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Research Article

The Relationships between Emotional Intelligence and Physical Activity Related to Gender among Undergraduates in the Colombo District

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ABSTRACT

Background: Emotions are dynamic aspects of human nature and serve as inspiration for behavior. Higher emotional intelligence (EI) is associated with greater resilience and lower levels of depression. Certain situations can increase physical activity (PA) among young people. This study examined gender differences in EI and PA among undergraduates at State Universities in Colombo District. **Objective:** To assess how emotional intelligence and physical activity differ between genders in this population. **Methods:** A descriptive, quantitative, correlational study was conducted with 397 undergraduates who completed the Wong and Low EI questionnaire and the International Physical Activity Questionnaire (IPAQ). Data analysis was performed using the Mann-Whitney U test. **Results:** Participants were from State Universities in Colombo District, mainly exhibiting moderate to low PA levels. Males showed significantly higher EI than females ($z = -3.829$, $p = .001$), while there was no significant difference in PA between genders ($z = -.938$, $p = .348$). **Conclusion:** Males demonstrate higher EI than females, but physical activity levels do not significantly differ by gender. Most participants had low to moderate PA levels, which can inform strategies for preventing non-communicable diseases among youth.

Keywords: emotion, emotional intelligence, psychological, physical activity, state university, youth

1. Introduction

Physical activity plays a vital role in preventing and managing the growing prevalence of noncommunicable diseases, which are among the leading causes of death worldwide, particularly in developing regions like Asia. Additionally, physical activity is linked to emotional well-being, especially in young people [1]. Emotional health can be measured by emotional intelligence (EI), defined as the ability to understand and regulate one's own emotions [2]. This includes recognizing, understanding, and expressing emotions, generating feelings that

support thinking, comprehending emotional knowledge, and controlling emotions to promote both emotional and intellectual growth [3].

Emotional Intelligence (EI) is closely linked to emotional knowledge that fosters evaluation, perception, expression, understanding, and both emotional and intellectual development [4]. Recently, many tests have been developed claiming to measure EI [5]. While some of these tests show promise, many are still based on empirical judgments. Individuals with high emotional intelligence tend to connect easily with others, making them want to spend time with them, and they understand their own emotions as well as those of others. This emotional awareness can help improve relationships, build stronger bonds, advance careers, and lead more fulfilling lives. EI has become a popular research topic across various fields, including physical activity. Higher EI, which leads to greater resilience and lower depression levels, can increase physical activity (PA) among young people.

According to the World Health Organization (WHO), PA means any bodily movement produced by skeletal muscles that requires energy expenditure. It refers to all movement, including during leisure time, for transport to get to and from places, or as part of a person's work. Both vigorous and moderate PA improve health [6]. Physical activity has become the most important health indicator because it is so important for improving fitness and health-related behavior, which can lower the chance of getting morbidity and mortality from noncommunicable disease [7].

Physical activity encompasses various ways to move your body, including exercise, sports, and daily activities. Numerous studies highlight its importance for overall health and well-being. For example, a meta-analysis by Rebar et. al. [8] found that regular physical activity is linked to better mental health and fewer symptoms of depression and anxiety. Warburton et. al. [9] also noted that physical activity can help prevent chronic conditions such as cardiovascular disease and diabetes, while enhancing quality of life. Additionally, Biddle and Asare [10]. Demonstrated that physical activity is positively associated with higher self-esteem and greater life satisfaction across diverse populations. Regular physical activity offers many health benefits, including improved heart health, weight management, enhanced mood and mental health, and a reduction in the risk of chronic diseases like diabetes and certain cancers [1].

PA has numerous positive effects on both physical and mental health. Regular physical activity helps protect against heart disease, certain cancers, diabetes, high blood pressure, and other non-communicable diseases. It also supports weight management and significantly contributes to daily energy expenditure [1]. Engaging in daily PA is one of the most effective ways to enhance overall health. Due to its vital role in boosting fitness and promoting health-related behaviors, physical activity has become a key health indicator, as it can reduce the risk of morbidity and mortality from various diseases [11].

This research aims to fill the gap in studies on physical activity (PA) and gender variance. Currently, Sri Lanka faces multiple crises—such as the Easter attack, COVID-19 pandemic, and economic downturn—that leave students often tense and exhausted. The ongoing crisis has further restricted every aspect of undergraduate life. This study provides an initial measure to understand how PA differs among undergraduates, making it a timely effort. Globally, research has explored the relationship between PA and emotional intelligence, considering cultural and educational influences. However, in Sri Lanka, there is a notable lack of research on the differences in PA between genders. Thus, this study intends to examine the gender-based variance in PA among undergraduates at Colombo District State University.

