



High School Student-Athletes: Their Motivation, Study Habits, Self-Discipline, Academic Support, and Academic Performance

Dian Pujianto^{1ABCDE}, Yahya Eko Nopiyanto^{1ABCDE}, Cahyo Wibowo^{2ACDE},
Ipa Sari Kardi^{3ACDE}, Septian Raibowo^{1ACDE}, Bayu Insanisty^{1ACDE},
Ibrahim^{3ACDE}, Baharuddin Hasan^{3ACDE} and Agus Sutriawan^{4ACDE}

¹University of Bengkulu

²Satya Wacana Christian University

³Cenderawasih University

⁴Universitas Negeri Makassar

Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Corresponding Author: Yahya Eko Nopiyanto, E-mail: yahyaekonopiyanto@unib.ac.id

Accepted for Publication: February 4, 2024

Published: February 29, 2024

DOI: 10.17309/tmfv.2024.1.03

Abstract

Study purpose. Student-athletes have a role that is not easy to balance between the role of being an athlete and the role of being a student at school. Not a few of them have obstacles in balancing both roles. This study aims to reveal the characteristics of secondary school student-athletes in Bengkulu City. The main objectives are to describe the level of achievement motivation, study habits, self-discipline, academic support, and academic performance.

Materials and methods. This study is a quantitative descriptive research with a survey approach involving 402 student-athletes at the junior high school and senior high school levels. The student-athletes represent 16 sports. The average age of student-athletes is 15.9 years. The instrument used in the study was a questionnaire consisting of 36 statement items. The mean ideal and standard deviation ideal formulas were used to analyze data regarding the category level of each indicator, while the independent sample t-test was used to determine differences in data between student-athletes based on gender and type of sport.

Results. The results of this study reveal that student-athletes in Bengkulu City have achievement motivation, study habits, self-discipline, academic support, and academic performance in the high category. There is a significant difference between male and female student-athletes ($\text{sig } 0.001 < 0.005$). There were no significant differences between student-athletes from individual and team sports ($0.442 > 0.005$).

Conclusions. Student-athletes at junior high school and senior high school education levels have good characteristics, there are significant differences between male and female athletes, and there are no significant differences between individual athletes and team athletes.

Keywords: student-athletes, motivation, habits, discipline, academic.

Introduction

Education at the high school level is a critical period in students' development, where they not only pursue academic excellence but also engage in various extracurricular activities for skill and character development (O'Neil et al., 2021). One

group of students who fulfill dual roles are student-athletes, who try to maintain a balance between sports performance and academic achievement (Kristiansen, 2017). Sports in high school are not just physical activities, but also an important tool in developing character, leadership, and interpersonal skills (DÜZ & ASLAN, 2020). Through sports, students can learn about teamwork, responsibility, and discipline (de Prada Creo et al., 2021). Therefore, it is important to understand how involvement in sports at the secondary school level can influence important aspects of education, such as motivation, study habits, and academic

© Pujianto, D., Nopiyanto, Y.E., Wibowo, C., Kardi, I.S., Raibowo, S., Insanisty, B., Ibrahim, Hasan, B., & Agus Sutriawan, A., 2024.

achievement (Escosio Suguís & Suraya Belleza, 2022). Student-athletes at the high school level often face different challenges compared to those at lower levels of education due to academic demands and pressure to succeed in various fields (Chrisman et al., 2013).

Motivation is a key factor in understanding student-athlete engagement in high school (Xie et al., 2020). Intrinsic motivation, which comes from internal drives such as the desire to achieve excellence, and extrinsic motivation, which comes from external drives such as recognition or rewards, can play an important role in determining the extent to which students engage in sports and excel academically (Howard et al., 2021). Various previous relevant studies have been conducted by researchers including (Lupo et al., 2015) which revealed that student-athletes have high motivation to pursue two careers, namely a career as an athlete and a career as an athlete. Similar research was also conducted (Yukhymenko-Lescroart, 2018) which revealed that student-athletes motivation to take part in sports was influenced by intrinsic interest, while student-athletes motivation to take academic classes was influenced by the grades obtained in class. In their research (Quinaud et al., 2020) it was revealed that the level of education and training hours have a big influence on athlete motivation.

It is important to dig deeper into the study habits of student-athletes because effective study habits can be the foundation of their academic success (Brecht & Burnett, 2019). Implementing good study strategies, managing time wisely, and having a strong focus can help student-athletes achieve a healthy balance between sports activities and academic achievement (Jafari et al., 2019). Student-athletes need to develop effective time management skills to divide their time between studies, sports practice, and personal needs (Cosh & Tully, 2014). Student-athletes should create a structured daily or weekly schedule to ensure all responsibilities are met. They can use the time between practices or matches to read, do assignments, or absorb study material, bringing a book or laptop during travel or rest time (Turick et al., 2021). Apart from having achievement motivation and good study habits, student-athletes are required to have self-discipline (Grace et al., 2019).

Self-discipline plays a key role in maintaining a balance between commitment to sport and academic achievement (Medina et al., 2020). The ability to manage time effectively, maintain focus on academic tasks, and remain consistent in maintaining physical and mental health are determining factors in the success of student-athletes at the high school level (Altun et al., 2021). Self-discipline starts with the ability to set priorities well. Student-athletes need to understand that both academic achievements and sporting achievements have important values, and they must be able to determine the order of importance according to their needs and responsibilities. Self-discipline involves effective communication with coaches, teachers, and teammates. Student-athletes must be able to communicate their needs, explain time constraints, and ask for help if needed. A disciplined student-athlete must be able to self-reflect regularly. This involves reviewing academic and sporting performance. Student-athletes with self-discipline can face the unique challenges of maintaining a balance between sports and academic performance.

Good academic achievement often reflects the level of balance that student-athletes successfully maintain (Yukhymenko-Lescroart, 2018). Therefore, looking at their academ-

ic achievements can provide an idea of the extent to which they have succeeded in integrating sports into their educational life. A student-athlete's academic performance refers to his or her academic achievements in an educational environment, which involves several evaluation indicators but is not limited to achievement of grades, participation in classes, and involvement in academic activities (Grimit, 2014). This academic achievement is a specific and comprehensive picture of a student-athlete's ability and dedication to achieving their educational goals. An academically successful student-athlete demonstrates consistency in class attendance and active participation in discussions. Good attendance reflects their commitment to education, while active participation shows a desire to understand and engage in the learning material. A student-athletes academic performance is reflected in the achievement of strong grades. This includes their ability to achieve the academic standards set by educational institutions. They must demonstrate the ability to master course material and apply it in exams and assignments.

