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STUDENTS' ATTITUDE AND TEST ANXIETY AS CORRELATES OF UNDERGRADUATE BIOLOGY EDUCATION STUDENTS' ACADEMIC ACHIEVEMENT IN ANIMAL PHYSIOLOGY IN ANAMBRA STATE

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ABSTRACT

The study examined students' attitude and test anxiety as correlates of undergraduate biology education students' academic achievement in animal physiology in Anambra state. Six research questions guided the study. Six null hypotheses were formulated and tested at 0.05 level of significance. Correlational survey research design was used for the study. The population of the study comprised of 103 undergraduate biology education students of Nnamdi Azikiwe University Awka. The entire population was studied without sampling. Instrument for data collection was a structured questionnaire titled "Questionnaire on Students' Attitude as Correlate of Undergraduate Biology Education Students' Academic Achievement in Animal Physiology" developed by the researchers and "Questionnaire on Test anxiety as Correlate of Undergraduate Biology Education Students' Academic Achievement in Animal Physiology." adapted from Richard Driscoll, Ph.D, Westside Test Anxiety scale. The instrument was validated by three experts, one from Science Education Department and two from Educational Foundation Department in Nnamdi Azikiwe University, Awka. A reliability Coefficient 0.76 was obtained for the instrument using test-Spearman's Correlational Coefficient. The data collected was analyzed using Linear Regression and Regression ANOVA for hypotheses. The findings of the study revealed that the relationship between students' attitude and their academic achievement in animal physiology is moderate and positive, which implies that an increase in students' attitude led to a significant increase in their academic achievement in animal physiology while the relationship between test anxiety and academic achievement in animal physiology is low and positive, which implies that an increase in students' test anxiety led to a significant decrease in their academic achievement in animal physiology. Based on these findings, it was recommended among others that Educational guidance services should be made mandatory in universities and educational stakeholders should equally

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focus on improving the attitude of students towards education and also find ways to reduce test anxiety among the students.

Keywords: Student attitude, test anxiety, academic achievement, animal physiology

Introduction

Science as a body of knowledge is a systematic process that is concerned with the physical world and its phenomena. Hornby (2010) defined science as the study of the structure and behaviour of the physical and natural world and society especially through observation and experimentation. Science comprises of various disciplines such as physics, chemistry, mathematics and biology.

Biology as a science subject describes how living organism carry out their life activities and how they interact with environment (Obialor, Ezeobi and Ezenwabuchili ,2020). It is also the study of living organisms with regards to their structure (gross and microscopical) functioning, origin, and evolution, classification, interrelationships and distribution (Elizabeth in Obialor, 2016). Biology as a subject is further branched into different areas of study such as anatomy, zoology, botany, ecology, genetics, cell biology, molecular biology and animal physiology.

Animal physiology is a branch of biology that discussed the basic principles of animal physiology, metabolism and energy, permeability and transportation of substances across the plasma membrane, ions and stimulation of membranes, muscles and motion, blood and body fluids, circulation, nutrition and food digestion, respiration, excretion, osmoregulation, nerve coordination, hormone coordination, thermoregulation, sensory receptors and effectors (Widiana, Susanti, Susanti &Sumarmin, 2020). It also examines the process in which animals digest their food, carryout gaseous exchange, excrete waste, circulate nutrients and waste products in and out of cells for a normal physiological function of their body. This branch of biology is one of the courses offered by students of biology education in fulfilment of their programme, in all higher institution of learning like colleges of education and universities.

Despite the importance of this course in the training of biology education students' in Nigeria universities, students' performance in the course in Nnamdi Azikwe University, awka has been poor. For instance, the results of the students' academic achievement in Animal Physiology for the past three academic session (2018/2019, 2019/2020 and 2020/2021) in Nnamdi Azikwe University, awka showed that a low percentage of students scored between A-C while a very high percentage scored below C from 2018/2019 - 2019/2020 academic sessions. The researchers also noted that this low achievement scores in these sessions may likely be due to students' negative attitudes and test anxiety towards the course.

