

### Predictors Of Self-Reported Pediatric Quality Of Life

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**PURPOSE:** Adolescent musculoskeletal injury and musculoskeletal pain potentially influence the quality of life of an individual. Screening adolescent patients for self-reported emotional functioning and quality of life is important and plays a role in clinical evaluation in the office setting.

**METHODS:** Adolescents (n =63), between 12-18 years of age, were screened for physical activity, emotional functioning, and quality of life in a tertiary pediatric sports medicine clinic. The screening occurred during the outpatient visit for musculoskeletal pain or injury. Adolescents self-reported pain and physical activity in minutes per week. Anxiety and depression screening tools, the GAD-7 and PHQ-9 respectively, evaluated emotional functioning. The Pediatric Quality of Life Inventory (PedsQL) assessed physical, emotional, social, and school functioning.

**RESULTS:** The population consisted of adolescents with mean age of 14.57±1.52 years and 59% were female. The average pain score documented was 4.16±2.78. The GAD-7 recorded average scores of 3.39±3.76. The PHQ-9 recorded average scores of 3.70±4.30, respectively. The average PedsQL score recorded was 78.45±10.52. Pain, anxiety, and physical activity were all significant predictors of Pediatric Quality of Life (p=0.002, 0.017 and 0.000, respectively). Depression (p=0.104) and sex (p=0.553) each did not reach statistical significance with PedsQL.

**CONCLUSIONS:** Self-reported quality of life is important to screen in a clinical setting of musculoskeletal injury and musculoskeletal pain. Factors such as pain, anxiety, and physical activity were all predictors of self-reported quality of life. These screening tools can aide the clinician to simultaneously address the musculoskeletal complaint and discuss emotional functioning, pain, physical activity, and the quality of life.

### INFLUENCE OF PHYSICAL ACTIVITY AND GRIT ON ANXIETY DURING THE COVID-19 PANDEMIC

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Adults have encountered abrupt lifestyle change in the United States due to the COVID-19 pandemic. Previous literature has established a beneficial effect of engaging in physical activity on anxiety. Additionally, the personality trait of grit, has shown to have a positive influence on overall health.

**PURPOSE:** To investigate the influence of physical activity and grit on feelings of anxiety.

**METHODS:** A cross-sectional design was used to collect data from 799 participants between 18-65 years of age within the United States via an internet-based survey from April 13–May 6, 2020. Validated survey instruments of the short grit scale, the International Physical Activity Questionnaire-Short Form and the Rapid Activity Assessment for Participants Short Version were included. Age-based subgroups (18-30, 31-40, 41-50, 51-65yrs) were created to examine the relationship among a diverse age range. Multiple linear regression models were used to examine the association of physical activity and grit on anxiety within each age group as well as among all subjects. Demographic variables (Table 1) and diet were included to control for factors that may influence anxiety.

**RESULTS:** Vigorous physical activity and total sitting time were significant predictors of feelings of anxiety in the all participants model (Table 1). Sitting time was a significant predictor in all age groups except the 41-50 year-old subgroup.

**CONCLUSION:** Our results suggest engaging in vigorous physical activity and reducing time spent sitting decreases feelings of anxiety during the COVID-19 pandemic. We did not find a strong influence of grit on anxiety. As the variance explained in our models was small this suggests other factors influence anxiety that we did not account for in our survey. Future research should re-examine the influence of these variables on anxiety levels while the COVID-19 pandemic continues as relationships may change over time.

Table 1: Multiple linear regression models of anxiety

Variables	Standardized Beta				
	18-30 years (n=443)	31-40 years (n=159)	41-50 years (n=91)	50-65 years (n=106)	All (n=799)
Age (years)	-	-	-	-	-0.034
7-day Average Infection Rate	-0.045	0.108	0.229**	0.189**	0.029
Sex (ref: male)	-0.020	0.002	0.131	-0.173*	-0.012
Education (ref: less educated)	0.036	-0.071	-0.190*	0.084	0.012
Relationship status (ref: married)	-0.016	-0.087	-0.204*	0.049	-0.034
Do you have any children living at home? (ref: yes)	0.036	0.166**	0.084	0.004	0.053
Do you have any chronic medical conditions? (ref: yes)	-0.042	-0.030	-0.099	0.120	-0.023
Employment (ref: employed)	-0.021	0.005	-0.151	0.014	-0.031
Diet	-0.062	-0.039	-0.112	-0.305***	-0.102***
Grit	-0.039	-0.040	0.062	-0.185*	-0.054
Vigorous Physical Activity (min/week)	-0.050	-0.168*	-0.095	0.116	-0.079**
Moderate Physical activity (min/week)	0.089	0.007	0.047	-0.152	0.042
Light Physical activity (min/week)	-0.063	0.159*	0.112	-0.188*	-0.001
Total time spent sitting (min/week)	0.233****	0.190**	0.313***	0.068	0.195****
Adjusted R <sup>2</sup>	0.052	0.065	0.081	0.134	0.059
F	2.868	1.849	1.610	2.243	4.531
p-value	0.001	0.041	0.101	0.013	0.000