Learning barriers can present an extra challenge for student-athletes at the high school level. Time constraints, stress, and pressure associated with sports competitions can complicate their learning efforts (Ferreira Silva et al., 2021). Understanding the barriers experienced by student-athletes can help schools and coaches identify ways to provide more effective support (Banwell & Kerr, 2016). Barriers to the learning process for student-athletes can be complex and require a deep understanding of the multiple demands they face. Student-athletes are often faced with busy schedules, with time-consuming training, competitions, and travel. This can result in limited time for studies, making it difficult for them to balance academic work and sporting commitments. Intense competition in the world of sports can create additional pressure for student-athletes. Focusing on high sporting achievements may distract them from academic tasks, affecting concentration and quality of learning. Maintaining a balance between academic work and sports training is a challenge in itself. Student-athletes can have difficulty adjusting to changing schedules and managing their time efficiently.

Several previous studies have studied student-athletes in Bengkulu City, such as research from (Pujianto et al., 2022) which studied the mental toughness of student-athletes in Bengkulu City. Furthermore, (Pujianto et al., 2023) studied the emotional intelligence of student-athletes at the university level. However, specific studies regarding the psychological and academic conditions of student-athletes have not been widely discussed. Student-athletes are a valuable asset for the continued achievement of a nation. Therefore, it is necessary to carry out a comprehensive analysis of the characteristics of student-athletes in Bengkulu City by examining achievement motivation, study habits, self-discipline, academic support, and academic performance.

Based on the background description, the formulation of this research is: 1) What are the characteristics of high school student-athletes in Bengkulu City in terms of their level of achievement motivation, study habits, self-discipline, academic support, and academic performance? 2) Are there differences in the characteristics of male and female student-athletes? 3) Are there differences in the characteristics of student-athletes from individual and team sports?

The main goal of this research is to provide a comprehensive picture of the context, challenges, and

complexities of the lives of student-athletes at the middle school and high school levels. By understanding factors such as motivation, study habits, self-discipline, academic achievement, and learning support, it is hoped that this research can make a significant contribution to establishing better sports education and development for middle school and high school student-athletes in Bengkulu City.

Materials and methods

Participants

Research participants were student-athletes in Bengkulu City who were studying at the junior high school and high school levels. The total number of participants involved was 402 student-athletes.

Table 1. Characteristics of the student-athletes.

Sex	Frequency
Male	256
Female	146
Total	402
Level of Education	Frequency
Junior High School	107
Senior High School	295
Total	402
Type of sports	Frequency
Pencak Silat	65
Wrestling	1
Tae Kwon Do	34
Karate	50
Boxing	2
Volleyball	79
Basketball	44
Futsal	77
Gateball	2
Tennis	1
Table Tennis	1
Football	29
Badminton	10
Swimming	5
Bodybuilding	1
Athletic	1
Total	402

Table 2. Research instrument grid

Indicators	Description	Positive items	Negative items
Motivation	Motivation is a complex psychological construct that plays an important role in encouraging individuals to set and pursue goals, overcome challenges, and strive for success.	1, 2, 3, 4, 6, 7, 8, 9	5, 10
Study habit	Student-athlete study habits represent a unique intersection between academic and athletic demands.	11, 13, 14, 16, 17, 18, 19, 20	12, 15
Self-discipline	Self-discipline is an important attribute for success in both academics and athletics and student-athletes, it is even more important because of the dual demands they face.	21, 22, 23, 24, 26, 27, 28, 29, 30	25
Academic support	Academic support for student-athletes is critical to ensuring their success both in the classroom and on the field.	32, 33, 35, 36	31, 34

Research Design

This research is a quantitative descriptive study using a survey approach on middle school and high school student-athletes. The research instrument used for data collection was a questionnaire prepared and developed by the research team. The questionnaire consists of several indicators including achievement motivation, study habits, self-discipline, and learning support. The total items from the questionnaire used were 36 items. The Likert scale is used for choices, namely: strongly disagree-strongly agree. The questionnaire was field-tested on 322 student-athletes to determine the validity and reliability values of the instrument. From the results of the analysis using SPSS version 22, it is known that the instrument is concluded to be valid with a sig value <0.05 , and the reliability of the instrument based on Cronbach's alpha is 0.83.

Research procedure

This research was carried out in several stages which are summarized in the research procedure, including explaining the purpose of the research and getting approval from the athletes regarding the data needed in the research, research data was collected through an instrument in the form of a questionnaire, data collection was taken manually by meeting directly between the researcher and the athlete. After the data is collected, data tabulation is carried out by taking the research data filled in completely by the athlete. The next step is to carry out analysis and present the research results.

Statistical Analysis

To determine the level of achievement motivation, study habits, self-discipline, and academic support, researchers developed criteria using the ideal mean and ideal

Table 3. Formula of Categories

Interval	Frequency
$> (Mi + 1.8 SD) - (Mi + 3 SD)$	Very High
$> (Mi + 0.6 SD) - (Mi + 1.8 SD)$	High
$> (Mi - 0.6SD) - (Mi + 0.6 SD)$	Moderate
$> (Mi - 1.8 SD) - (Mi - 0.6SD)$	Low
$(Mi - 3SD) - (Mi - 1.8 SD)$	Very Low

$Mi = (ST+SR)/2$; $SD = (ST-SR)/6$; Mi = Mean Ideal, ST = Maximum Score, SR = Minimum Score, SD = Standard Deviation

standard deviation formula which can be seen in Table 3. An Independent sample t-test assisted by SPSS variant 22 software was used to analyze data regarding differences between student-athletes in terms of gender and analyze data regarding differences between student-athletes in terms of type of sport.

Results

Describes the characteristics of secondary school student-athletes in Bengkulu City, shown through the indicators presented in the tables below.