Conversely, a high percentage of students scored A-C and a low percentage scored below C in the year 2020/2021 academic session. The later academic session indicates a good academic achievement with a huge gap which may likely be as a result of positive attitude and low-test anxiety towards the course.

Academic achievement, according to Achufusi (2018) is defined as self-perception and self-evaluation of one's success having undergone a test. Awan, Maureen and Naz (2011) defined academic achievement as the examination marks, teachers given grades and percentages in academic subjects earned by students' achievement. Academic achievement is a crucial element that necessitates the accomplishment of all elite students within the university setting (Abdullah, Shamsi, Jenatabadi, &Mentri. 2022). However, Marcela and Mala (2016) discovered in their work that learner's anxiety and attitudes toward school were a determinant factor that predicts their academic achievement.

Attitude can be said to be the emotional and mental entities that propel an individual to take any action towards an object or subject (Perloff, 2016). Attitudes are very closely related to individuals because they determine a person in aspects of behaviour, perception, personality, feelings, and motivations possessed by the individual (Yulivan, 2018). Attitude is a person preference way to deal with the situations presented to him at any given point of time. A student with a high positive attitude towards any particular course tends to achieve a more academic excellent than a student that is influenced by negative attitude.

Anxiety is considered a future-oriented, long-acting response broadly focused on a diffuse threat, whereas fear is an appropriate, present-oriented, and short-lived response to a clearly identifiable and specific threat. Anxiety is an anticipated belief of psychological distress which is a result of a potentially dangerous event (Larson, Orr, & Warne, 2016). However, test anxiety is an undesirable reaction towards educational goals, objectives and evaluation. Test anxiety is a psychological condition in which students experience extreme distress and anxiety in test situations. Research carried out by Alemu & Feyssa (2020) on the effects of test anxiety on academic achievement of grade ten students on English, Mathematics, Physics, Chemistry, Geography and History revealed that test anxiety and academic achievement are related to each other. However, this present study tends to examine the relationship between attitude, test anxiety and academic achievement of undergraduate biology education students' of Nnamdi Azikiwe University, Awka in Animal Physiology, gender may be implicated in the relationship between students attitude, text anxiety and academic achievement in Animal physiology.

Gender is the fact of being male or female (Quirk in Obialor, 2016).it is a socially ascribed attribute which differentiates feminine from masculine

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(Elitzen, 2006). In a study carried out by Matovu (2012) revealed that female students had higher academic effort compared to male students. Zembar and Blume (2011) observed that on average, girls did better than boys in school. Syokwaa (2014) explored gender differences with respect to test anxiety and found out that female students have higher levels of overall test anxiety than male students. Fennema in Okigbo (2013) reported that female students' developed negative attitude to Mathematics as a result of the treatment meted to them by their teachers. From the foregoing, it seems that the female students' tends to have higher level of academic achievement and test anxiety than the male students. However, the attitude of female students toward the learning of mathematics was negative. This conflicting report, therefore necessitate further investigation and the present study sought to examine the student's attitude and test anxiety as correlates of biology education students' academic achievement in animal physiology in Anambra State.

Purpose of the study

The purpose of the study was to determine students' attitude and test anxiety as correlates of undergraduate biology education students' academic achievement in Animal Physiology in Anambra state. Specifically, the study tends to determine the;

1. relationship between the students' attitude and their academic achievement in animal physiology.
2. relationship between the students' test anxiety and their academic achievement in animal physiology.
3. relationship between the male students' attitude and their academic achievement in animal physiology.
4. relationship between the female students' attitude and their academic achievement in animal physiology.
5. relationship between the male students' test anxiety and their academic achievement in animal physiology.
6. relationship between the female students' test anxiety and their academic achievement in animal physiology.

Research Questions

The following research questions will guide this study;

1. What is the relationship between the student's attitude and their academic achievement in animal physiology?
2. What is the relationship between the students test anxiety and their academic achievement in animal physiology?
3. What is the relationship between the male student's attitude and their academic achievement in animal physiology?
4. What is the relationship between the female student's attitude and their academic achievement in animal physiology?
5. What is the relationship between the male students test anxiety and their

academic achievement in animal physiology?