Notes: \*, p<0.10; \*\*, p<0.05; \*\*\*, p<0.01; \*\*\*\*p<0.001.

### Physical Activity And Sleep Moderate The Relationship Between Stress And Screen Time In College-aged Adults

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Stress is a nearly universal experience for undergraduate students - and one factor that is consistently related to high levels of stress is excessive screen time. Fortunately, there are ways to buffer the potentially harmful relationship between screen time and stress: namely, through engagement in health behaviors such as physical activity and sleep.

**PURPOSE:** The purpose of the present investigation was to examine the independent and potential interactive moderating contributions of physical activity and sleep on the relationship between screen time and perceived stress in college-aged adults, controlling for demographic factors (i.e., age, sex, race/ethnicity) and health-related attributes (i.e., adiposity and aerobic fitness).

**METHODS:** A sample of 513 undergraduate students ( $M_{age} 19.1 \pm 1.2$  years; 348 females; 24.4% nonwhite) reported perceived stress level and hours per week of engagement in physical activity, screen time, and sleep. Participants then participated in a body composition assessment (using bioelectrical impedance analysis; yielding individuals' percent body fat) and a VO<sub>2</sub>max aerobic fitness assessment (using a maximal graded exercise test; yielding individuals' age- and sex-adjusted aerobic fitness percentile).

**RESULTS:** No relationships between percent body fat or aerobic fitness and stress were identified. Stepwise hierarchical regression analyses identified that screen time, sleep, and the three-way interaction of screen time, sleep, and physical activity were predictive of perceived stress levels, over and above the influence of demographic factors ( $F_{change}(4, 508) = 9.3, p < 0.001, f^2 = 0.05$  [95% CI: 0.01 to 0.09],  $R^2_{change} = 0.05$ ). Post-hoc decomposition revealed that higher levels of physical activity and sleep both mitigated the relationship between screen time and perceived stress. Specifically, the relationship between total weekly screen time and stress was only apparent when total weekly physical activity was low and total weekly sleep was low to moderate, ( $B's \geq 0.01$  [95% CI: 0.01 to 0.03],  $SE B's = 0.01, \beta's \geq 0.13, p's \leq 0.003$ ).

**CONCLUSION:** These findings provide important context about the ways in which health behavior in multiple areas may impact students' well-being - and could be used to inform future intervention work in the area of stress reduction.

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### Biorhythms, Mood, And Pain In Real-time: Insights From The Nimh Family Study Of Affective Spectrum Disorders

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**PURPOSE:** Our previous work using real time monitoring has shown that motor activity is associated with a decrease in sad mood. Here we examine whether there is a dose effect of activity intensity with mood, and whether this association is moderated by pain, or sleep quality. Further, we examine whether these associations differ among those with a history of Mood Disorder subtypes.

**METHODS:** 80 adults (mean age 42), a subset from a community-based family study enriched for mood disorders. Motor activity (MA) was assessed via actigraphy, and subjective mood, pain, and sleep quality were reported via ecological momentary assessment 4 times per day for 2 weeks. Lifetime history of mood disorder subtypes (bipolar I, bipolar II, major depressive disorder) were determined by a semi-structured clinical interview and best estimate consensus. Generalized estimating equations with granger modeling of prior states of the outcome variables were used to analyze the lagged associations among mood, pain, sleep quality, and MA/exercise.

**RESULTS:** Intensity of MA and subjectively rated pain were not associated with changes in sad mood. However, sad mood was associated with a subsequent increase in subjective pain (Est. 0.0553, S.E. 0.025,  $p=0.0268$ ). Although mood ratings did differ by lifetime history of mood disorder subtypes, there were no differences in subjectively rated pain or MA between these subgroups.

