

## Physical activities and emotional regulations of Senior High School Students

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**Abstract:** Adolescence is a critical stage of growth where participation in physical activities supports not only physical health, but also promotes mental, emotional, and social well-being. This study determined the level of physical activities and emotional regulations of senior high school students in the Division of Roxas City for the school year 2024-2025. The research design used in this study was descriptive-correlational. Researcher-made questionnaire was used to gather the needed data. There were 330 respondents who were randomly selected from the mega large schools. Perceived level of physical activity of the respondents in general and in terms of playing volleyball and involvement in recreational dances was high except for playing basketball which was average. Level of emotional regulations in general and in terms of emotional awareness, emotional control, and emotional expression was high. Significant difference in the respondents' perceived level of physical activity was found when grouped according to age, sex, and grade level in favor of the older age group, males, and grade 12 students. Significant difference in the respondents' level of emotional regulations when grouped according to age and grade level in favor of the older age group and Grade 12 students, while there was no significant difference in the respondents' level of emotional regulations when grouped according to sex. There was a significant relationship between physical activity and emotional regulations.

**Keywords:** Physical Activities, Emotional Regulations, Senior High School

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### INTRODUCTION

Adolescence is a critical period of development, marked by significant physical, emotional, and psychological changes. Physical activity plays a pivotal role in promoting not only physical health but also mental well-being among adolescents (Chaput et al., 2020). During this stage, teenagers experience a wide range of emotions, often with heightened intensity. Effective emotional regulation, the ability to identify, understand, and manage emotions, is crucial for healthy social and emotional development. It plays a vital role in academic performance, interpersonal relationships, and overall well-being. Physical activities play a crucial role in the holistic development of adolescents. For senior high school students, engaging in physical activities not only improves physical health but also supports emotional well-being. Emotional regulation refers to the processes by which individuals influence their emotions, how they experience them, and how they express them (Gross, 2015). For adolescents, effective emotional regulation is linked to better academic performance, lower levels of anxiety and depression, and healthier interpersonal relationships (Moriguchi et al., 2020).

Participation in regular physical activity has been associated with improved mood, reduced stress, and enhanced emotional control among adolescents (Lubans et al., 2016; Rodríguez-Ayllón et al., 2019). Physiologically, exercise stimulates the release of endorphins, often referred to as "feel-good" hormones, which can promote positive emotional states. Similarly, Smith and Jones (2021) suggest that physical activity also improves cognitive

functioning in adolescents, equipping them to manage emotional and environmental challenges more effectively. Despite these benefits, many adolescents fail to meet the recommended physical activity guidelines due to academic demands, increased screen time, and sedentary lifestyles (Jones, 2020).

Emotional regulation is a complex process that involves various strategies, such as cognitive reappraisal, emotional suppression, and expressive suppression (Gross, 2015). Adolescents are still developing these skills, and many struggles to effectively manage their emotions, leading to challenges such as anxiety, depression, and anger issues Senior high school students particularly, face unique stressors, including preparation for college, career decisions, and social integration. Understanding the relationship between physical activity and emotional regulation in this age group is crucial for addressing their specific needs. Emerging research suggests a significant relationship between physical activity and emotional regulation. Participation in regular physical activity has been associated with improved mood, reduced stress, and enhanced emotional control among adolescents (Lubans et al., 2016; Rodríguez-Ayllón et al., 2019).

The adolescent years represent a critical period of physical, emotional, and psychological development. During this formative stage, physical activity and emotional regulation capabilities emerge as significant determinants of overall well-being. Despite the growing body of evidence supporting the benefits of physical activity on emotional regulation, there remains a gap in understanding how these effects manifest specifically among senior high school students. Previous studies have predominantly focused on younger children or adults, leaving a need for targeted research on this age group (Donnelly et al., 2016).

