ORIGINAL RESEARCH

Need Action for No Relationship Between Emotional Intelligence on Physical Activity Among Undergraduates in Colombo District

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Purpose: Participation in regular physical activity is influenced by a variety of factors, including psychological dimensions. Emotional intelligence (EI), an emerging term, has not yet been extensively researched in relation to Physical Activity (PA). Thus, the aim of the present study was to examine the relationship between EI on the PA of university undergraduates.

Methods: Cross sectional design was used to conduct the study. A total of 400 Colombo district state university undergraduates were included in the sample. The participants filled out two standard questionnaires. Wong and Low questionnaire to measure EI and the International Physical Activity Questionnaire (IPAQ- Long Form) to measure physical activity. Convenience sampling has been used in order to collect the data. SPSS 25.0 software was used to process and analyze the data with Spearman's test and Mann–Whitney U-test.

Results: The rate of significance is 0.061 and as it is greater than 0.05 and the test results are not significant, the null hypothesis was accepted, and the hypothesis was rejected. At the same time, there was a weak negative correlation between EI and PA, which was statistically not significant - rs = - 0.094, p = 0.061.

Conclusion: It is crucial to emphasize and put into practice the need for undergraduates to engage in more PA. The findings provide a basis for research aimed at determining the relationship between EI and PA.

Keywords: emotion, exercise, psychological, youth, university

Introduction

Emotions are vigorous characteristics of human nature and the inspiration for behavior. The ability to recognize and succeed in one's own emotions is stated as Emotional Intelligence (EI).[1] It is the ability to perceive accurately, appraise, and express emotions; the ability to generate feelings when they facilitate thought, understand emotion and emotional knowledge, and regulate emotions to promote emotional and intellectual growth.[1,2]

Emotions are an integral part of being human. Popular media have even claimed that Emotional Intelligence (EI) can be more important than Intelligence Quotient (IQ) for predicting success in various areas of life.[3,4] Emotional Intelligence is well known as a term that defines a person's understanding, identifying, and managing of their own emotions. With regard to satisfaction and accomplishment throughout everyday life, EI matters similarly as much as intellectual ability.[4,5] From EI, people can stronger their relationships, prevail at work, and accomplish their professional and individual goals.[4–6]

Emotional Intelligence is closely associated with emotional knowledge that promotes emotional evaluation, perception, expression, understanding, and emotional and intellectual growth.[7,8] In recent years, many tests have been carried

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out that promise to measure EI.[7,8] Some of these tests look promising, but many remain empirical judgments. When considering about EI, there are many methods to measure EI.[7,8] They are the Emotional Capital Report (ECR), The Emotional Quotient Inventory (EQ-i 2.0), The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), The Genos Emotional Intelligence Inventory (Genos EI), Geneva Emotional Competence Test (GECo), Emotional & Social Competence Inventory - University Edition, The Schutte Self Report Emotional Intelligence Test (SSEIT), Trait Emotional Intelligence Questionnaire (TEIQue), Emotional and Social Competence Inventory (ESCI), The Wong and Law Emotional Intelligence Scale (WLEIS), Work Group Emotional Intelligence Profile (WEIP), and Team Emotional Intelligence (TEI).[2,9,10]

Assuming that people have high EI means that they can understand their own feelings and the emotions of others, as well as connect with people in a way that draws them to you. People can use this knowledge of emotions to get along better with others, make better connections, make more progress at work, and live a really rewarding life. In recent years, EI has been a popular topic of research study in different disciplines including psychology, sociology, organizational management, and the education sector. EI is the capacity to distinguish, use, comprehend, and deal with emotions in good ways to diminish pressure, communicate and empathize with other people, defeat difficulties, and stop the struggle. However, EI studies that are conducted regarding undergraduate life aspects are very limited. In the EI research history, the examination of individual varieties of how people perceive, interpret, express, oversee, and use their feelings and those of others is usually the concentration.[2,11] EI is defined as "the capacity to see and express emotion, acclimatize feeling in idea, comprehend and prevail upon feeling and manage emotion in oneself as well as other people".[12]

Physical Activity (PA) is known as a health-promoting behavior. Engaging in regular physical activity is one of the best ways to improve physical, psychological, and mental health.[13,14] According to the World Health Organization (WHO), about eighty percent of children and adolescents worldwide are not meeting the current Global PA Guidelines for Health and no association between knowledge-attitude.[13–16] According to WHO sources, one in four adults in the world does not meet the recommended levels of physical activity, and up to 5 million deaths a year could be averted if the global population was more active.[13,14,16] Engaging in regular PA is one of the best ways to improve general health.

