeing, UBC Recreation, The Ubyssey) will be asked to advertise the study on their media outlets (e.g., newsletters, social media). Students interested in participating will be asked to contact the student investigator directly via email (colin.wierts@ubc.ca). Once individuals express interest, the student investigator (Colin Wierts) will provide potential study participants with the study information letter so that they can see what the study entails, and schedule the best time to conduct the screening interview. At that time, eligibility will be assessed and confirmed. The student investigator will reaffirm the information about the study (provided in the information letter).

Upon agreement, the student investigator will obtain consent from participants (via Qualtrics) and direct participants to complete the baseline questionnaire (again, via Qualtrics). Once completed, the student investigator will contact the participant to inform them which intervention

group they are in by phone and email. Participants in the intervention condition will be directed to the UBC Canvas portfolio and asked to attend the first meet-and-greet meeting facilitated by the student investigator. During the meet-and-greet, participants will be (a) introduced to the Canvas materials that facilitate their participation in the running group, (b) provided instruction for Strava use, (c) provided information about the group goal, (d) provided explanation of the weekly structure of the program, (e) provided running and exercise considerations (hydration, nutrition, warm-up, safety, footwear and clothing, running pacing), as well as instructed to inform their physician if they experience negative symptoms when exercising (e.g., difficulty breathing) (f) asked to introduce themselves to their running group and brainstorm a team name. The Canvas website will include (a) information about the study (e.g., group goal explanation, Strava instructions), (b) a weekly video providing tips on running (from YouTube), (c) a videoconferencing link for the weekly coffee chats, and (d) discussion questions for the weekly coffee chat. The student investigator will coordinate the completion of the baseline and post-intervention surveys, as well as weekly exercise logs.

We will use a rolling recruitment strategy. As soon as the first 12 participants are recruited, they will be randomized to the virtual running group program or the control group, and begin participation (i.e., cohort 1). If more than 12 participants are recruited (e.g., 24 participants), then 2 cohorts will be created and will begin participating at the same time. Therefore, multiple cohorts will likely begin participation in the study at different time points. We will aim for five cohorts in total (N = 60).

Randomization: Once participants complete the baseline questionnaire, they will be randomized to the intervention group (n = 30) or the control group (n = 30) using a random number generator. We aim for 50% recruitment of men and 50% recruitment of women. We will stratify to ensure equal distribution of men and women across conditions. Sequence generation will be completed separately for men and women using the randomizer.org tool for researchers, with blocks of 2 unique numbers (1, 2) with each number designating one of the two randomization groups. Participants will be randomized in the order they complete the baseline survey.

Assessment and remuneration: Participants in both conditions will be provided with $10 for completing the baseline survey, and $10 for completing a post-intervention survey. Participants who complete 100% of the weekly exercise logs will receive $15, and participants who complete at least 75% (i.e., 6-7 logs) of the logs will receive 10$. Participants in the virtual running group program (n = 10) will be asked to complete a post-intervention semi-structured interview, with the student investigator, assessing their experiences with the STRIDE program. If more than 10 participants indicate interest in participating in the interview, we will select those to be interviewed by a random draw. Interviews will be conducted via Zoom (although only the audio component of the conversation will be recorded). Participants who complete the interview will be provide $20 for their time.

Virtual Running Group Condition: Participants in the virtual running group will be placed into running groups of six people. Each running group will be given the group goal/challenge to collectively run/brisk walk the distance across the province of British Columbia (i.e., from UBC to BC/Alberta Border), for a total distance of 940 kilometers. Individuals have the choice to determine how they will contribute to the collective goal. On average, if each individual were to

complete 20 km a week ((20 kilometers *6 individual)*(8 weeks)), that would equal 960 kilometers traveled for the total group across eight weeks. The group running program refers to the shared activity approach in social identity building interventions (Steffens et al., 2019), whereby each individual in the group simultaneously runs/walks, and interdependently work together to achieve the collective goal of running 940 km. The collective goal will be implemented with the purpose of providing members with a shared sense of 'we' and 'us', a common purpose and meaning behind group activity, and will help establish the running group as a distinct group (Levy et al., 2018).