Table 4. The result of Motivation

Interval	Category	Frequency	Percentage
44-51	Very High	108	26.87
35-43	High	272	67.66
27-34	Moderate	21	5.22
18-26	Low	1	0.25
9-17	Very Low	0	0

Based on Table 4, it is known that the data categorizes athletes into different achievement motivation intervals. The highest frequency is in the “35-43” interval which is categorized as “High” with 272 incidents or representing 67.66% of the total data. The second highest frequency was in the “44-51” interval with the “Very High” category with 108 incidents or covering 26.87% of the data. The majority of athletes fall into the “High” and “Very High” achievement motivation categories, namely 94.53% of the total data. The “Medium” achievement motivation category has a relatively lower frequency (5.22%), while the “Low” and “Very Low” categories have negligible frequencies (0.25% and 0% respectively). The high frequency in the “High” and “Very High” categories indicates that the majority of athletes in the data set have strong achievement motivation. Athletes with high achievement motivation are often more enthusiastic, goal-oriented, and persistent in their pursuit of success, which can positively influence their athletic performance. The low incidence in the “Low” and “Very Low” categories indicates that very few athletes in the data set reported lower levels of achievement motivation.

Table 5. The result of the study habit

Interval	Category	Frequency	Percentage
44-51	Very High	53	13.18
35-43	High	282	70.15
27-34	Moderate	65	16.17
18-26	Low	2	0.5
9-17	Very Low	0	0

The results of the research on the second indicator, namely study habits, are displayed in Table 5. From Table 5 it is known that the data is categorized into different intervals based on several criteria. The highest frequency was found in the “35-43” interval which was categorized as “high” with 282 athletes or representing 70.15% of the total data. The second highest frequency was in the “27-34” interval,

categorized as “medium”, with 65 incidents, which was 16.17% of the data. The majority of data falls into the “high” and “medium” categories, namely 86.32% of the total data. The “very high” category has a lower frequency (13.18%), while the “low” category has a very small frequency (0.5%). This means that student-athletes in the city of Bengkulu have good study habits.

Table 6. The result of self-discipline

Interval	Category	Frequency	Percentage
44-51	Very High	101	25.12
35-43	High	276	68.66
27-34	Moderate	23	5.72
18-26	Low	2	0.50
9-17	Very Low	0	0.00

The results of research on athlete self-discipline are shown in Table 6. From Table 6, information is obtained that the data categorizes athletes into different self-discipline intervals. The highest frequency is in the “35-43” interval which is categorized as “High” with 276 incidents or representing 68.66% of the total data. The second highest frequency is in the “44-51” interval which is categorized as “Very High” with 101 events which is 25.12% of the data. The majority of athletes fall into the “High” and “Very High” self-discipline categories, which is 93.78% of the total data. The “Medium” self-discipline category has a relatively lower frequency (5.72%), while the “Low” category has a relatively small frequency (0.50%). The high frequency in the “High” and “Very High” categories shows that the majority of athletes in the data set show strong self-discipline.

Table 7. The result of academic support

Interval	Category	Frequency	Percentage
26-30	Very high	73	18.15
21-25	High	139	34.58
17-20	Moderate	125	31.10
12-16	Low	64	15.92
6-11	Very low	1	0.25

The next indicator is academic support which is displayed in table 7. This data categorizes student-athletes into different academic support intervals. The highest frequency is in the “21-25” interval which is categorized as “High” with 139 incidents or representing 34.58% of the total data. The second highest frequency is in the “26-30” interval which is categorized as “Very High” with 73 events which is 18.15% of the data. The majority of student-athletes fell into the “High” and “Very High” academic support categories, accounting for 52.73% of the total data. The “Medium” academic support category has a significant frequency (31.10%), while the “Low” and “Very Low” categories also have a significant frequency (15.92% and 0.25% respectively). The high frequency in the “High” and “Very High” categories indicates that the majority of student-athletes in the data set have access to effective academic support.

Table 8 shows that the intervals 85-100 and 80-84 show high frequencies (175 and 170 respectively). This suggests

that student-athletes, overall, perform well academically, with most athletes achieving scores in the higher range. Data shows that student-athletes successfully balance their academic responsibilities with their athletic commitments. This is especially visible at high frequencies in the top two scoring intervals.

Table 8. Academic Performa

Interval	Letter	Frequency
85-100	A	175
80-84	A-	170
75-79	B+	51
70-74	B	6
65-69	B-	0

Based on Table 9, it is known that the sample consisted of 256 male student-athletes and 146 female student-athletes. This indicates a greater representation of men in the data set. The average score for male student-athletes was 143.83 and for female student-athletes was 139.99. This shows that on average male student athletes have slightly higher performance scores than female student athletes. A higher standard deviation for men indicates a wider range of performance scores than for women.

Table 9. Group statistics on male and female athletes

Sex	N	Mean	Std. deviation	Std. Error Mean
Male	256	143.83	11.3777	0.711
Female	146	139.99	10.347	0.856

To determine the level of difference between the characteristics of male and female student-athletes, an independent sample t-test analysis was carried out. The results of the prerequisite test using Monte Carlo obtained a sig value of $.05 > 0.05$ so that the data was normally distributed. Furthermore, analysis using Levene statistics obtained a sig value of $.369$ so that the data was homogeneously distributed. The results of the independent sample t-test at a significance level of 0.05 show that there are significant differences between male and female athletes which are presented in Table 10.

Table 10. Independent sample t-test of male and female student-athletes

t	df	Sig.(2 tailed)	Description
3.367	400	0.001	Significant

From the research results shown in Table 10, it is known that this study consisted of 170 student-athletes from individual sports and 232 athletes from team sports. Based on the mean scores, it is known that student-athletes from team sports have slightly higher scores than student-athletes from individual sports. To prove whether or not there are differences between the two groups, an independent sample t-test was carried out which is shown in Table 11. The results of the independent sample t-test at a significance level of 0.05 show that there are no significant differences between student-athletes from individual sports and sports. team.

Table 11. Group statistics from individual sports and team sports

Sport	N	Mean	Std. deviation	Std. Error Mean
Individual	170	141.94	10.698	0.711
Team	232	142.80	11.488	0.856

To determine the level of difference between the characteristics of student-athletes from individual and team sports, an independent sample t-test analysis was carried out. The results of the prerequisite test using Monte Carlo obtained a sig value of $.05 > 0.05$ so that the data was normally distributed. Furthermore, analysis using Levene statistics obtained a sig value of $.369$ so that the data was homogeneously distributed. The results of the independent sample t-test at a significance level of 0.05 show that there are no significant differences between student-athletes from individual and team sports as presented in Table 12.