Emotional intelligence (EI) is the ability to recognize, understand, and manage emotions effectively to reduce stress, connect with others, overcome challenges, and resolve conflicts. Despite its importance, there has been little research on EI specifically related to student life. Historically, EI studies have mainly focused on how people perceive, understand, express, manage, and utilize their own and others' feelings. EI is defined as "the capacity to see and express emotion, adapt feelings into ideas, understand and influence feelings, and regulate emotions in oneself and others" [12].

The increasing demand for psychology undergraduate and postgraduate programs, along with related professions and government policies, is evident in the growth of the discipline in Sri Lanka. Consequently, this research aims to address the gap in studies concerning Emotional Intelligence (EI) and gender differences. Such research can serve as an initial assessment of how EI varies among undergraduates. This makes the study particularly timely. While similar research has been conducted in countries like Taiwan, China, Spain, and India, there is a notable lack of studies on gender differences in EI in Sri Lanka. A better understanding and management of one's own emotions and those of others are crucial for building a more moral and cohesive society. Therefore, this study intends to explore the differences in EI between genders among undergraduates at Colombo District State Universities. Additionally, considering issues related to physical activity and EI, the study also aims to examine the relationship between gender, EI, and physical activity levels in these undergraduates.

2. Methods

This cross-sectional study involved a single phase of data collection conducted within a positivistic framework. Using a deductive approach, it was structured as a descriptive quantitative correlation study. The main goal was to explore the relationship between two variables, leading to the adoption of a correlational research design. Data were collected through the physical administration of a scale, focusing on undergraduate students from state universities in the Colombo district. This sampling method was practical given resource and time limitations. The Yamane formula was used to calculate an appropriate sample size of 397 undergraduates.

2.1 Participants

This study was conducted in accordance with the guidelines outlined in the Declaration of Helsinki. All procedures involving research study participants received approval from the Kaatsu International University Ethical Committee, No. KIU/ERC/22/151-2023. All participants provided informed consent with full awareness of the study's nature and objectives. Prior to inclusion, subjects gave signed informed consent, and both written and verbal consent were obtained from all participants. Verbal consent was documented in a statement sheet following explanation and witnessed accordingly. Throughout the study, no fees were charged to the research subjects for any interviews.

This research was conducted within the state universities of the Colombo district, namely The University of Colombo, The University of Sri Jayewardenepura, The University of Moratuwa, The University of Visual and Performing Arts, and The Open University of Sri Lanka. The target population comprised all undergraduates from these institutions. A convenience sampling method was employed to select the sample from the study population. This sampling approach was advantageous given the constraints of limited resources and time, resulting in a sample size of 397 undergraduates.

2.2 Data Collection Tools

Data were gathered using a survey method with a standardized questionnaire. Physical Activity (PA) was evaluated through the 2022 International Physical Activity Questionnaire (Long Form) (see Annex A). This questionnaire includes five main categories: Job-related PA, Transportation PA, Housework/House Maintenance and Family Care, Recreation/Sports/Leisure-time PA, and Sedentary Behavior (Time Spent Sitting). It measures PA based on the time spent on moderate and vigorous activities. The scoring system converts self-reported days and average activity duration into total weekly minutes per domain by multiplying days by average time. Additionally, MET-minutes are calculated by assigning weights based on energy expenditure in METs, which relate to resting metabolic rate. A MET-minute results from multiplying the MET score by activity duration in minutes. Finally, the questionnaire totals the weekly MET-minutes expended [13].

Data collection was carried out through a survey using a standardized questionnaire. Emotional Intelligence (EI) was measured with Wong and Law's Emotional Intelligence Scale (WLEIS) (see Annex C). Based on the ability model of EI, the WLEIS contains sixteen items that assess four areas: the appraisal and expression of one's own emotions, the recognition of emotions in others, the regulation of personal emotions, and the use of emotion to improve performance. Participants rated each item on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). The researcher also used a demographic questionnaire to collect participants' gender information.

2.3 Data Analysis Method

The data analysis was performed using IBM SPSS software. A descriptive correlational study was conducted to explore the relationships among variables. The Mann-Whitney U test was applied for the analysis, with all statistical procedures conducted at a significance level of 0.05. Specifically, the Mann-Whitney U test assessed gender differences in Emotional Intelligence (EI).

3. Results

This study surveyed undergraduates at Colombo District State University, enrolled from 2018 to 2022, to explore gender differences in physical activity and emotional intelligence. Its goal is to assess variations in emotional intelligence and physical activity levels among students at Colombo District State Universities. The population included currently enrolled undergraduates at state universities in the Colombo district. For the study, a sample of 397 participants was selected, with demographic details provided below.