The psychology field in Sri Lanka is still developing. Evolving demand for psychology undergraduate and post-graduate studies, psychology relate professions and government policies are evident in discipline growth within the country. Therefore, the lack of research regarding EI and PA levels will be addressed through this research. As Sri Lanka is currently in a crisis, most of the time students are tensed and exhausted due to many reasons like the easter attack, the with covid 19 pandemic, and later the economic crisis in Sri Lanka. They were limited to online education for nearly two years, with very less exposure to physical interactions and PA. With the current crisis, it has started again with more limitations on physical activities. This kind of study can be used as an initial measurement to understand how physical activities can use to uplift the emotional well-being of undergraduates. Therefore, this study is a timely requirement. Other than that in countries like Taiwan, China, Spain, and India, research was conducted on a similar topic for undergraduates. However, in Sri Lanka, there's a dearth of research conducted regarding the impact of EI on physical activity. Previous research findings show that good physical and psychological qualities positively correlate with EI. A better ability to understand and manage own emotions and those of the people around will be vital to developing a better society with good moral values.[2] Therefore, this research is aimed to conduct a study to identify the impact of EI on PA among Colombo district state university undergraduates.

Materials and Methods

This was a cross sectional study and took once data collection, the study was conducted under the positivistic philosophy with a deductive approach and designed as a descriptive quantitative correlation research. This research found about the relationship of two variables. Because of that, this research used a correlational research design. The research was conducted by physical administration of scales and primary data gathered by reaching the undergraduates of Colombo district state universities. The convenience sampling method was used to choose the sample from the study population. This sampling method benefited the research because of the limited resources and time. The Yamane formulation is used for the sample size calculation.

$$n = \frac{N}{1 + N * (e)^2}$$

$$n = 59{,}324/1 + 59{,}324(0.05)2 = 397$$

n = sample size

N = population size

e = acceptable sampling error (0.05)

Therefore, based on this Yamane formula, the sample size was 397, and completed it to 400 undergraduates, this also after passed the inclusions and exclusions criteria.

Participants

This study was conducted according to the guidelines laid down in the Declaration of Helsinki, and all procedures involving research study participants were approved by The Kaatsu International University Ethical Committee, No. KIU/ERC/22/151-2023. All participants knowingly consented to participate in this study. The subjects of this study gave signed informed consent prior to being included. Written and verbal informed consent was obtained from all subjects. Verbal consent was witnessed and formally recorded in a statement sheet after explanation. During the study, no therapy or intervention was carried out, and the research subjects were not charged any fees for the any interview.

This research has been carried out in the state universities in the Colombo district which were, The Kaatsu International University, 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. All these Colombo district state universities undergraduates were the target population of the research. The convenience sampling method was used to choose the sample from the study population. This sampling method benefited the research because of the limited resources and time.

Data Collection Tools

Data has been gathered through the survey method by using two standardized questionnaires. Those questionnaires mainly comprised under the two main topics. One questionnaire was used to identify EI among undergraduates, and the other questionnaire have been used to identify the PA level among undergraduates (Questionnaires File in Supplementary Material).

The independent variable (IV), EI was measured by Wong and Law's Emotional Intelligence Scale (WLEIS). This WLEIS scale is based on the ability model of EI. It is measured by 16 items. This questionnaire consists of four dimensions. They are appraisal and expression of emotion in the self, appraisal, and recognition of emotion in others, regulation of emotion in the self, and use of emotion to facilitate performance. Each statement is scored between 1 (strongly disagree) and 7 (strongly agree) on a Likert scale.

Physical activity (PA) was measured using an International Physical Activity Questionnaire (long form). This questionnaire consists mainly of five categories. They are Job-related PA, Transportation PA, Housework/ house maintenance and caring for family, Recreation/sports/leisure-time PA, and Time spent sitting. Through this questionnaire, it has been measured the PA information gathered by the time spent on moderate and vigorous physical 21 activities. The scale's scoring method entails converting the stated number of days and the average amount of time spent engaging in physical activity into total weekly minutes for each domain. To get the weekly length, multiply the number of days by the average time spent.

Data Analysis

Data were analyzed by using "IBM SPSS Software". A descriptive correlational study has been conducted to determine the variables. Spearman test and Mann Whitney U were applied for data analysis. All statistical analyses were conducted at a 0.05 level of significance. The Spearman test was used to identify the impact and the relationship between EI and PA. Mann Whitney U-test was used to identify the variance between gender and EI and PA.

Results

This study is aiming to assess the relationship between EI and PA in undergraduates in Colombo District State Universities, the population considered was the undergraduate students who are currently engaging in studies in State universities that are located within the Colombo district. For research purposes, the population has been narrowed down to the sample size of 400 participants and their demographics can be elaborated as follows.

The 400 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 (Table 1).

The participants of the study can be mainly categorized into 3 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 (Table 1).