Table 12. Independent sample t-test from individual sports and team sports

t	df	Sig.(2 tailed)	Description
-0.769	400	0.442	No Significant

Discussion

This research aims to reveal the characteristics of student-athletes at the middle and high school levels in Bengkulu City. These characteristics consist of achievement motivation, study habits, self-discipline, academic support, and academic performance.

The research results show that student-athletes in Bengkulu City have achievement motivation in the high category. The high achievement motivation of student-athletes in Bengkulu City is demonstrated by their persistence in training, belief in becoming winners and having clear goals for their involvement in their chosen sport. The findings of this research are in line with previous studies that successful student-athletes are athletes who have high achievement motivation (Matmask & Ozrudi, 2019). Sports achievement motivation in student-athletes is a dynamic and diverse concept that includes drive, determination, and the desire to excel in sports (Colin J. Deal & Camiré, 2016). Achievement motivation is a force that encourages individuals to set goals, persevere through challenges, and continue to strive to achieve personal and team success (Sharma et al., 2018). Student athletes' achievement motivation is often triggered by a combination of internal and external factors (Stokowski et al., 2013). Internally, these individuals have a deep passion for their sport, finding intrinsic joy in the process of improvement and competition (Gardner et al., 2017). The journey of a student-athlete is full of challenges, including rigorous training schedules, demanding academic commitments, and the inevitable setbacks in sports. However, those who have high achievement motivation show resilience and a tenacious spirit (Akbar et al., 2023). They view setbacks as opportunities to grow, learn from failures, and use them as stepping stones to future success. Sports achievement motivation in student-athletes also contributes to team cohesion and collective success. A shared commitment to excellence fosters a sense of camaraderie and mutual support, creating

a positive and competitive team culture. This motivation not only improves the performance of individual athletes but also pushes the entire team to higher levels (Javed et al., 2020).

In the second indicator regarding study habits, junior and senior high school student-athletes in Bengkulu City show the high category. This is demonstrated through the athlete's ability to complete school assignments on time, actively participate in the learning process in class, and give the best effort in taking exams in academic classes. The study habits of student-athletes reflect a balancing act between the demands of academic life and a commitment to excellence in sports (Linnér et al., 2021). One key aspect of a student-athlete's study habits is careful time management (Coffey & Davis, 2019). Student-athletes must be able to manage a tight schedule of practices, competitions, and travel. The ability to prioritize tasks and maintain a disciplined approach to time management are characteristics of successful student-athletes (Hardin & Pate, 2013). The study habits of student-athletes also underscore their commitment to academic excellence (Huml et al., 2014). Despite the physical and mental demands of their sport, many student-athletes prioritize their education, considering it the foundation of their future outside of athletics. This commitment often translates into disciplined study sessions, seeking additional support when needed, and actively engaging in coursework to ensure a well-rounded academic experience. Additionally, the sense of discipline and perseverance developed through sports often carries over into the study habits of student-athletes. The resilience they show on the field translates into a determined academic approach. When faced with challenging coursework or tight deadlines, these individuals harness the same mental strength that drives them in sports, overcoming academic challenges with a focused and persistent mindset.

In the third indicator, namely self-discipline, student-athletes in Bengkulu City show that they have high self-discipline. This is demonstrated by student-athletes by arriving on time for practice and studying academically in class, being responsible as athletes and students. Self-discipline is a hallmark of student-athletes, manifesting in their ability to regulate behavior, prioritize tasks, and persevere in the pursuit of academic and athletic excellence (Claringbould et al., 2015). These qualities are important for dealing with the demanding schedules and high expectations that come with balancing rigorous training programs and academic responsibilities (Zulkifli & Rahmat, 2022). Student-athletes carefully plan their daily routines, allocating time for classes, training sessions, study periods, and rest (Macquet & Skalej, 2015). Through this careful planning, they establish a framework that allows them to manage their time and energy effectively, ensuring that neither their athletic activities nor their academic obligations are neglected (Nordito S Quimbo, 2023). The high demands faced by student-athletes often require sacrifice, and self-discipline plays an important role in making and sticking to these choices (Sanders et al., 2021). Whether it's choosing to stay focused during study sessions, maintaining a healthy diet, getting enough sleep, or not engaging in distractions, student-athletes demonstrate a high level of self-control in their daily lives. This discipline extends to areas beyond the immediate demands of their sport, contributing to their overall well-being and long-term success. Student-athletes demonstrate a sense of delayed gratification,

realizing that the hard work and sacrifices they make now will contribute to future success (Strowd et al., 2022). This forward-thinking mindset allows them to resist short-term temptations or distractions, and remain committed to their long-term goals (Nichols et al., 2019). The journey in both academics and sports is marked by challenges, setbacks, and moments of difficulty (Sorkkila et al., 2019). Through self-discipline, student-athletes develop the mental fortitude to persevere in the face of obstacles. They view challenges not as insurmountable obstacles, but as opportunities to grow and develop and demonstrate resilience in their efforts to continue achieving excellence (Sullivan et al., 2023).

Another indicator that is part of this research is academic support. In this research, student-athletes received good academic support. This is shown by the support from teachers at school and parents at home. The results of this research are in line with various previous studies that reveal that successful learning athletes are those who receive academic support (Hazzaa et al., 2018). Academic support for student-athletes plays a critical role in ensuring their success both in the classroom and on the field (Lassiter & Campbell, 2023). One important aspect of academic support for student-athletes is the provision of dedicated academic advisors (Grandy et al., 2016). These advisors specialize in understanding the intricacies of athletic schedules, competitions, and training programs (Vaughn & Smith, 2018). They work closely with student-athletes to create personalized academic plans, assist them in selecting classes that align with their training commitments, and ensure they meet eligibility requirements to participate in sports. Tutoring services are often the cornerstone of academic support for student-athletes (Karakaya et al., 2015). Tutors work with student-athletes to clarify concepts, review coursework, and strengthen their understanding, fostering a supportive academic environment that complements their athletic activities (Kirby & Amason, 2021). Time management workshops are often offered to help student-athletes effectively balance their academic and athletic responsibilities (Colin Jeffery Deal & Camiré, 2016). This workshop provides strategies for managing schedules, setting priorities, and maximizing productivity. By instilling effective time management skills, academic support programs empower student-athletes to meet deadlines, attend classes, and engage in focused study sessions without sacrificing their athletic commitments. Flexible academic accommodations are often implemented to address the unpredictable nature of sports schedules (Condello et al., 2019). These accommodations ensure that academic progress is not hampered by the unique challenges of a dual-role lifestyle.