6. What is the relationship between the female students test anxiety and their academic achievement in animal physiology?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

1. There is no significant relationship between students' attitude and their academic achievement in animal physiology.
2. There is no significant relationship between students test anxiety and their academic achievement in animal physiology.
3. There is no significant relationship between male students' attitude and their academic achievement in animal physiology.
4. There is no significant relationship between female students' attitude and their academic achievement in animal physiology.
5. There is no significant relationship between male students test anxiety and their academic achievement in animal physiology.
6. There is no significant relationship between female students test anxiety and their academic achievement in animal physiology.

Research Method

The design adopted for this study was Correlational survey design. According to Norman Cook (2013), correlational study represents a general approach to research that focuses on accessing co-variation among naturally occurring variables. The study was carried out in Nnamdi Azikiwe University Awka. The population of this study comprises of 103 undergraduate biology education students of Nnamdi Azikiwe University Awka. The entire population of 103 undergraduate biology education students of Nnamdi Azikiwe University, Awka was used for the study without sampling. The instrument used for collection of data in this study was a structured questionnaire developed by the researchers from literature reviews and research question. The instrument was titled "Questionnaire on Students' Attitude as Correlate of Undergraduate Biology Education Students' Academic Achievement in Animal Physiology" and "Questionnaire on Test anxiety as Correlate of Undergraduate Biology Education Students' Academic Achievement in Animal Physiology" was adapted from Richard Driscoll, Ph.D, Westside Test Anxiety scale. The questionnaire on Test Anxiety was made up of two sections, A and B. Section A of the questionnaire was used to obtain personal information of the respondents, section B contained item questions in accordance to the specific purpose of study and research questions developed from the study. The questionnaire on Students' Attitude was made up of two sections, A and B. Section A of the questionnaire was used to obtain personal information of the respondents. Section B contained item questions in

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accordance to the specific purpose of study and research questions developed from the study. The Four-point Likert type of rating scale was used in constructing the questionnaire and it has the following options: Strongly Agree (SA) 4 points, Agree (A) 3 points, Disagree (D) 2 points and Strongly Disagree (SD) 1 point. The instrument was validated by three experts, one from Science Education Department and two from Educational Foundation Department in Nnamdi Azikiwe University, Awka. To obtain the reliability of the instrument, copies of the questionnaire was tested by administering 20 copies to undergraduate biology education students of College of Education, Nsugbe using single administrative method. The data obtained from the administered questionnaire was analyzed using spearman's correlational coefficient and a value of 0.76 was obtained. The researchers administered the copies of the questionnaire personally to 103 undergraduate biology students in Nnamdi Azikiwe University Awka and all the copies were collected on the spot. This was to avoid instrument mortality rate. The data collected was analyzed using Linear Regression. Specifically, the research questions were answered using correlation coefficient (r) and coefficient of determination (r^2) while the hypotheses were tested using regression ANOVA at 0.05 level of significance. The interpretation of the correlation coefficient was according to Nworgu (2015) who provided a three-way guide for interpreting correlation coefficient values when a large number of pair's scores have been correlated. They are as follows: r = ±0.30 and below, low relationship; r = ±0.30 to below ±0.80, moderate relationship; and r= ±0.80 and above, high relationship.

Presentation of Results

Research Question One: What is the relationship between the students' attitude and their academic achievement in animal physiology?

Table 1: Regression analysis of the relationship between the students' attitude and their academic achievement in animal physiology

Model	R	r^2	Adjusted r^2	Std. Error of the Estimate	Decision2
1	.334[a]	.111	.103	13.55866	Moderate positive relationship

a. Predictors: (Constant), QSA

The result in Table 1 shows that the correlation coefficient between students' attitude and their academic achievement in animal physiology is .334. This indicates that there exists a moderate positive relationship between students' attitude and their academic achievement in animal physiology. The data in the table also revealed that the coefficient of determination (r^2) associated with the correlation coefficient of .334 is .111. The coefficient of determination (r^2) indicates that 11.1% variation in students' achievement in

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animal physiology can be attributed to their attitude. Furthermore, hypothesis one below was formulated and tested at 0.05 level of significance to determine if there is any significant relationship between students' attitude and their academic achievement in animal physiology.