The gender of the sample and accordingly the participants can be divided into 2 categories as "Female" and "Male". As explained in the above table, a majority of the sample consists of females which amount to 254 (63.5%), while the remaining 146 (36.5%) are males (Figure 1). The age of the sample and accordingly, the ages of the sample can be divided into 2 groups as 19–24 and 24–30. As per the findings, 257 or 64.3% of the sample consists of participants aged between 19–24, while the remaining 143, or 35.8% consists of participants aged from 25–30. Regarding the marital status of the sample, accordingly, there 49 (12.3%) are already married while 350 (87.5%) which is a majority of the sample are single or unmarried (Figure 1).

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" (Table 2).

Since the test results are not parametric, the "Spearman Test" was used to assess the impact of EI on PA in undergraduates in Colombo District State Universities. According the to test results, the rate of significance is 0.061 and as it is greater than 0.05 and the test results are not significant, the null hypothesis was accepted, and the hypothesis was rejected. At the same time, there was a weak negative correlation between 38 EI and PA, which was statistically not significant = - 0.094, p = 0.061. Therefore, there is no significant relationship between EI and PA (Table 3).

Table 1 Characteristics of Ethnicity and University

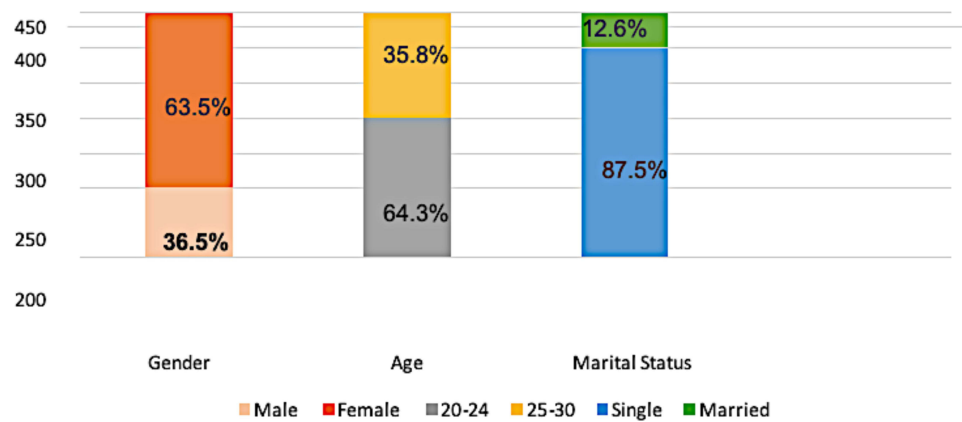| Characteristics of the Population	Frequency *n*	Percentage%
Ethnicity		
Sinhala	332	83
Tamil	42	10.5
Musilm	26	6.5
Total	400	100
University		
University of Colombo	50	12.5
Open University	71	17.8
University of Moratuwa	78	19.5
University of Sri Jayawardhanapura	106	26.5
Visuals and Performing Arts University	95	23.8
Total	400	100

Figure 1 Characteristics of gender, age, and marital status.

Discussion

This study aimed to explore the relationship between Emotional Intelligence (EI) and Physical Activity (PA) among Colombo district state university undergraduates. There is no relationship between EI on PA among the Colombo district state university undergraduates.[7,8,17] According to the prevailing literature, it shows that there is a relationship between EI and PA.[6,7,18]

This study was applied to the Colombo district state university undergraduates who have been enrolled between 2018 to 2022 to conduct a study on the impact of EI on PA. The main aim of this research study was to identify the impact of EI on PA. According to the test results, it indicates that there are 27 undergraduates with high PA levels, 184 undergraduates with moderate PA levels, and 189 undergraduates with low PA levels. Based on the statistical findings, this study results show that there is no impact between EI on PA. The results imply that there is a negative low relationship between EI on PA among the Colombo district state university undergraduates. The *p*-value of the two variables was less than 0.05. Hence, it rejects the alternative hypotheses, and it accept the null hypothesis with statistical evidence. According to the results of the Spearman Test, it indicates that there is a negatively low correlation between EI and PA among state university undergraduates.

Table 2 Test of Normality for EI and MET

Kolmogorov–Smirnov[a]			Shapiro–Wilk	
	df	Sig.	*df*	Sig.
EI Mean Value	400	0.000	400	0.000
Total MET-minutes /week	400	0.000	400	0.000

Note: [a]indicates the significance is identified as >0.05.
Abbreviations: *df*, degrees of freedom; Sig, significance; EI, Emotional Intelligence; MET, Metabolic Equivalent of Task.