This research also revealed differences in the characteristics of male and female athletes in terms of motivation, study habits, discipline, academic support, and academic performance. The results of the analysis show that the average score of male athletes is greater than that of female athletes. From the results of statistical analysis with a significance level of 0.05, it is known that there are significant differences. These differences can be discussed from each indicator. The results of this research are relevant to previous research which revealed that there are differences in the motivation of male and female athletes (Moradi et al., 2020). Male athletes have higher motivation (Ong, 2019). These differences can be shaped by a variety of factors, including societal expectations,

cultural norms, and individual experiences (Navarro & Malvaso, 2015). Societal expectations place a higher value on male athletic traits causing male student-athletes to be motivated by the desire to gain recognition, respect, and social status. Meanwhile, female student-athletes are motivated to challenge stereotypes, break down barriers, and promote gender equality. Male student athletes tend to have extrinsic motivations such as a desire for scholarships, awards, or professional opportunities. Meanwhile, female student-athletes are intrinsically motivated, finding joy and satisfaction in the process of improvement, personal growth, and love for the sport itself. Judging from study habits, male student-athletes tend to postpone work more often, adapt easily to various environmental conditions, and use assertive and competitive study techniques. Meanwhile, female athletes are more organized in carrying out academic and sports tasks and need a comfortable environment to adapt, and use cooperative learning and discussion techniques. Judging from the discipline, it is known that male student-athletes set goals for long-term goals, are susceptible to time management, and show resilience through the ability to rise from adversity. Meanwhile, female athletes set goals by combining personal and team goals, are organized in time management and show resilience through emotional intelligence. Judging from academic support and academic performance, male student-athletes tend to experience obstacles in balancing academic demands and sports demands. A collaborative academic environment or team-related academic challenges may be very effective for some male student-athletes. Meanwhile, female athletes tend to be more adept at balancing academic demands and sporting demands, tending to seek help from friends, coaches, or mentors when facing academic challenges.

This research also revealed the differences in the characteristics of athletes from individual sports and team sports in terms of motivation, study habits, discipline, academic support, and academic performance. The results of the analysis show that there is no significant difference in the average scores of athletes from individual sports and team sports. From the results of statistical analysis with a significance level of 0.05, it is known that there are no significant differences. Both individual student-athletes and teams often share a passion for their sport (Jakobsen, 2018). Love of the game can be a powerful motivator to put in the effort and time necessary to become the best. Individual and team student-athletes often have a strong work ethic. They understand the correlation between hard work and success, and commitment to putting in the necessary effort is the common thread of motivation. Both individual student-athletes and teams need strong time management skills. Balancing training sessions, competitions and academic commitments requires effective planning to ensure they allocate sufficient time to both areas of their lives. Consistency in study routines is critical to academic success for individual athletes and teams. Both types of athletes must be adept at utilizing available resources, such as libraries, online materials, and academic support services.

Conclusions

Based on the research results conducted in Bengkulu City, it can be concluded that student-athletes in the region

generally exhibit high levels of achievement motivation, study habits, self-discipline, academic support, and academic performance. This suggests a positive and conducive environment for the academic development of student-athletes. Furthermore, a significant difference was observed between male and female student-athletes, indicating that gender plays a role in influencing certain aspects of their academic experiences. The differences could be attributed to various factors such as societal expectations, individual preferences, or cultural influences. However, no significant differences were found between student-athletes engaged in individual sports and those participating in team sports. This implies that the type of sport, whether individual or team-based, does not have a statistically significant impact on the measured academic factors among the student-athletes in Bengkulu City. In summary, the findings suggest a need for tailored support and interventions that consider gender-specific factors for optimizing the academic experiences of student-athletes. Additionally, the lack of significant differences between individual and team sports indicates that both types of sports may contribute equally to the positive academic outcomes observed in the student-athlete population in Bengkulu City.

Acknowledgment

The researcher expressed his gratitude to all student-athletes in Bengkulu City who were willing to provide honest data in this research.

Conflict of interest

The authors declare there is no conflict of interest.

References

- O'Neil, L., Amorose, A. J., & Pierce, S. (2021). Student-athletes' dual commitment to school and sport: Compatible or conflicting? *Psychology of Sport and Exercise*, 52, 101799. <https://doi.org/10.1016/j.psychsport.2020.101799>
- Kristiansen, E. (2017). Walking the line: how young athletes balance academic studies and sport in international competition. *Sport in Society*, 20(1), 47–65. <https://doi.org/10.1080/17430437.2015.1124563>
- DÜZ, S., & ASLAN, T. V. (2020). The Effect of Sport on Life Skills in High School Students. *Asian Journal of Education and Training*, 6(2), 161–168. <https://doi.org/10.20448/journal.522.2020.62.161.168>
- de Prada Creo, E., Mareque, M., & Portela-Pino, I. (2021). The acquisition of teamwork skills in university students through extra-curricular activities. *Education and Training*, 63(2), 165–181. <https://doi.org/10.1108/ET-07-2020-0185>
- Escosio Suguis, J., & Suraya Belleza, S. (2022). Student Engagement as Influenced by Physical Activity and Student Motivation Among College Students. *International Journal of Sports Science and Physical Education*, 7(1), 28. <https://doi.org/10.11648/j.ijsspe.20220701.15>
- Chrisman, S. P., Quitiquit, C., & Rivara, F. P. (2013). Qualitative study of barriers to concussive symptom reporting in high school athletics. *Journal of Adolescent*