**CONCLUSION:** Findings suggest that intensity of MA does not explain the unidirectional association between MA with sad mood, nor was this association moderated by pain or sleep quality that were not related to sad mood. Future analyses will exploit the multilevel intensive longitudinal data using dynamic structural equation modeling and cross replicate these findings in parallel samples.

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### The Anxiety And Depression Among Undergraduate Students Of Rehabilitation Medicine In The Covid-19 Pandemic Era

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*Abstract:* The sudden outbreak of COVID-19 has placed a significant psychological burden on all of us. During the epidemic, a small number of students have psychological problems such as compulsion and depression. Therefore, it is very important to investigate the mental health status of medicine students.

**PURPOSE:** To investigate the anxiety and depression of rehabilitation medicine undergraduates and their influencing factors, so as to provide the basis for mental health education.

**METHODS:** Undergraduates in the School of Sports Medicine and Health of Cheng Du Sports University were investigated by using Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS). A total of 268 out of 280 participants submitted valid questionnaires (age:  $20 \pm 2.0$  years), including 163 male and 105 female students. Chi-square test was used for comparison between groups. Multivariate analysis was conducted by Logistic regression analysis, and the correlation between measurement data and grade data was studied by Pearson correlation coefficient and Kendalltau correlation coefficient.  $P < 0.05$  was considered statistically significant.

**RESULTS:** ①The average anxiety standard score of all study subjects was (42.69 ± 8.69), and fifty-six (20.9%) of them had anxiety symptoms. ②The average depression severity score of all study subjects was (0.46 ± 0.106), and ninety-one (33.9%) of them had depressive symptoms. ③The severity of anxiety was related to the disciplines ( $\chi^2 = 15.088, P = 0.005$ ). ④Significant relation was found between depression and anxiety state in the participants (Kendall  $\tau = 0.524, P < 0.01$ ).

**CONCLUSION:** The proportion of rehabilitation medicine undergraduates with depression is higher than that of the general population, and there is a correlation between anxiety and depression. It is suggested that the school should attach more importance to the mental health of rehabilitation medicine undergraduates, strengthen the mental health education, and formulate professional targeted psychological intervention measures to effectively improve the psychological state of rehabilitation medicine undergraduates.

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### Loneliness Perception Is Lower Among Ballroom Dancers Aged >50 Years

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Loneliness is a distressing feeling related to a lack of satisfying in human relationships. It is associated with poor psychological and biological outcomes. A range of evidence has shown that physical activity (PA) is a potential strategy to reduce loneliness in middle-aged and older adults. Nevertheless, there remains a lack of information concerning the effect of specific physical exercise programs on loneliness, particularly about those performed in groups.

**PURPOSE:** To compare loneliness between adults aged 50+ who are engaged in ballroom dancing classes and non-dancers who are also not involved in any regular exercise program.

**METHODS:** A cross sectional study encompassing 49 middle-aged and older adults ( $64.55 \pm 6.55$  yrs; 67.3% females) practitioners of ballroom dancing classes twice a week, for at least 1 year ( $N=25$ ;  $65.16 \pm 6.01$  yrs) and non-dancers (not involved in any exercise program for at least 1 year) [ $N=24$  ( $63.91 \pm 7.15$  yrs;  $p > 0.05$ )]. Self-report data on socio-demographics, loneliness [UCLA Loneliness Questionnaire (ULS-16)] and PA (International Physical Activity Questionnaire-SV) were collected via telephone interviews. Participants' loneliness score was dichotomized into social isolation ( $> 32$  score) and affinity ( $\leq 32$  score). Between groups comparisons were performed using chi-square, t-test and ANCOVA adjusted for sex, age, living alone and moderate to vigorous PA.

**RESULTS:** Ballroom dancers had higher moderate to vigorous PA compared to non-dancers ( $111.60 \pm 86.92$  vs  $27.50 \pm 99.66$  min/day, respectively;  $p=0.003$ ). After adjustments, ballroom dancers had a significant lower loneliness mean score compared to non-dancers ( $29.94 \pm 1.44$  vs  $35.93 \pm 1.55$  score, respectively;  $p=0.01$ ;  $\eta^2 = 0.149$ ).

**CONCLUSIONS:** Ballroom dancing seems to contribute to an increase in moderate to vigorous PA and satisfaction in human relationships. Thus, ballroom dancing might be a strategy to improve physical and psycho-emotional outcomes in adults aged 50+.