Table 3 Impact and Raltionship Between EI on PA

		EI Mean Value	Total MET- Minutes /Week
EI Mean Value	Correlation Coefficient	1.000	−0.094
	Sig. (2-tailed)		0.061
Total MET-minutes /week	Correlation Coefficient	−0.094	1.000
	Sig. (2-tailed)	0.061	

Abbreviations: Sig, significance; EI, Emotional Intelligence; MET, Metabolic Equivalent of Task.

Another correlational study has been conducted to see the relationship between EI and leisure time PA among female university students.[2,9,10] One hundred and twenty six female college students between the ages of 20 and 30 participated in the investigation. Using the International Physical activity questionnaire (long form), the scores for leisure-time PA were evaluated. As the finding of the research, the researcher has stated significant positive correlations were found between leisure-time PA and the EI subscales of self-awareness, Self-motivation, emotional stability, managing relations, integrity, self-development, value orientation, and commitment No significant correlations were found between the level of PA during leisure time and the subscales of empathy and behavior.[1,6,19]

While there are a variety of methods for assessing EI, research has shown that individuals with high PA volume have a positive linear relationship with certain EI domains. Several studies, for instance, have found an association between increased PA and increased sociability/social competence.[2,9,10,18,20] Numerous researchers have evaluated the relationship between PA and EI.[2,9,10] While only a minority of these studies used case-control or experimental designs. The preponderance was of the observational style.[1,6,19]

Several studies found a positive relationship between EI and PA suggesting that increased PA indicates a higher EI.[3–5] Some research indicates that an increase in leisure time PA, Moderate and Vigours Physical Activity (MVPA), or meeting PA guidelines is positively associated with emotional intelligence (EI).[7,8,17,21] There is a positive linear relationship between total EI and total PA duration, domestic PA duration, and leisure activities. In contrast, research indicates a correlation between decreased physical activity and increased EI.[2,9,22] Specifically, research indicates that an increase in leisure time PA, MVPA, or meeting PA guidelines is positively associated with EI.[1,6,19]

This study some limitations, which are the results change can be due to the differences among the population researched. The other limititaion was the researcher has used only the Colombo district state university undergraduates. State university undergraduates are absorbed into state universities with very high Z-scores. With their level of education, there can be a tendency for them to have higher levels of EI as well. Emotional Intelligence skills are significantly associated with and predictive of academic achievement for the university students' population. Therefore, the findings of the researcher, though it does not go along with the prevailing literature it can be due to this particular reason and this can be taken as a new research finding.

This study also may include several limitations that needed to be considered. Some of the concerns are a possible gender imbalance in the sample, probable bias in responses, inadequate questionnaire responses, cross-sectional design, limited generalizability, and social desirability bias. To begin with, the sample size of 400 participants was biased toward women, which may limit the findings' generalizability to a larger group of students. The overrepresentation of women can create gender-related biases and restrict the results' application to other situations. Another limitation of this research is that incomplete questionnaires are presented by some individuals which led to incomplete or inconsistent replies. This can cause quantity mistakes and damage the reliability of the data gathered. Also, incompleted replies can end up in inaccurate or unclear results, negotiating the findings' dependability and ability to make correct conclusions. Another Potential limitation was the possibility of bias in participant responses, which may harm the validity of the data and influence the study's overall conclusions. Self-report tests of Emotional Intelligence (EI) depend on people's 47 subjective judgments, which might be influenced by a bias toward social desirability. Participants may produce more socially acceptable responses, resulting in an overestimation or underestimating of their real emotional intelligence levels. Additionally, Because of the small sample size, the findings cannot be generalized to the full cohort of Colombo District State University undergraduates, nor can they be applied to the broader group of State University undergraduates. The research's generalizability may be limited due to its focus on a particular group of undergraduates at Colombo District State University. This population's and geographical area's features may not be analytic of other state university undergraduates or persons from diverse cultural backgrounds. It might be used for extending the results to different populations or contexts. Furthermore, the study employs a cross-sectional design, collecting data at a single point in time. Because of this design drawback: establishing causal links and determining the direction of the observed links between EI and PA is difficult. To properly understand the length of time of these connections, long-term records are required. In conclusion, some social desirability bias is common in self-report research. Thereby, participants may give replies that they believe are more socially desirable, which increase or mislead their reported levels of EI. This bias can expose the data's quality and dependability and should be considered when evaluating the results. Therefore, understanding the

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depth and possible consequences of the research findings 48 requires taking these limitations into account. They indicate areas where caution should be used and give insights into the aspects that may impact the study's results' validity and generalizability.

Conclusion

It is crucial to emphasize and put into practice the need for undergraduates to engage in more PA. The findings provide a basis for research aimed at determining the relationship between EI and PA. Potential underlying mechanisms and directions for future research are suggested.

Acknowledgment

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

Disclosure

The authors declare that they have no conflicts of interest in this work.

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