Each participant will be encouraged to complete 150 minutes of moderate-to-vigorous exercise per week. Participants will be asked to record their runs and walks on the fitness application Strava. Participants will also be provided with phone armbands so that they can carry their smart phone on runs/walks. Running groups will be created on Strava so that individuals can post their runs/walks for their running group to view, and post words of congratulations and encouragement on each individuals' run/walk. In line with the Walk Kansas program (Estabrooks et al., 2008) participants can record leisure time moderate-to-vigorous exercise, such as strength training or recreational sport, to contribute to the group goal. In order to record an activity, it has to occur for at least 10 minutes. Leisure time exercise behaviour will be converted to kilometers traveled using Ainsworth et al.'s (2011) compendium of physical activities.

At the end of each week of the program, participants in the virtual running group program will have a coffee chat (via Zoom) to discuss their experience running in the previous week and discuss progress and challenges associated with meeting the group goal. Due to the rolling recruitment strategies, separate running groups may have coffee chats that overlap. The student investigator will create separate breakout rooms on Zoom for the separate running groups (6 individuals per group) if the coffee chat occurs at the same time.

Discussion questions will be implemented to stimulate group discussion about how the group and each individual member will work towards completing the group goal. Providing group members the opportunity to decide how they will contribute to the collective goal utilizes the group relevant decision-making strategy of social identity building interventions (Steffens et al., 2019). The weekly coffee chats are being implemented to provide group members the opportunity to socially connect, and discuss their experiences running. Participants will also be provided with t-shirts with the study logo in order to further establish a sense of 'us' and group identity.

Control Condition: Participants in the control condition will be asked to download the fitness application Strava to their smartphone, and track all of their runs and walks on Strava. Similar to the intervention group, participants will be provided with phone armbands to carry their phone during a run or walk so they can record the run or walk on Strava, and will be asked to try participating in 150 minutes of moderate-to-vigorous exercise per week.

Data Collection

Participants will be asked to complete baseline measures on Qualtrics before they are randomized to the intervention or control group, which will include demographics (e.g., age, gender, academic year in university), affective attitudes towards exercising, social support,

flourishing, exercise-related subjective vitality, exercise identity, and exercise behaviour. Participants will be provided 10 dollars for completing the baseline questionnaire. Each week, participants will be sent an email to record their exercise in the following week. They will be asked to log the type of exercise and the duration of the activity. At the end of the study (Week 8), participants will be asked to complete an online post-intervention assessment, via Qualtrics, of satisfaction with the program (intervention group only), affective attitudes towards exercising, social support, flourishing, exercise-related subjective vitality, exercise identity, social identification with the running group (intervention group only), and exercise behaviour. Participants will also be provided 10 dollars for completing the post-intervention questionnaire. Finally, 10 participants in the intervention group will be chosen at random to complete semi-structured interviews assessing the feasibility and acceptability of the intervention. Participants will be offered 20 dollars for completing the interview.

Primary Feasibility and Acceptability Outcomes

Interest in Program

University students' interest in the program will be assessed by recording the number of individuals expressing interest in the program.

Participant Enrolment

Participant enrolment will be assessed with the total number of participants enrolled in the study.

Affective Attitudes towards Exercise

Participant's affective attitudes towards exercise will be assessed using four bipolar semantic differential adjectives (Conner et al., 2011) on a seven-point scale (pleasant-unpleasant; enjoyable-unenjoyable; exciting-boring; satisfying-unsatisfying). Items will be prefaced with: ''For me, to participate in regular exercise is...'' (Hoyt et al., 2009).

Satisfaction with the Program

One item, adapted from a pilot study conducted by Vincze et al. (2018), will be used to assess general satisfaction with the program: "How satisfied are you with the STRIDE program?". The item will be prefixed with: "Please indicate your agreement with the following statement." Participants will respond to the item along a five-point agreement scale.

Retention

Participant retention will be measured by recording the percentage of individuals who adhered to the program, percentage of weekly exercise logs completed, percentage of weekly Zoom meetings attended, and percentage of post-intervention questionnaires completed.

Participant Interviews

Ten individuals within the intervention group will be recruited to participate in semi-structured interviews via Zoom to discuss the feasibility and acceptability of the intervention. Participants will be asked about their experiences with the program, and their perceived strengths and limitations with the program. Participants will also be asked if they felt the program provided opportunities for social connection, supported their exercise behaviour, and whether they would recommend a similar program to a friend.

Secondary Outcome Measures

Perceived Social Support Received in the Context of Exercise

Social support in the context of exercise will be assessed using four items from past social identity research (Gleibs et al., 2011; Haslam et al., 2005). The items will be prefaced with: "Please rate your agreement with each of the following statements as they relate to the support you receive for physical activity participation." Participants will respond to the items on a five-point Likert-type scale.