This research stems from the researcher's observations as a physical education teacher who have witnessed firsthand the vital role that physical activities play in the overall development of students. Many students face challenges specially in regulating their emotions, which can affect their academic performance and social relationships. The researcher has observed how participation in physical activities not only improves their physical fitness but also influence their emotional well-being. This study aimed to fill the gap by examining the correlation between physical activities and emotional regulation among senior high school students. The findings of this study would highlight the potential of physical activity as an effective strategy for enhancing emotional regulation skills in adolescents and would provide insights for educators, parents, and policymakers to develop targeted interventions and programs that support and promote physical and emotional well-being. Ultimately, this research would contribute to the growing body of knowledge on adolescent development, offer practical strategies to support holistic well-being, and fostera more balanced and resilient student community.

### *Problem statement*

This study aimed to determine the physical activities and emotional regulations of senior high school students in the Division of Roxas City for School Year 2024-2025.

Specifically, this study aimed to answer the following questions:

1. What is the perceived level of physical activity of senior high school students in general and in terms of playing basketball, volleyball and involvement in recreational dances?
2. What is the level of emotional regulation of senior high school students in general and in terms of emotional awareness, emotional expression, and emotional control?

3. Is there a significant difference in the perceived level of physical activities of senior high school students when they are grouped according to age, sex and grade level?

4. Is there a significant difference in the level of emotional regulations of senior high school students when they are grouped according to age, sex and grade level?

5. Is there a significant relationship between physical activities and emotional regulations of the senior high school students in the Division of Roxas City?

### *Theoretical framework*

This study was anchored on The Self-Determination Theory (SDT) by Deci and Ryan (1985), Gross's Process Model of Emotion Regulation (1998, 2015), The Physical Activity and Mental Health Model by Lubans et al. (2016), and Bandura's Social Cognitive Theory (SCT) (1986). These theories provided a lens to understand the interplay between physical engagement in sports and recreational activities and students' ability to manage and regulate their emotions effectively.

The Self-Determination Theory (SDT) by Deci and Ryan (1985) served as the primary framework, emphasizing the role of motivation in shaping behavior. SDT posits that individuals are more likely to engage in activities when three basic psychological needs—autonomy, competence, and relatedness—are fulfilled. Autonomy refers to having the freedom to choose and control one's actions, competence is the sense of mastery or effectiveness in a task, and relatedness involves forming meaningful connections with others. For senior high school students, participating in sports or recreational activities satisfies these needs. For instance, students who feel skilled at basketball (competence), choose to participate willingly (autonomy), and build friendships through teamwork (relatedness) are more likely to sustain their engagement. Beyond participation, fulfilling these needs has been shown to enhance emotional well-being and regulation, enabling students to navigate stress, frustration, and interpersonal conflicts with greater ease.

Building on SDT, Gross's Process Model of Emotion Regulation (1998, 2015) provided a detailed understanding of how students regulate their emotions during physical activities. This model identifies five key stages of emotional regulation: situation selection, situation modification, attention deployment, cognitive change, and response modulation. Each stage represents a step in managing emotions, from proactively choosing emotionally supportive situations to consciously controlling emotional responses. For example, students participating in recreational dances may use the activity to select situations that elicit positive emotions, such as joy and camaraderie. Similarly, playing volleyball may allow them to redirect attention from stressors, focusing instead on the game's dynamics. The discipline required in structured physical activities aids in response modulation, equipping students with tools to regulate emotions such as frustration after losing a match or excitement during competitive moments.

The Physical Activity and Mental Health Model by Lubans et al. (2016) complemented this framework by explaining how physical activities impact mental health through physiological, psychosocial, and behavioral pathways. Physiologically, engaging in exercise promotes the release of endorphins, which elevate mood and reduce stress. Psychosocially, team sports and group dances foster a sense of belonging, enhance social skills, and provide emotional support, all of which contribute to emotional regulation. Behaviorally, the routines established through regular physical activity promote discipline and consistency, traits that are integral to effective emotional control. For instance, students who consistently participate in basketball or

dance may develop a structured approach to managing their emotions, aligning their physical routines with emotional stability.