The 397 participants of the study were undergraduates from State Universities located in the Colombo District. Universities that were considered in this study are as follows; the University of Sri Jayewardenepura which amounted to a majority of 106 or 26.5%, the University of Visual and Performing Arts which amounted

to 95 or 23.8%, the University of Moratuwa which amounted to 78 or 19.5%, Open University which amounted to 71 or 12.5% and lastly the University of Colombo with 50 or 12.5% of the total number of participants.

The participants of the study can be mainly categorized into three groups as "Sinhala", "Tamil", and "Muslims" based on their ethnicity. As depicted in the above table, the sample consisted of 332 Sinhala participants, which amounts to 83.0% of the entire sample size, 42 Tamil participants, which amounts to 10.5% of the sample size, and 26 Muslim participants, which ultimately amounts to 6.5% of the sample size.

The gender of the sample and, accordingly, the participants can be divided into two categories: "Female" and "Male". As explained in the above table, a majority of the sample consists of females, which amounts to 254 (63.5%), while the remaining 146 (36.5%) are males. The age of the sample, and accordingly, the ages of the sample can be divided into two groups as 19-24 and 25-30. As per the findings, 257 or 64.3% of the sample consists of participants aged between 19 and 24, while the remaining 143, or 35.8% consists of participants aged between 25 and 30. Regarding the marital status of the sample, 49 (12.3%) are already married, while 350 (87.5%), which is a majority of the sample, are single or unmarried.

Firstly, it was crucial to determine if this test could be regarded as a normal distribution. In order to do that, the "Test of Normality" was performed. According to the test results, the rate of significance amounted to 0.00, and as the rate of significance is less than 0.05, this test result will not be identified as a normal distribution. Hence, it is defined as "non-normal".

A Mann-Whitney U test was performed to evaluate the relationship between gender and emotional Intelligence. The rate of significance is 0.00, and as it is less than 0.05, the test result is statistically significant in relation to gender. The hypothesis was accepted, and the null hypothesis was rejected. Accordingly, the mean rank for females of 254 was 183.74, while the mean rank for males of 146 was 229.65. The test results indicate that males had significantly greater emotional intelligence than females ($z = -3.829$, $p=000$).

Figure 2 shows the physical activity levels among undergraduates at a state university in the Colombo district. Of 400 participants, 27 students (6.8%) have a high level of physical activity. A total of 184 students (46%) display a moderate level, while 189 students (47.3%) are classified as having low physical activity levels.

Initially, it was necessary to determine whether this test followed a normal distribution. To do so, a "Test of Normality" was performed. The results showed a significance level of 0.00. Because this value is below 0.05, the test indicates that the data do not follow a normal distribution. Consequently, it is classified as "non-normal."

A Mann-Whitney U test was performed to evaluate the relationship between gender and physical activity. The rate of significance is 0.348, and as it is greater than 0.05, the test result is not statistically significant in relation to gender. The null hypothesis was accepted, and the null hypothesis was rejected. Accordingly, the mean rank for 254 females was 196.40 while the mean rank for 146 males was 207.64. The test results indicate that there is no significant difference between males and females as the rate of significance is 0.348 ($z=-.938$, $p=.348$).

4. Discussion

The aim of this study was to examine the differences between genders in emotional intelligence (EI) and physical activity levels among undergraduates in Colombo District State Universities. The study also aimed to explore the variance in physical activity (PA) between genders among undergraduates at Colombo District State Universities. The researcher used the Mann-Whitney U test to determine the outcomes. The findings indicate that there is no difference between gender and the amount of PA engaged in. However, the test results showed that males had significantly higher emotional intelligence than females among the undergraduates of Colombo District State Universities. The existing literature also shows that there is no difference between gender and PA.

Further, to strengthen the findings of this research, findings of the research conducted by Jiang & Luo can be used [14]. Jiang & Luo's test was attended by 1512 Chinese university students, 1108 of whom were males and 404 of whom were females. According to the study, it has found that there was no gender difference in vigorous, moderate, or walking minutes per week. In line with the previous study, another study also found that there was no significant difference in the demographic characteristics of the individuals with physical activity [15]. The findings of the current study provide further support for the claims that there is no variance between Gender and PA.

Another study has been conducted on fifty-five (55) young adults to look into the link between PA and Gender. The International Physical Activity Questionnaire-short form was administered to the sample. According to the test results, there was no significant difference in the demographic characteristics of the individuals with physical activity [15].