Global Well-Being

Participants will complete the eight-item Flourishing Scale (Diener et al., 2010)

Exercise Related Well-Being

Participants will complete the six-item (Bostic et al., 2000) Subjective Vitality Scale (Ryan & Frederick, 1997) adapted for the context of exercise behaviour.

Exercise Identity

Participants will complete the nine-item Exercise Identity Scale (Anderson & Cychosz, 1994).

Social Identity

Participants in the intervention condition will complete four adapted items (Doosje et al., 1995) assessing their social identification with the running group (control participants will not receive these questions).

Exercise Behaviour

Participant will report their moderate-to-vigorous exercise minutes per week (over the past month) using a modified version of the Godin leisure time exercise questionnaire (Courneya et al., 2004; Godin & Shephard, 1985).

Analysis Plan

With respect to the primary feasibility and acceptability outcomes, frequency values will be calculated for adherence to the program, number of weekly physical activity logs completed, number of Zoom group meetings attended, and number of post-intervention surveys completed. Descriptive statistics (mean, variance), skewness, and kurtosis will be calculated for the affective attitude items and the one item assessing program satisfaction. Cronbach's alpha will be calculated for the four affective attitude items. A 2 x 2 within and between subjects ANOVA will be conducted to examine intervention by time effects on affective attitudes towards exercise. Effect sizes (η^2) will also be calculated for the between, within, and interaction effects.

The interviews with participants will be transcribed verbatim. The transcripts will be analyzed using thematic analysis. First, codes will be generated to identify content that is relevant to understanding participants' experiences with the program and virtual running crew/group. Second, codes will be analyzed to produce higher order themes regarding participants' experiences with the program and virtual running crew/group (Clarke & Braun, 2017).

With respect to exploratory analyses, descriptive statistics (mean, variance), skewness, kurtosis, and Cronbach's alpha will be calculated for each secondary outcome variable. Multiple 2 x 2 within and between subjects ANOVAs will be conducted to examine intervention by time effects on perceived social support, flourishing, exercise-related subjective vitality, exercise identity, and exercise behaviour. Effect sizes (η^2) will also be calculated for the between, within, and interaction effects.

References

Ainsworth, B. E., Haskell, W. L., Herrmann, S. D., Meckes, N., Bassett, D. R., Tudor-Locke, C., Greer, J. L., Vezina, J., Whitt-Glover, M. C., & Leon, A. S. (2011). 2011 compendium of physical activities: A second update of codes and MET values. *Medicine and Science in Sports and Exercise*, *43*(8), 1575–1581. https://doi.org/10.1249/MSS.0b013e31821ece12

Anderson, D. F., & Cychosz, C. M. (1994). Development of an exercise identity scale. *Perceptual and Motor Skills*, *78*, 747–751.

Beauchamp, M. R., & Rhodes, R. E. (2020). Group-mediated approach to precision medicine — social identification, prevention, and treatment. *JAMA Psychiatry*, *77*(6), 9–10. https://doi.org/10.1037/ccp0000427

Bostic, T. J., Rubio, D. M., & Hood, M. (2000). A validation of the subjective vitality scale using structural equation modelling. *Social Indicators Research*, *52*(3), 313–324. https://doi.org/10.1111/j.1541-0072.1977.tb01338.x

Clarke, V., & Braun, V. (2017). Thematic analysis. *Journal of Positive Psychology*, *12*(3), 297–298. https://doi.org/10.1080/17439760.2016.1262613

Conner, M., Rhodes, R. E., Morris, B., McEachan, R., & Lawton, R. (2011). Changing exercise through targeting affective or cognitive attitudes. *Psychology and Health*, *26*(2), 133–149. https://doi.org/10.1080/08870446.2011.531570

Courneya, K. S., Jones, L. W., Rhodes, R. E., & Blanchard, C. M. (2004). Effects of different combinations of intensity categories on self-reported exercise. *Research Quarterly for Exercise and Sport*, *75*(4), 429–433. https://doi.org/10.1080/02701367.2004.10609176

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D.-W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and

negative feelings. *Social Indicators Research*, *97*(2), 143–156. https://doi.org/10.1007/sll205-009-9493-y

Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intragroup variability as a function of group status and identification. *Journal of Experimental Social Psychology*, *31*, 410–436.