Furthermore, Bandura's Social Cognitive Theory (SCT) (1986) highlighted the dynamic interplay between personal factors, environmental influences, and behavior. SCT emphasizes the role of observational learning and self-efficacy in shaping both physical activity participation and emotional regulation. Students observe and emulate peers or role models, learning both physical skills and emotional strategies. For example, seeing a teammate handle frustration constructively during a volleyball game may inspire students to adopt similar approaches. Self-efficacy, or the belief in one's ability to succeed, is another critical factor. Adolescents with higher self-efficacy are more likely to persist in physical activities and manage emotional challenges effectively. SCT also underscores how demographic factors such as age, sex, and grade level influence these behaviors. Younger students may rely more on peer modeling, while older students develop more autonomous strategies. Gender norms may also play a role, with societal expectations influencing participation in certain activities, such as girls gravitating toward recreational dance and boys toward competitive sports like basketball.

Together, these theories provided a comprehensive lens in examining the core variables of the study. Physical activities are hypothesized to significantly influence emotional regulation by enhancing emotional awareness, expression, and control through motivational, cognitive, and social mechanisms. Additionally, demographic factors such as age, sex, and grade level may moderate these relationships, leading to variations in how physical activities impact emotional regulation across different student groups. This theoretical framework formed the basis for the inquiry of this study, offering insights into the complex interaction between physical engagement and emotional well-being. It not only guided the exploration of the research questions but also established a foundation for analyzing the pathways through which physical activities influence emotional regulation among senior high school students.

## METHODOLOGY

The descriptive-correlational method of research was utilized to determine the perceived physical activities and emotional regulations of the senior high school students in the Division of Roxas City for the school year 2024-2025.

The respondents of this study were the 330 senior high school students from DepEd Roxas City Division from mega large school category from a total population of 1, 896 senior high school students that were randomly selected from two (2) grade levels, the grade 11 and grade 12 respectively.

The independent variable of the study was the socio-demographic profile, consisted of age, sex, and grade level of the student respondents. The dependent variables were the physical activities in terms of playing basketball, volleyball and involvement in recreational dances and emotional regulations in terms of emotional awareness, emotional control, and emotional expression.

Quantitative data were collected with the use of a researcher-made questionnaire with a rating scale. Data gathered were processed with the use of Statistical Packages for Social Sciences (SPSS). Analysis of data was done using the frequency, percentage, mean, t-test for independent sample, F-test or Analysis of Variance (ANOVA), and Pearson -r. Significance level was set at 0.05 alpha level.

*Perceived physical activities of Senior High School students*

The grand mean score on their perceived level of physical activity in general was 3.50. Result further implied that the respondents had a “High” level of physical activity. In terms of playing basketball, the mean score was 3.26 interpreted as “Average” while the mean score of 3.44 interpreted as “High” was in terms of playing volleyball. However, the highest mean score of 3.79 was in terms of involvement in recreational dances which was verbally interpreted as “High”.

The result of the overall mean score of 3.50 implied that the respondents engage in physical activities frequently and with significant intensity or duration. Such a high level of physical activity may have various implications for health, potentially reducing the risk of non-communicable diseases like cardiovascular issues, type 2 diabetes, and certain cancers. It also implies enhanced mental well-being and a better overall quality of life for the senior high school students. Additionally, these findings could influence public health strategies and policies by suggesting the success of current initiatives aimed at promoting physical activity or reflecting an established culture of active living in senior high school students. Nonetheless, further investigation that considers demographic variables and the specific types of physical activities undertaken would offer a deeper insight into these results.

The result of this study is closely related to the study of Dai and Menhas (2020) which established a direct relationship between physical activity and improved mental health. Similarly, Felipe et al. (2020) and Sang et al. (2021) discussed its positive effects on health behaviors, psychological resilience, mental health, and overall quality of life.

Nowacka-Chmielewska et al. (2022) also noted that engaging in regular physical activity benefits brain function, impacting both mood and cognitive abilities. The result agrees with these studies. In addition, study by Feller et al. (2021) and Barrera et al. (2022) underscored the importance of home-based exercise in combating age-related muscle degeneration, while Guo et al. (Herbert, 2022) identified an inverse relationship between diabetes rates and higher levels of physical activity.