Research Question Two: What is the relationship between the students' test anxiety and their academic achievement in animal physiology?

Table 2: Regression analysis of the relationship between the students' text anxiety and their academic achievement in animal physiology

Model	R	r^2	Adjusted r^2	Std. Error of the Estimate	Decision
1	.009[a]	.000	-.010	14.38250	Low positive relationship

a. Predictors: (Constant), QSTA

The result in Table 3 shows that the correlation coefficient between students' test anxiety and their academic achievement in animal physiology is .009. This indicates that there exists a low positive relationship between students' test anxiety and their academic achievement in animal physiology. The data in the table also revealed that the coefficient of determination (r^2) associated with the correlation coefficient of .009 is .000. The coefficient of determination (r^2) indicates that 0.00% variation in students' achievement in animal physiology can be attributed to their test anxiety. Furthermore, hypothesis two below was formulated and tested at 0.05 level of significance to determine if there is any significant relationship between students' test anxiety and their academic achievement in animal physiology.

Research Question Three: What is the relationship between the male students' attitude and their academic achievement in animal physiology?

Table 3: Regression analysis of the relationship between the male students' attitude and their academic achieve8ment in animal physiology

Gender	R	r^2	Adjusted r^2	Std. Error of the Estimate	Decision
Male	.079[a]	.006	- .022	10.88271	Low positive relationship

a. Predictors: (Constant), QSA

The result in Table 5 indicates that the correlation coefficient between male students' attitude and their academic achievement in animal physiology is .079. This indicates that there exists a low positive relationship between male students' attitude and their academic achievement in animal physiology. The data in the ta2ble also

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revealed that the coefficient of determination (r^2) associated with the correlation coefficient of .079 is .006. The coefficient of determination (r^2) indicates that 0.06% variation in male students' achievement in animal physiology can be attributed to their attitude. Furthermore, hypothesis three below was formulated and tested at 0.05 level of significance to determine if there is any significant relationship between male students' attitude and their academic achievement in animal physiology.

Research Question Four: What is the relationship between the female students' attitude and their academic achievement in animal physiology?

Table 4: Regression analysis of the relationship between the female students' attitude and their academic achievement in animal physiology

Gender	R	r^2	Adjusted r^2	Std. Error of the Estimate	Decision
Female	.461[a]	.213	.200	14.04195	Moderate positive relationship

a. Predictors: (Constant), QSA

The result in Table 7 indicates that the correlation coefficient between female students' attitude and their academic achievement in animal physiology is .461. This indicates that there exists a moderate positive relationship between female students' attitude and their academic achievement in animal physiology. The data in the table also revealed that the coefficient of determination (r^2) associated with the correlation coefficient of .461 is .213. The coefficient of determination (r^2) indicates that 21.3% variation in female students' achievement in animal physiology can be attributed to their attitude. Furthermore, hypothesis four below was formulated and tested at 0.05 level of significance to determine if there is any significant relationship between female students' attitude and their academic achievement in animal physiology.

Research Question Five: What is the relationship between the male students' test anxiety and their academic achievement in animal physiology?

Table 5: Regression analysis of the relationship between the male students' test anxiety and their academic achievement in animal physiology

Gender	R	r^2	Adjusted r^2	Std. Error of the Estimate	Decision
Male8	.095[a]	.009	- .019	10.86787	Low positive relationship

a. Predictors: (Constant), QSTA

The result in Table 9 indicates that the correlation coefficient between male students' test anxiety and their academic achievement in animal physiology is .095.