Eldridge, S. M., Chan, C. L., Campbell, M. J., Bond, C. M., Hopewell, S., Thabane, L., Lancaster, G. A., Altman, D., Bretz, F., Campbell, M., Cobo, E., Craig, P., Davidson, P., Groves, T., Gumedze, F., Hewison, J., Hirst, A., Hoddinott, P., Lamb, S. E., … Tugwell, P. (2016). CONSORT 2010 statement: Extension to randomised pilot and feasibility trials. *The BMJ*, *355*. https://doi.org/10.1136/bmj.i5239

Estabrooks, P. A., Bradshaw, M., Dzewaltowski, D. A., & Smith-Ray, R. L. (2008). Determining the impact of Walk Kansas: Applying a team-building approach to community physical activity promotion. *Annals of Behavioral Medicine*, *36*(1), 1–12. https://doi.org/10.1007/s12160-008-9040-0

Faulkner, G., Rhodes, R. E., Vanderloo, L. M., Chulak-Bozer, T., O'Reilly, N., Ferguson, L., & Spence, J. C. (2020). Physical activity as a coping strategy for mental health due to the COVID-19 virus: A potential disconnect among Canadian adults? *Frontiers in Communication*, *5*, 1–5. https://doi.org/10.3389/fcomm.2020.571833

Gleibs, I. H., Haslam, C., Haslam, S. A., & Jones, J. M. (2011). Water clubs in residential care: Is it the water or the club that enhances health and well-being? *Psychology and Health*, *26*(10), 1361–1377. https://doi.org/10.1080/08870446.2010.529140

Godin, G., & Shephard, R. J. (1985). A simple method to assess exercise behavior in the community. *Canadian Journal of Applied Sport Sciences*, *10*(3), 141–146.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-

being: An emerging agenda for applied psychology. *Applied Psychology*, *58*(1), 1–23. https://doi.org/10.1111/j.1464-0597.2008.00379.x

Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology*, *44*(3), 355–370. https://doi.org/10.1348/014466605X37468

Hoyt, A. L., Rhodes, R. E., Hausenblas, H. A., & Giacobbi, P. R. (2009). Integrating five-factor model facet-level traits with the theory of planned behavior and exercise. *Psychology of Sport and Exercise*, *10*(5), 565–572. https://doi.org/10.1016/j.psychsport.2009.02.008

Hulteen, R. M., Smith, J. J., Morgan, P. J., Barnett, L. M., Hallal, P. C., Colyvas, K., & Lubans, D. R. (2017). Global participation in sport and leisure-time physical activities : A systematic review and meta-analysis. *Preventive Medicine*, *95*(2017), 14–25. https://doi.org/10.1016/j.ypmed.2016.11.027

Levy, A. R., Matata, B., Pilsworth, S., Mcgonigle, A., Wigelsworth, L., Jones, L., Pott, N., Bettany, M., & Midgley, A. W. (2018). An intervention for pulmonary rehabilitators to develop a social identity for patients attending exercise rehabilitation: A feasibility and pilot randomised control trial protocol. *Pilot and Feasibility Studies*, *4*(40), 1–8. https://doi.org/10.1186/s40814-018-0238-z

Rhodes, R. E., Liu, S., Lithopoulos, A., Zhang, C. Q., & Garcia-Barrera, M. A. (2020). Correlates of perceived physical activity transitions during the COVID-19 pandemic among Canadian adults. *Applied Psychology: Health and Well-Being*. https://doi.org/10.1111/aphw.12236

Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, *65*(3), 529–565.

https://doi.org/10.1111/j.1467-6494.1997.tb00326.x

Steffens, N. K., LaRue, C. J., Haslam, C., Walter, Z. C., Cruwys, T., Munt, K. A., Haslam, S. A., Jetten, J., & Tarrant, M. (2019). Social identification-building interventions to improve health: A systematic review and meta-analysis. *Health Psychology Review*. https://doi.org/10.1080/17437199.2019.1669481

Vincze, L., Rollo, M. E., Hutchesson, M. J., Callister, R., & Collins, C. E. (2018). VITAL change for mums: A feasibility study investigating tailored nutrition and exercise care delivered by video-consultations for women 3–12 months postpartum. *Journal of Human Nutrition and Dietetics*, *31*(3), 337–348. https://doi.org/10.1111/jhn.12549

Winpenny, E. M., Smith, M., Penney, T., Foubister, C., Guagliano, J. M., Love, R., Clifford Astbury, C., van Sluijs, E. M. F., & Corder, K. (2020). Changes in physical activity, diet, and body weight across the education and employment transitions of early adulthood: A systematic review and meta-analysis. *Obesity Reviews*, *21*(4), 1–13. https://doi.org/10.1111/obr.12962