Moreover, Saqib et al. (2020) acknowledged the vital role of physical activity in preventing chronic diseases, with additional evidence from Duncan et al. (2020), Sang et al. (2021), and Wei and Liu (2023) demonstrating its beneficial effect on mental wellness and overall health. Marashi et al. (2021) also highlighted the significant impact of regular physical activity on psychological resilience and mental health. Regarding academic performance, Mullender-Wijnsma et al. (2015) and Ma et al. (2014) discovered that incorporating active tasks and breaks leads to improved academic results in children, a finding supported by Donnelly et al. (2017), who linked physical activity to enhanced cognitive abilities. Research by Beck et al. (2016), Howie et al. (2015), and Phillips et al. (2015) suggested that exercises of higher intensity and longer duration, as well as development of gross motor skills, provide greater academic benefits.

Additionally, Bunketorp et al., 2015 established that programs integrating active breaks are beneficial for children's well-being and behavior. The research indicated that these breaks not only provide a necessary respite from academic tasks but also promote physical activity, which is crucial for overall health. The findings suggest that such programs can lead to improved focus, better mood, and enhanced social interactions among children.

Supporting this notion, Fedewa et al. (2015) conducted complementary research that highlights the strong link between physical activity and academic performance. Their findings suggest that students who engage in regular physical activity tend to perform better academically, as they are more alert and ready to learn.

Lastly, Resaland et al. (2015) reinforced this connection by exploring how structured physical activities during school hours can lead to improved cognitive functions and academic outcomes. Their studies showed that when children have the opportunity to participate in active breaks, they experience a boost in concentration and overall engagement in their studies.

#### *Emotional regulations of Senior High School students*

The grand mean score on their level of emotional regulations in general was 3.82. Result further implied that the respondents had a “High” level of emotional regulation. The highest mean score of 3.94 was in terms of emotional awareness, verbally interpreted as “High”. In terms of emotional control with mean score of 3.82 and emotional expression with mean score of 3.69 showed “High” verbal interpretation.

The result implies that, generally, the group has a strong ability to comprehend and manage their emotions as well as effectively respond to the emotional states of others. Such a significant level of emotional regulation within this group could lead to positive effects in various areas of life, including relationships, academic or career achievements, and overall mental health. It also suggests a potential for resilience when dealing with stress and a capacity to handle emotional difficulties in a constructive manner.

Gross's (2015) model of emotion regulation offers a fundamental perspective on the different strategies people utilize. Research by Dixon-Gordon et al. (2015) emphasizes the adaptable use of various strategies in practical situations. Neuroimaging research (Ligeza et al., 2016) reveals the brain mechanisms behind effective strategies such as cognitive reappraisal. Additionally, Tamir (2016) highlights that emotion regulation is often directed toward specific goals. Several studies, including those by Strain and D'Mello (2015) indicate the advantages of cognitive reappraisal over suppression.

Research involving adult populations (Dey & Bhau, 2023) frequently associates better emotional regulation with increased well-being, supporting the potentially positive implications of the current results. Perspectives from theoretical and biological viewpoints (Delhom et al., 2021) offer deeper understanding of the mechanisms behind emotional regulation.

More recently, Husain et al. (2022) created and validated an Emotional Intelligence Scale, which recognized emotional expression as a key aspect of overall emotional intelligence, further underlining its importance. Nozaki (2018) explored the cultural aspects influencing the relationship between emotional intelligence and emotion regulation strategies, such as expressive suppression, suggesting that cultural context can affect how emotions are managed. The research of McRae and Gross (2019) consistently highlights how individuals actively attempt to influence their emotions, addressing both internal feelings and external expressions. Collectively, these studies underscore the importance of understanding and managing emotional expression as a fundamental part of emotion regulation, which affects well-being and interpersonal relationships in various situations.

#### *Difference in the perceived physical activities of Senior High School students when grouped according to their profile*

The study revealed statistically significant differences in perceived physical activity levels among senior high school students when grouped according to their age, sex, and grade level.

In terms of age, the analysis ( $F = 4.914$ ,  $p = 0.008$ ) confirmed that physical activity levels vary notably across age groups. This suggests that as students grow older, changes in lifestyle, health, or social responsibilities may influence their activity levels. This finding aligns with global research (Dumith et al., 2015; Guthold et al., 2018; Strain et al., 2020) that reports a general decline in physical activity with increasing age, particularly from midlife onward. Studies by Tucker et al. (2017) and Hamer & Chastin (2015) further support this by linking age to patterns of sedentary behavior and health outcomes.

