

Understanding Factors That Influence Leisure Time Physical Activity (#75307)

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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

- Hypothesis 1a: I will evaluate if men have greater aerobic exercise frequency than women, in a sample of college students from CSUB and CSUEB N = 120, controlling for autonomous regulation and controlled regulation.
- Hypothesis 1b: I will evaluate if men have greater aerobic exercise totals than women, in a sample of college students from CSUB and CSUEB N = 120, controlling for autonomous regulation and controlled regulation.
- Hypothesis 1c: I will evaluate if men have greater resistance exercise frequency than women, in a sample of college students from CSUB and CSUEB N = 120, controlling for autonomous regulation and controlled regulation.
- Hypothesis 2a: I will evaluate if autonomous regulation is associated with aerobic exercise frequency, in a sample of college students from CSUB and CSUEB N = 120, controlling for gender and controlled regulation.
- Hypothesis 2b: I will evaluate if autonomous regulation is associated with total aerobic exercise, in a sample of college students from CSUB and CSUEB N = 120, controlling for gender and controlled regulation.
- Hypothesis 2c: I will evaluate if autonomous regulation is associated with resistance exercise frequency, controlling for gender and controlled regulation.
- Hypothesis 3a: I will evaluate if basic psychological need satisfaction is associated with aerobic exercise frequency, in a sample of college students from CSUB and CSUEB N = 120, controlling for gender.
- Hypothesis 3b: I will evaluate if basic psychological need satisfaction is associated with total aerobic exercise, in a sample of college students from CSUB and CSUEB N = 120, controlling for gender.
- Hypothesis 3c: I will evaluate if basic psychological need satisfaction is associated with resistance exercise frequency, in a sample of college students from CSUB and CSUEB N = 120, controlling for gender.
- Hypothesis 4: I will evaluate if perceived variety is associated with aerobic and resistance exercise, in a sample of college students from CSUB and CSUEB N = 120, controlling for autonomy, relatedness, and competence.

3) Describe the key dependent variable(s) specifying how they will be measured.

I will measure the first dependent variable, aerobic frequency, using the International Physical Activity Questionnaire Short Form (IPAQ-SF; Craig et al., 2003). The IPAQ-SF asks respondents four questions to assess their time spent in aerobic and resistance physical activity over the last seven days. The question for aerobic frequency asks respondents, "In the past 7 days, how many days did you engage in planned, purposeful cardiorespiratory or aerobic exercise?" Answers range from 0 days to 7 days.

I will measure the second dependent variable, aerobic total, using the International Physical Activity Questionnaire Short Form (IPAQ-SF; Craig et al., 2003). The IPAQ-SF asks respondents four questions to assess their time spent in aerobic and resistance physical activity over the last seven days. The question for aerobic total asks respondents, "How many minutes of planned, purposeful cardiorespiratory or aerobic exercise have you completed in the last 7 days?" A response box is provided for participants to insert their total minutes spent in aerobic activity over the last 7 days.

I will measure the third dependent variable, resistance frequency, using the International Physical Activity Questionnaire Short Form (IPAQ-SF; Craig et al., 2003). The IPAQ-SF asks respondents four questions to assess their time spent in aerobic and resistance physical activity over the last seven days. The question for resistance frequency asks respondents, "In the past 7 days, how many days did you complete muscle-strengthening activities, such as weightlifting, strength training, or resistance training?" Answers range from 0 days to 7 days.

4) How many and which conditions will participants be assigned to?

N/A; this is an observational study

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

To address Hypothesis 1a and 2a, I will run a hierarchical multiple regression with aerobic exercise frequency as the outcome variable, and with gender (man), autonomous regulation, and controlled regulation as predictor variables. A p-value of less than .05 will indicate a significant effect of the predictor variable on the outcome variable, aerobic exercise frequency.

To address Hypothesis 1b and 2b, I will run a hierarchical multiple regression with aerobic exercise total as the outcome variable, and with gender (man), autonomous regulation, and controlled regulation as predictor variables. A p-value of less than .05 will indicate a significant effect of the predictor variable on the outcome variable, aerobic exercise total.

To address Hypothesis 1c and 2c, I will run a hierarchical multiple regression with resistance exercise frequency as the outcome variable, and with gender (man), autonomous regulation, and controlled regulation as predictor variables. A p-value of less than .05 will indicate a significant effect of the predictor variable on the outcome variable resistance exercise frequency.

To address Hypothesis 3a, 3b, and 3c, I will run a hierarchical multiple regression with aerobic exercise frequency as the outcome variable, and with gender, autonomy, competence, and relatedness as the predictor variables. A p-value of less than .05 will indicate a significant effect of the predictor variables on the outcome variable, aerobic frequency.

Partial Correlation

To address Hypothesis 4, I will run a partial correlation with the outcome variables of aerobic exercise frequency, aerobic exercise total, and resistance exercise frequency, and with perceived variety as the predictor variable. I will enter autonomy, relatedness, and competence as covariates in the model. A p-value of less than .05 will indicate a significant effect of the predictor variable on the outcome variable.

Handling missing data:

To address missing data, I will perform pairwise deletion.

Checking your assumptions:

For the multiple regressions, the assumption of linearity will be verified using scatterplots. The assumption of homoscedasticity will be tested by plotting actual vs predicted residuals. Multicollinearity will be checked using correlation coefficients; independent variables with correlation coefficients $> r = .80$ will be removed from the analyses.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We will compute the means and interquartile ranges for each variable and exclude observations that fall beyond Tukey's fences.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

Based on a G*Power 3.1.9.4 sensitivity power analysis, using a linear multiple regression, fixed model, R^2 increase, using 4 total predictors and 1 tested predictor, and 90% statistical power, a sample size of 120 is sufficiently powered to detect an effect size of $f^2 = .089$; a sample size of 130 is sufficiently powered to detect an effect size of $f^2 = .082$; a sample size of 140 is sufficiently powered to detect an effect size of $f^2 = .076$; and a sample size of 150 is sufficiently powered to detect an effect size of $f^2 = .071$.

Based on practical considerations, we will aim to recruit 120 to 150 individuals.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

I will measure the first independent variable, autonomous regulation, using the Behavioral Regulation in Exercise Questionnaire (BREQ-2). The score for autonomous regulation will be calculated using the means of the intrinsic and identified regulation subscales. The score for controlled regulation will be calculated using the means of the introjected, extrinsic, and amotivation subscales.

I will measure the second independent variable, basic psychological needs, using the Basic Psychological Needs in Exercise Scale (BPNES).

I will measure the third independent variable, perceived variety, using the Perceived Variety in Exercise (PVE) scale.

Exclusions:

Individuals who are not 18 years or older, who are not a current student at either CSUB or CSUEB, and who are active more than 16 hours in the last 7 days will be excluded from the present analyses.

Mediating Variable

I will measure the mediating variable affective experiences using the Affective Exercise Experiences (AFFEXX) Questionnaire. The scores for the attraction-antipathy scale will be used.