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RESEARCH QUESTION

In a cohort of 8-17-year-old brain tumor survivors studied at 6 months through 5 years after the completion of their therapy, will physical activity levels be associated with fatigue, excessive daytime sleepiness, and sleep disturbances?

BACKGROUND

- Survival rates are improving in children diagnosed with brain tumors and there is an increasing population with long-term health effects
- Symptoms experienced includes fatigue, daytime sleepiness, sleep disorders, and limitations in physical functioning
- A gap exists in the knowledge of the relationship between physical activity (PA) and common symptoms experienced by pediatric brain tumor survivors (PBTS)

METHODS

- **Study Design:** Descriptive, cross-sectional, correlational to address relationships between the PA and fatigue and sleep
- **Population:** children and adolescents ages 8-17 year, free of active or recurrent disease from tumor or cancer, and ≥ 6 months and ≤ 6 years from the completion of all treatment for a malignant or nonmalignant brain tumor.
- **Measures:** Godin Leisure Time Exercise Questionnaire (GLTEQ), PROMIS-Pediatric Fatigue Questionnaire, Epworth Sleepiness Scale for Children and Adolescents (ESS-CHAD), Polysomnography (PSG), Multiple Sleep Latency Test (MSLT)
- **Correlations:** Effect sizes were utilized, and Spearman's rho correlation coefficient was applied to convey the magnitude of relationships between variables (Figure 1)

Conclusion: Information on the relationship between physical activity and fatigue and sleep in young brain tumor survivors can aid healthcare providers, caregivers, and the patients in understanding the significance of incorporating physical activity into the long-term treatment plan. Comprehensive survivorship care for PBTS is necessary for an improved quality of life.

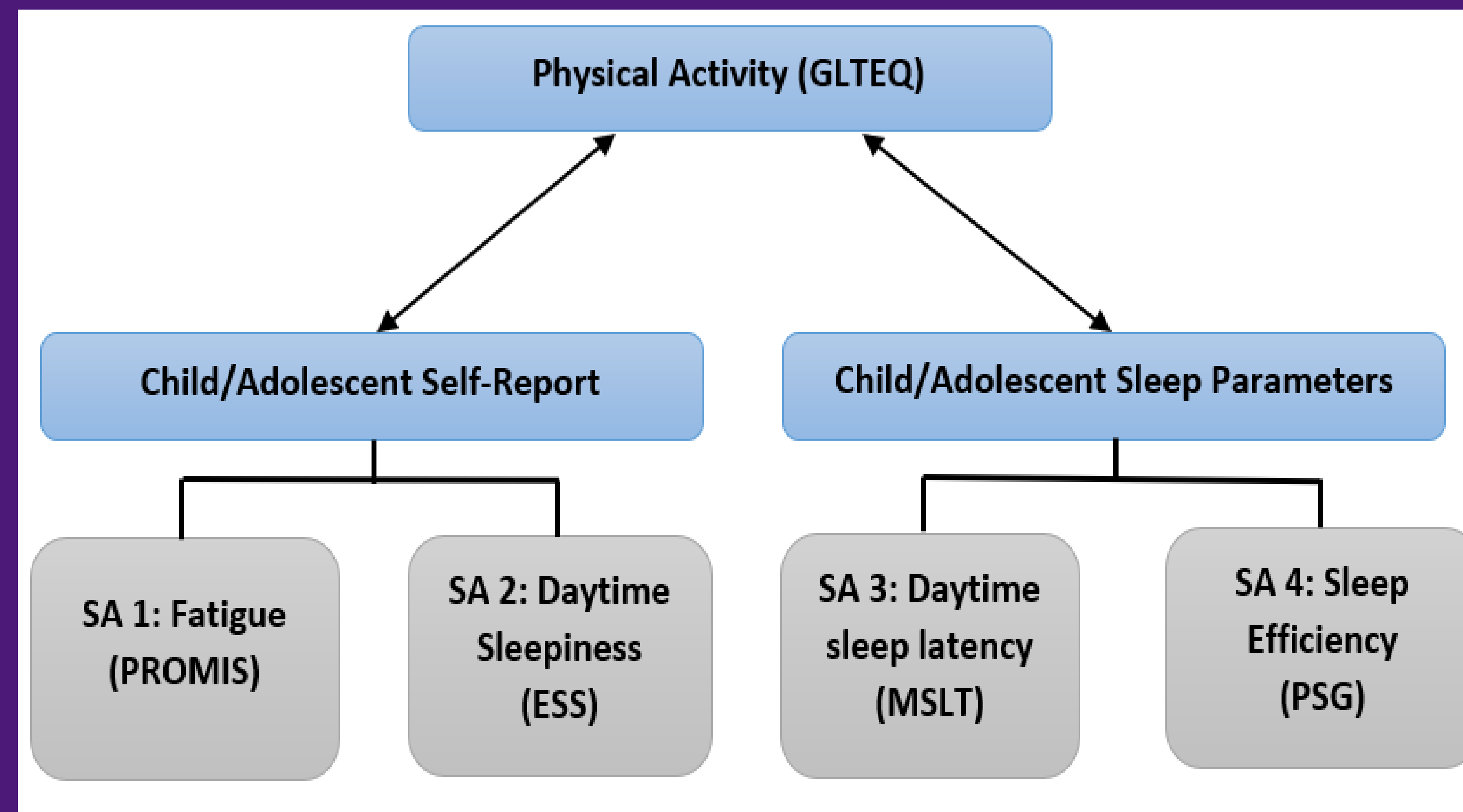


Figure 1: Correlation Design organized by Specific Aims

Each Specific Aim (SA) will use fatigue and sleep results to explore the relationship between physical activity levels



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RESULTS

- **Sample:** 8 participants, 5 males and 3 females, age range 11 to 17 years
- **PA:** All participants scored ≥ 24 on GLTEQ and are classified as active
- **Self-reported fatigue:** Sample mean approaches one standard deviation below mean fatigue score (50, SD 10); Less fatigue compared to a standard population
- **Self-reported sleepiness:** All participants reported daytime sleepiness < 10 on ESS; normal range
- **Objective Sleepiness:** 7/8 participants completed the MSLT; 5 were categorized as sleepy (71.4%)
- **Sleep:** PSG revealed sleep symptoms in 7/8 (87.5%) participants and 2/8 (25%) with decreased sleep efficiency
- **Correlations:** The study did not have statistically significant findings for the relationships between PA and fatigue, and sleep, nor did it show large effect sizes
- **Summary:** Findings revealed a sample with relatively lower levels of fatigue and engaged in appropriate levels of PA despite experiencing daytime sleepiness and a variety of sleep symptoms

FUTURE DIRECTIONS

- There are gaps in the literature on the benefits of PA and how fatigue and sleep may be impacted by PA engagement within the PBTS population
- We encourage future research to investigate the use of PA as an intervention to improve symptom outcomes in PBTS

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