Regarding sex, a significant difference was also found ( $t = 3.413$ ,  $p = 0.001$ ), indicating that male students reported higher physical activity levels than their female counterparts. This disparity may stem from sociocultural norms, personal motivation, or access to physical activity resources. International studies (Choi et al., 2019; Luo et al., 2021; Celestino-Navarro et al., 2021) have similarly observed that males tend to be more physically active than females across diverse contexts, with motivational and psychological differences playing a role (Martinez-Gomez et al., 2023; da Silva et al., 2016).

When grouped by grade level, results showed another significant difference ( $t = -2.780$ ,  $p = 0.006$ ), suggesting that as students progress through school, their participation in physical activities may decrease. This trend is consistent with reports from Forseth (2024) and the WHO (2024), which show declining physical activity among adolescents, especially in higher grades. Factors contributing to this decline include increasing academic demands, reduced motivation, and limited access to physical activity environments (Dos Santos et al., 2022; Sun et al., 2023).

#### *Difference in the emotional regulations of Senior High School students*

The study found significant differences in the emotional regulation levels of senior high school students when grouped according to age and grade level, but no significant difference was observed based on sex.

In terms of age, statistical analysis revealed a significant variation ( $F = 3.748$ ,  $p = 0.025$ ), suggesting that students' ability to regulate emotions differs across age groups. This implies that developmental stages and life experiences influence emotional regulation. Supporting literature, such as Gross (2015) and Doerwald et al. (2016), confirms that age affects emotional strategies, with older individuals often preferring less cognitively demanding methods like distraction. Other studies (Scheibe et al., 2015; Eldesouky & English, 2018) highlighted how regulatory preferences, frequency of stressors, and neurological changes evolve with age, reinforcing that emotional regulation is dynamic throughout life.

On the other hand, sex was not a significant factor in emotional regulation ( $t = -1.232$ ,  $p = 0.219$ ), suggesting that male and female students in this sample manage emotions similarly. While some studies (e.g., Verma & Shukla, 2023; Mink et al., 2023) have observed sex-related variations in emotional regulation strategies—especially under stress or in specific contexts—this study found no broad difference between genders. The mixed findings in the literature point to the complexity of emotional regulation and suggest that its relationship with sex may depend on contextual, cultural, and psychological variables.

Lastly, emotional regulation varied significantly by grade level ( $t = -2.133$ ,  $p = 0.034$ ), implying that students' regulatory abilities may evolve as they advance in school. This could be influenced by increasing academic pressure, evolving peer relationships, or differing levels of institutional support. Studies such as Zafar et al. (2023) and Stellern et al. (2022) emphasized the

role of school environment, teacher support, and peer interactions in shaping emotional competence. Moreover, effective emotional regulation has been linked to better academic performance and well-being, as seen in the findings of Nadeem et al. (2023), though some contradictions (e.g., Hafiz, 2015) suggest the need for context-specific analyses.

#### *Relationship between physical activities and emotional regulations of Senior High School Students*

There was a marked or substantial relationship between respondents' level of physical activity and their level of emotional regulations because the Pearson-r value was 0.556. This relationship was significant because the p-value of 0.000 was less than 0.05 alpha. The result implies that respondents' level of physical activity influenced their level of emotional regulations.

The results further indicate a significant positive correlation between the respondents' physical activity levels and their emotional regulation abilities, with a Pearson correlation coefficient ( $r$ ) of 0.556. This implies that as individuals increase their physical activity, they tend to enhance their capacity to manage and respond to emotions in a healthy and adaptive way. Additionally, the strong statistical significance of this correlation is underscored by a p-value of 0.000, which is well below the conventional alpha threshold of 0.05. This highly significant p-value supports the rejection of the null hypothesis, suggesting that a genuine relationship exists between the two variables in the population examined. Therefore, these findings imply that the amount of physical activity undertaken by the respondents significantly impacts their emotional regulation levels. This indicates that encouraging physical activity could be an effective approach to improving individuals' emotional well-being and their ability to handle emotional experiences.