In another review that looked into the link between gender and PA, based on sixty-four (64) countries in the Global South, the prevalence was 6.7 percent. Cross-sectional data from the global school-based student health survey were collected among 13- to 17 17-year-old adolescents in Global South nations between 2010 and 2020. A self-administered questionnaire was used to determine the number of days in the previous week when participants were physically active for at least 60 minutes. As a result of this study, the research has found that girls are overall less active than boys across the globe (Ricardo & Wendt, 2022).

The test results indicate a difference between gender and emotional intelligence (EI). Specifically, males demonstrated significantly higher EI than females among undergraduates at Colombo District State University. Additionally, existing literature confirms that a gender variance in EI is commonly observed.

Further, to strengthen the findings of the research, A total of 160 people participated in the study that analyzed the relationship between gender and EI. The participants were divided into two groups: 80 men and 80 women. According to the findings of the research, it was shown that women do not necessarily have a higher level of emotional intelligence than men do. Additionally, it was discovered that men are better equipped to deal with stress than women. This indicates that men possess higher levels of emotional intelligence than women do [17].

Another study that looked into the relationship between gender and EI used a survey research design, and the study's group consisted of all students enrolled in BS (Hons.) programs at the University of Malakand. The findings of the study revealed that male students were more emotionally intelligent than female students. Male students were also smarter than girls in terms of emotional self-regulation and emotional self-awareness, whereas there was no significant difference in the interpersonal subscale [18]. Another study looked at EI among first-year medical students in India, which included 150 students. There were 89 girls and 61 boys among the 150 students. Self-awareness and social skills were shown to be the strengths of girls, whilst self-awareness and empathy were found to be the strengths of boys.

Fernandez-Berrocal et al. conducted a review in which they examined gender differences in EI while controlling for age [19]. The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) was administered to 559 participants. This study concludes that men and women have significant differences. Young males appeared to have higher EI amounts than young women. Furthermore, past research focused on the occurrence of gender variations in students' EI. Some research identified substantial variations in the EI of male and female college students [20]. While others did not [21]. However, some research has found that women had much higher levels of EI than men(Davis & Humphrey [22]. Furthermore, the findings of the aforementioned studies lend support to the contention that there is a difference between gender and EI.

This study has several limitations that should be acknowledged. These include a potential gender imbalance in the sample, response bias, incomplete questionnaire data, a cross-sectional design, limited generalizability, and social desirability bias. Firstly, the sample of 400 participants was predominantly women, which may restrict the applicability of the findings to a broader student population. The overrepresentation of women can introduce gender-related biases and limit how the results can be applied elsewhere. Additionally, some participants submitted incomplete questionnaires, leading to inconsistent or partial responses. This can result in data errors and affect the reliability of the collected information. Incomplete responses may also produce inaccurate or unclear results, affecting the validity and conclusions of the study. Another limitation involves potential response bias, which can skew the data and impact the overall findings. Self-reporting measures of Emotional Intelligence (EI) are subjective and susceptible to social desirability bias, where participants may give responses they consider more acceptable, thus overestimating or underestimating their true EI levels. Moreover, due to the small sample size, the results cannot be generalized beyond the sample of Colombo District State University undergraduates, nor to other university populations. The specific characteristics of this group and region may not reflect those of other cultural or demographic groups. While the findings could potentially be extended to other populations, caution should be exercised. Overall, social desirability bias is common in self-report studies; participants may provide answers they deem socially acceptable, which can inflate or distort their reported EI levels. Recognizing this bias is essential, as it can affect the quality and trustworthiness of the data and should be taken into account when interpreting the results.

5. Conclusion

The findings showed no notable difference in physical activity (PA) levels between male and female students, supporting previous studies that suggest gender has little effect on PA participation. However, the results found that male students scored higher on emotional intelligence (EI) than females. This indicates there are gender-based differences in EI, possibly influenced by cultural or educational factors specific to this group.

Therefore, to fully understand the implications of the research findings, it is essential to consider these limitations. They highlight areas where caution should be exercised and provide insights into factors that could affect the validity and generalizability of the study's results.

6. Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available due to privacy and ethical considerations, but are available from the corresponding author upon reasonable request.

7. Ethical Statement

This study was carried out following the guidelines of the Declaration of Helsinki, with all procedures involving research participants approved by the Kaatsu International University Ethical Committee, No. KIU/ERC/22/151-2023.

8. Author Contributions

All authors significantly contributed to the conception, design, data collection, analysis, and interpretation. They participated in drafting or critically revising the article, agreed to submit it to the current journal, approved the final version for publication, and are accountable for all aspects of the work.

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11. Conflict of Interest

The authors declare that they have no conflicts of interest or financial interest or any other conflict of interest.

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