- Health*, 52(3), 330-335.e3.
<https://doi.org/10.1016/j.jadohealth.2012.10.271>
- Xie, K., Vongkulluksn, V. W., Lu, L., & Cheng, S. L. (2020). A person-centered approach to examining high-school students' motivation, engagement and academic performance. *Contemporary Educational Psychology*, 62(May), 101877.
<https://doi.org/10.1016/j.cedpsych.2020.101877>
- Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student Motivation and Associated Outcomes: A Meta-Analysis From Self-Determination Theory. *Perspectives on Psychological Science*, 16(6), 1300–1323.
<https://doi.org/10.1177/1745691620966789>
- Lupo, C., Guidotti, F., Goncalves, C. E., Moreira, L., Doupona, M., Bellardini, H., Tonkonogi, M., Colin, A., & Capranica, L. (2015). Motivation towards dual career of European student-athletes. *European Journal of Sport Science*, 15(2), 151–160.
- Yukhymenko-Lescroart, M. A. (2018). On identity and sport conduct of student-athletes: Considering athletic and academic contexts. *Psychology of Sport and Exercise*, 34, 10–19. <https://doi.org/10.1016/j.psychsport.2017.09.006>
- Quinaud, R. T., Fernandes, A., Gonçalves, C. E., & Carvalho, H. M. (2020). Student-Athletes' Motivation and Identity: Variation Among Brazilian and Portuguese University Student-Athletes. *Psychological Reports*, 123(5), 1703–1723. <https://doi.org/10.1177/0033294119892885>
- Brecht, A. A., & Burnett, D. D. (2019). Advising Student-Athletes for Success: Predicting the Academic Success and Persistence of Collegiate Student-Athletes. *NACADA Journal*, 39(1), 49–59.
<https://doi.org/10.12930/nacada-17-044>
- Jafari, H., Aghaei, A., & Khatony, A. (2019). Relationship between study habits and academic achievement in students of medical sciences in kermanshah-iran. *Advances in Medical Education and Practice*, 10, 637–643.
<https://doi.org/10.2147/AMEP.S208874>
- Cosh, S., & Tully, P. J. (2014). "All I have to do is pass": A discursive analysis of student athletes' talk about prioritising sport to the detriment of education to overcome stressors encountered in combining elite sport and tertiary education. *Psychology of Sport and Exercise*, 15(2), 180–189.
<https://doi.org/10.1016/j.psychsport.2013.10.015>
- Turick, R., Bopp, T., & Swim, N. (2021). "How do I do life?" The challenges of preparing student-athletes for professional roles. *Journal for the Study of Sports and Athletes in Education*, 15(1), 71–94.
<https://doi.org/10.1080/19357397.2019.1669367>
- Grace, M., Garcia, G., & Subia, G. S. (2019). High school athletes: Their motivation, study habits, self-discipline and academic performance. *International Journal of Physical Education, Sports and Health*, 6(1), 86–90.
<https://doi.org/10.13140/RG.2.2.20538.44488>
- Medina, G., Lujano, Y., Aza, P., & Sucari, W. (2020). Discipline (and reversibility) in the training space of school football: a case study. *Revista Innova Educación*, 2(4), 650–667.
- Altun, M., Acak, M., Büyükçelebi, H., & Savas, S. (2021). Investigating Life Skills Of Students Who Are Engaged In Sports (İstanbul Bakırköy District Example). *Kastamonu Eğitim Dergisi*, 29(1), 52–62.
<https://doi.org/10.24106/kefdergi.722464>
- Grimit, N. (2014). Effects of student athletics on academic performance. *The Journal of Undergraduate Research*, 12(5), 37–59. <http://openprairie.sdstate.edu/jur>
- Ferreira Silva, R. M., Mendonça, C. R., & Noll, M. (2021). Barriers to high school and university students' physical activity: A systematic review protocol. *International Journal of Educational Research*, 106(November 2020), 2–6. <https://doi.org/10.1016/j.ijer.2021.101743>
- Banwell, J., & Kerr, G. (2016). Coaches' Perspectives on their Roles in Facilitating the Personal Development of Student-Athletes. *Canadian Journal of Higher Education*, 46(1), 1–18. <https://doi.org/10.47678/cjhe.v46i1.185109>
- Pujianto, D., Nopiyanto, Y. E., & Kardi, I. S. (2022). How is the mental toughness of student-athletes? An investigation of elite student-athletes in Bengkulu City. *Journal Sport Area*, 7(3), 369–379.
[https://doi.org/10.25299/sportarea.2022.vol7\(3\).9532](https://doi.org/10.25299/sportarea.2022.vol7(3).9532)
- Pujianto, D., Nopiyanto, Y. E., Insanisty, B., Yarmani, Syafrial, Sugihartono, T., & Ibrahim. (2023). Emotional Intelligence: A Review of Student-Athletes at Physical Education Program. *International Journal of Human Movement and Sports Sciences*, 11(3), 540–547.
<https://doi.org/10.13189/saj.2023.110305>
- Matmask, E. A., & OZRUDI, M. F. (2019). Survey of self-esteem among successful and unsuccessful student athletes and this relationship by achievement motivation. *Asian Exercise and Sport Science Journal*, 3(1), 1–7. <https://journal.aesasport.com/index.php/aesa/article/view/100%0A>
- Deal, Colin J., & Camiré, M. (2016). University student-athletes' experiences of facilitators and barriers to contribution: A narrative account. *Qualitative Report*, 21(11), 2087–2102.
<https://doi.org/10.46743/2160-3715/2016.2360>
- Deal, Colin Jeffery, & Camiré, M. (2016). An Examination of University Student-Athletes' Motivations to Contribute. *Journal of College and Character*, 17(2), 116–129.
<https://doi.org/10.1080/2194587x.2016.1159227>
- Sharma, D., Sharma, S., & Sharma, M. D. (2018). Relationship between motivation and academic achievement. *International Journal of Advances in Scientific Research*, 04(01), 1–5.
- Stokowski, S., Huffman, L. T., & Aicher, T. J. (2013). A Comparative Analysis of Sport Participation Motivations of NCAA Division I Student-Athletes: An International Focus. *Journal for the Study of Sports and Athletes in Education*, 7(2), 131–148.
<https://doi.org/10.1179/1935739713z.0000000009>
- Gardner, L. A., Vella, S. A., & Magee, C. A. (2017). Continued Participation in Youth Sports: The Role of Achievement Motivation. *Journal of Applied Sport Psychology*, 29(1), 17–31. <https://doi.org/10.1080/10413200.2016.1173744>
- Akbar, A., Karim, Z. A., Zakaria, J., Kurniawan, R., Cahyani, F. I., Dwatra, F. D., & Rinaldi. (2023). The Role of Mental Toughness in Improving Achievement: The Perspective of Sport Psychology on Student-Athletes. *International Journal of Human Movement and Sports Sciences*, 11(6), 1376–1382. <https://doi.org/10.13189/saj.2023.110623>
- Javed, S., Naseer, A., Nawaz, A., Naveed, Q., Khan, I. U., Gul, F., & Din, B. M. U. (2020). Psychological implications in the coaching context: The mediating role of motivational intensity and team cohesion in elite sport performance.