Martinez (2024) highlighted the importance of physical activity for adolescents in managing their emotions and improving mental health, as it enhances emotional regulation and alleviates negative emotions. A systematic review published in *Frontiers in Psychology* (2025) examined how various types of exercise influence the moods of young people, finding that moderate-intensity exercise is particularly effective. Similarly, Mu et al. (2024) discovered that physical exercise is a positive predictor of emotional regulation in college students, with self-efficacy serving as a mediating factor. In contrast, a study by Multidisciplinary Digital Publishing Institute (MDPI, 2024) involving Jordanian university students did not establish a direct connection between levels of physical activity and emotional regulation, but still reported reduced rates of depression and anxiety among those who were highly active. Research in *PubMed Central* (2024) also found that physical activity decreases anxiety in college students, with cognitive reappraisal acting as a mediator. A meta-analysis, also in *PubMed Central* (2024), confirmed that physical exercise significantly reduces negative emotions in adolescents, especially depression. Furthermore, a study in *Tandfonline* (2024) showed that moderate-intensity physical activity improves social cognitive abilities in adolescents, with emotional regulation as a crucial mediating factor. Additional research from MDPI (2024) and *ResearchGate* (2024) also points to the positive effects of physical activity on emotional well-being, though some contexts still require clarification regarding the direct link to emotional regulation. Ozyurek et al. (2015) examined this relationship in young children, while Hills et al. (2015) emphasized the benefits of physical activity on the emotional states of adolescents and their subsequent social cognitive performance. Additionally, Loprinzi et al. (2015) noted that cognitive benefits may vary by gender. Together, these studies contribute to a growing body of evidence indicating that engaging in physical activity positively correlates with improved emotional regulation and overall mental health across various age groups and populations.

## CONCLUSIONS

The findings of this study lead to several important conclusions regarding the perceived physical activity and emotional regulation of senior high school students. First, students demonstrated a high level of physical activity, with a grand mean score of 3.50, suggesting that they engage in physical activities frequently and with sufficient intensity or duration. Among the specific activities, recreational dancing received the highest mean score (3.79), followed by volleyball (3.44), both interpreted as high, while basketball received an average score of 3.26. This overall high engagement in physical activity indicates positive implications for students' physical health, mental well-being, and academic performance, supporting the idea that active living is prevalent among senior high school students and beneficial across multiple domains.

In terms of emotional regulation, students also exhibited high levels, with a grand mean of 3.82. The highest rating was in emotional awareness (3.94), followed by emotional control (3.82) and emotional expression (3.69). These results suggest that students possess a strong capacity to understand, manage, and express their emotions effectively. Such emotional competence plays a crucial role in maintaining healthy relationships, achieving academic or career success, and fostering mental resilience. This ability to regulate emotions indicates a readiness among students to handle stress constructively and navigate social and academic challenges with maturity.

Significant differences in perceived physical activity were observed based on age, sex, and grade level. Older students and those in higher grade levels reported lower activity levels, while male students showed significantly higher activity participation than their female counterparts. These findings align with broader research showing that lifestyle shifts, academic demands, and social influences contribute to reduced physical activity in older or higher-grade students and gender disparities in activity preferences and opportunities. Therefore, interventions promoting inclusive and sustained physical activity are necessary to support all demographic groups.

Similarly, differences in emotional regulation emerged based on age and grade level, but not by sex. Emotional regulation tended to improve with age and school experience, likely due to developmental and cognitive maturity. However, both male and female students reported comparable emotional regulation abilities, suggesting that gender does not significantly influence how students manage their emotions in this context. These findings reflect the need for grade-specific and developmentally appropriate strategies to strengthen emotional skills among students.

Finally, a significant positive relationship was found between physical activity and emotional regulation, with a Pearson correlation coefficient of 0.556 and a p-value of 0.000, indicating a moderate but meaningful connection. This suggests that students who are more physically active tend to exhibit better emotional regulation. The implication is that promoting physical activity in school settings can not only enhance physical health but also improve students' emotional well-being and their ability to manage stress, adapt to challenges, and maintain positive mental health. Overall, the study highlights the importance of fostering both physical and emotional development through integrated and supportive programs within the educational system.

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