- Journal of Physical Education and Sport*, 20(5), 2526–2538. <https://doi.org/10.7752/jpes.2020.05345>
- Linnér, L., Stambulova, N., & Ziegert, K. (2021). Maintaining dual career balance: A scenario perspective on Swedish university student-athletes' experiences and coping. *Scandinavian Journal of Sport and Exercise Psychology*, 3, 47–55. <https://doi.org/10.7146/sjsep.v3i.125734>
- Coffey, L., & Davis, A. (2019). The holistic approach to academia: Traditional classroom instruction and experiential learning of student-athletes. *Education Sciences*, 9(2). <https://doi.org/10.3390/educsci9020125>
- Hardin, R., & Pate, J. R. (2013). Playbook vs. Textbook: Examining Academic Transitioning of NCAA Division I-FBS Football Student-Athletes. *Journal for the Study of Sports and Athletes in Education*, 7(3), 229–244. <https://doi.org/10.1179/1935739713z.00000000014>
- Huml, M. R., Hancock, M. G., & Bergman, M. J. (2014). Additional support or extravagant cost?: Student-athletes' perceptions on athletic academic centers. *Journal of Issues in Intercollegiate Athletics*, 7(January 2017), 410–430.
- Claringbould, I., Knoppers, A., & Jacobs, F. (2015). Young athletes and their coaches: disciplinary processes and habitus development. *Leisure Studies*, 34(3), 319–334. <https://doi.org/10.1080/02614367.2014.895027>
- Zulkifli, A. F., & Rahmat, N. (2022). the Effect of Time Management on Academic Performance Among Undergraduate Student-Athletes in Uitm Puncak Alam. *Article in International Journal of Social Science Research*, 4(4), 163–174.
- Macquet, A. C., & Skalej, V. (2015). Time management in elite sports: How do elite athletes manage time under fatigue and stress conditions? *Journal of Occupational and Organizational Psychology*, 88(2), 341–363. <https://doi.org/10.1111/joop.12105>
- Nordito S Quimbo. (2023). Athletic participation, time management and academic performance of student athletes in San Isidro, Leyte. *World Journal of Advanced Research and Reviews*, 17(1), 1059–1068. <https://doi.org/10.30574/wjarr.2023.17.1.0158>
- Sanders, D. J., Walker, A. J., Prior, K. E., Poyssick, A. N., & Arent, S. M. (2021). Training demands and physiological profile of cross-disciplined collegiate female dancers. *Journal of Strength and Conditioning Research*, 35(8), 2316–2320. <https://doi.org/10.1519/JSC.00000000000003107>
- Strowd, L. C., Kelly, K., Peters, T. R., & Jackson, J. M. (2022). Student, Faculty, and Coach Perspectives on Why Athletes Excel in Medical School: A Qualitative Analysis. *Teaching and Learning in Medicine*, 34(1), 43–59. <https://doi.org/10.1080/10401334.2021.1921584>
- Nichols, M. K., Lough, N. L., & Corkill, A. J. (2019). Exploring Success: Variations in Division I Student-Athlete Academic and Athletic Performance. *Journal of Issues in Intercollegiate Athletics*, 12, 314. <http://csri-jiia.org>
- Sorkkila, M., Tolvanen, A., Aunola, K., & Ryba, T. V. (2019). The role of resilience in student-athletes' sport and school burnout and dropout: A longitudinal person-oriented study. *Scandinavian Journal of Medicine and Science in Sports*, 29(7), 1059–1067. <https://doi.org/10.1111/sms.13422>
- Sullivan, L., Carter, J. E., Houle, J., Ding, K., Hautmann, A., & Yang, J. (2023). Evaluation of a resilience training program for college student-athletes: A pilot study. *Journal of American College Health*, 71(1), 310–317. <https://doi.org/10.1080/07448481.2021.1891083>
- Hazzaa, R. N., Sonkeng, K., & Yoh, T. (2018). Antecedents and Consequences of Student-Athletes' Contentment With Academic Services. *Journal of Intercollegiate Sport*, 11(1), 65–81. <https://doi.org/10.1123/jis.2017-0041>
- Lassiter, J., & Campbell, A. (2023). Perceived Effectiveness of Study Skills Training for Division III College Athletes: A Pilot Program. *Journal of Athlete Development and Experience*, 5(1). <https://doi.org/10.25035/jade.05.01.03>
- Grandy, J., Lough, N., & Miller, C. (2016). Improving Student-Athlete Academic Success: Evaluation of Learning Support Tools Utilized by Academic Advisors for Athletics. *Journal for the Study of Sports and Athletes in Education*, 10(3), 199–217. <https://doi.org/10.1080/19357397.2016.1258967>
- Vaughn, A., & Smith, J. (2018). Advising student-athletes: Understanding job preparation, roles, and challenges of the athletic academic advisor. *Sport Journal*, 20, 1–28.
- Karakaya, Y. E., Brusseau, T. A., & Karademir, T. (2015). The relationship between student athletes' behaviour in the classroom and teachers' burnout level. *Biomedical Human Kinetics*, 7(1), 163–170. <https://doi.org/10.1515/bhk-2015-0024>
- Kirby, L., & Amason, P. (2021). Academic Success: Perceptions of Student-Athletes, Learning Specialists, and Academic Advisors. *Journal of Higher Education Athletics & Innovation*, 1(7), 33–60. <https://doi.org/10.15763/issn.2376-5267.2020.1.7.33-60>
- Condello, G., Capranica, L., Doupona, M., Varga, K., & Burk, V. (2019). Dual-career through the elite university student-athletes' lenses: The international FISU-EAS survey. *PLoS ONE*, 14(10), 1–18. <https://doi.org/10.1371/journal.pone.0223278>
- Moradi, J., Bahrami, A., & Dana, A. (2020). Motivation for participation in sports based on athletes in team and individual sports. *Physical Culture and Sport, Studies and Research*, 85(1), 14–21. <https://doi.org/10.2478/pccsr-2020-0002>
- Ong, N. C. H. (2019). Assessing objective achievement motivation in elite athletes: A comparison according to gender, sport type, and competitive level. *International Journal of Sport and Exercise Psychology*, 17(4), 397–409. <https://doi.org/10.1080/1612197X.2017.1349822>
- Navarro, K., & Malvaso, S. (2015). Toward an Understanding of Best Practices in Student-Athlete Leadership Development Programs: Student-Athlete Perceptions and Gender Differences. *Journal of Applied Sport Management*, 7(3).
- Jakobsen, A. M. (2018). Are There Differences in Motives Between Participants in Individual Sports Compared to Team Sports? *LASE Journal of Sport Science*, 5(2), 30–40. <https://doi.org/10.1515/ljss-2016-0030>

Учні-спортсмени старшої школи: їх мотивація, навчальні звички, самодисципліна, академічна підтримка та академічна успішність

Діан Пуджянто^{1ABCDE}, Ях'я Еко Нопіянто^{1ABCDE}, Кайо Вібово^{2ACDE},
Іпа Сарі Карді^{3ACDE}, Септіан Райбово^{1ACDE}, Баю Інсаністіо^{1ACDE},
Ібрагім^{3ACDE}, Бахаруддін Хасан^{3ACDE}, Агус Сутріаван^{4ACDE}

¹Бенкулуський університет

²Християнський університет Сат'я Вакана

³Університет Сендераवासіх

⁴Макассарський державний університет

Авторський вклад: А – дизайн дослідження; В – збір даних; С – статаналіз; D – підготовка рукопису; Е – збір коштів

Реферат. Стаття: 10 с., 12 табл., 56 джерел.

Мета дослідження. Учні-спортсменам нелегко балансувати між функціями спортсмена та учня в школі. Чимало з них мають перешкоди у балансуванні обох функцій. Метою даного дослідження є визначення характеристики показників учнів-спортсменів середніх шкіл у місті Бенгкулу. Основними задачами дослідження є опис рівня мотивації досягнення, навчальних звичок, самодисципліни, академічної підтримки та академічної успішності.

Матеріали та методи. Це кількісне описове дослідження з використанням методу анкетування, в якому взяли участь 402 учні-спортсмени на рівні середньої та старшої школи. Учні-спортсмени представляють 16 видів спорту. Середній вік учнів-спортсменів становить 15,9 років. Інструментом, що використовувався в дослідженні, був опитувальник, складений з 36 пунктів тверджень. Для аналізу даних щодо рівня категорії кожного показника використовувалися формули оптимального середнього та стандартного відхилення, а для визначення відмінностей даних між учнями-спортсменами залежно від статі та виду спорту застосовувався t-критерій для незалежних вибірок.

Результати. Результати дослідження показують, що учні-спортсмени міста Бенгкулу мають високий рівень мотивації досягнення, навичок навчання, самодисципліни, академічної підтримки та академічної успішності. Існує значна різниця у показниках серед учнів-спортсменів чоловічої та жіночої статі ($\text{sig } 0,001 < 0,005$). Значущих відмінностей у показниках серед учнів-спортсменів з індивідуальних та командних видів спорту не спостерігалося ($0,442 > 0,005$).

Висновки. Учні-спортсмени молодших та старших класів середньої школи навчання мають позитивну характеристику показників, є значущі відмінності між спортсменами чоловічої та жіночої статі, а також відсутні значущі відмінності між спортсменами індивідуальних та командних видів спорту.

Ключові слова: учні-спортсмени, мотивація, звички, дисципліна, академічний.

Information about the authors:

Pujianto, Dian: dianpujianto@unib.ac.id; <https://orcid.org/0000-0001-8653-1010>; Department of Physical Education, University of Bengkulu, Jl. W. R. Supratman, Kandang Limun, Sumatera, Bengkulu 38371, Indonesia.

Nopiyanto, Yahya Eko: yahyaekonopiyanto@unib.ac.id; <https://orcid.org/0000-0003-2920-0594>; Department of Physical Education, University of Bengkulu, Jl. W. R. Supratman, Kandang Limun, Sumatera, Bengkulu 38371, Indonesia.

Wibowo, Cahyo: cahyo.wibowo@uksw.edu; <https://orcid.org/0009-0002-5249-1238>; Department of Physical Education Health and Recreation, Satya Wacana Christian University, Jl. Diponegoro 52-60, Salatiga, Jawa Tengah, 50711, Indonesia.

Kardi, Ipa Sari: ipasari@fik.uncen.ac.id; <https://orcid.org/0000-0002-7402-2179>; Faculty of Sport Science, Cenderawasih University, Jl. Kamp Wolker, Yabansai, Kota Jayapura, Papua 99224, Indonesia.

Raibowo, Septian: septianraibowo@unib.ac.id; <https://orcid.org/0000-0001-9588-2752>; Department of Physical Education, University of Bengkulu, Jl. W. R. Supratman, Kandang Limun, Sumatera, Bengkulu 38371, Indonesia.

Insanisty, Bayu: bayuinsanisty@unib.ac.id; <https://orcid.org/0000-0002-0041-7442>; Department of Physical Education, University of Bengkulu, Jl. W. R. Supratman, Kandang Limun, Sumatera, Bengkulu 38371, Indonesia.

Ibrahim: ibrahimibe616@gmail.com; <https://orcid.org/0000-0001-9820-1465>; Faculty of Sport Science, Cenderawasih University, Jl. Kamp Wolker, Yabansai, Kota Jayapura, Papua 99224, Indonesia.

Hasan, Baharuddin: hasanbaharuddin03@gmail.com; <https://orcid.org/0009-0003-9710-4681>; Faculty of Sport Science, Cenderawasih University, Jl. Kamp Wolker, Yabansai, Kota Jayapura, Papua 99224, Indonesia.

Sutriawan, Agus: agus.sutriawan@unm.ac.id; <https://orcid.org/0009-0002-9774-4593>; Department of Physical Education Health and Recreation, Universitas Negeri Makassar, Jl. A. P. Pettarani, Tidung, Kec. Rappocini, Kota Makassar, Sulawesi Selatan 90222, Indonesia.

Cite this article as: Pujianto, D., Nopiyanto, Y.E., Wibowo, C., Kardi, I.S., Raibowo, S., Insanisty, B., Ibrahim, Hasan, B., & Agus Sutriawan, A. (2024). High School Student-Athletes: Their Motivation, Study Habits, Self-Discipline, Academic Support, and Academic Performance. *Physical Education Theory and Methodology*, 24(1), 22–31. <https://doi.org/10.17309/tmfv.2024.1.03>

Received: 21.12.2023. Accepted: 04.02.2024. Published: 29.02.2024

This work is licensed under a Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0>).