This indicates that there exists a low positive relationship between male students' test anxiety and their academic achievement in animal physiology. The data in the table also revealed that the coefficient of determination (r^2) associated with the correlation coefficient of .095 is .009. The coefficient of determination (r^2) indicates that 0.09% variation in male students' achievement in animal physiology can be attributed to their test anxiety. Furthermore, hypothesis five below was formulated and tested at 0.05 level of significance to determine if there is any significant relationship between male students' test anxiety and their academic achievement in animal physiology.

Research Question Six: What is the relationship between the female students' test anxiety and their academic achievement in animal physiology?

Table 6: Regression analysis of the relationship between the female students' test anxiety and their academic achievement in animal physiology

Gender	R	r^2	Adjusted r^2	Std. Error of the Estimate	Decision
Female	.032[a]	.001	- .015	15.81792	Low positive relationship

a. Predictors: (Constant), QSTA

The result in Table 11 indicates that the correlation coefficient between female students' test anxiety and their academic achievement in animal physiology is .032. This indicates that there exists a low positive relationship between female students' test anxiety and their academic achievement in animal physiology. The data in the table also revealed that the coefficient of determination (r^2) associated with the correlation coefficient of .032 is .001. The coefficient of determination (r^2) indicates that 0.01% variation in female students' achievement in animal physiology can be attributed to their test anxiety. Furthermore, hypothesis six below was formulated and tested at 0.05 level of significance to determine if there is any significant relationship between female students' test anxiety and their academic achievement in animal physiology.

Hypotheses

Hypothesis One: There is no significant difference between students' attitude and their academic achievement in animal physiology.

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Table 7: Regression analysis on significance relationship between the students' attitude and their academic achievement in animal physiology

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2326.541	1	2326.541	12.655	.001[b]
	Residual	18567.576	101	183.837		
	Total	20894.117	102			

a. Dependent Variable: Achievement Score
b. Predictors: (Constant), QSA

The result in table 2 shows that at 12.655 F-value the probability value of .001 was obtained which is less than the 0.05 level of significance. Therefore, the null hypothesis was rejected. Hence, there is a significant relationship (P<0.05) between students' attitude and their academic achievement in animal physiology. This implies that students' attitude made a significant contribution to their academic achievement in animal physiology.

Hypothesis Two: There is no significant relationship between students' test anxiety and their academic achievement in animal physiology.

Table 8: Regression analysis on significance relationship between the students' test anxiety and their academic achievement in animal physiology

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.641	1	1.641	.008	.929[b]
	Residual	20892.475	101	206.856		
	Total	20894.117	102			

a. Dep2endent Variable: Achievement Score
b. Predictors: (Constant), QSTA

The result in table 4 shows that at .008 F-value the probability value of .929 was obtained which is greater than the 0.05 level of significance. Therefore, the null hypothesis was not rejected. Hence, there is no significant relationship (P>0.05) between students' test anxiety and their academic achievement in animal physiology. This implies that students' test anxiety made no significant contribution to their academic achievement in animal physiology.

Hypothesis Three: There is no significant relationship between male students' attitude and their academic achievement in animal physiology

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Table 9: Regression analysis on significant relationship between male students' attitude and their academic achievement in animal physiology

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	26.128	1	26.128	.221	.641[c]
	Residual	4145.170	35	118.433		
	Total	4171.297	36			

a. Dependent Variable: Achievement Score
b. Selecting only cases for which Gender=Male
c. Predictors: (Constant), QSA

The result in table 6 reveals that at .221 F-value the probability value of .641 was obtained which is greater than the 0.05 level of significance. Therefore, the null hypothesis was not rejected. Hence, there is no significant relationship (P>0.05) between male students' attitude and their academic achievement in animal physiology. This implies that attitude made no significant contribution to the male students' academic achievement in animal physiology.

Hypothesis Four: There is no significant relationship between female students' attitude and their academic achievement in animal physiology

Table 10: Regression analysis on significant relationship between female students' attitude and their academic achievement in animal physiology

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3410.484	1	3410.484	17.297	.000[c]
	Residual	12619.289	64	197.176		
	Total	16029.773	65			

a. Dependent Variable: Achievement Score
b. Selecting only cases for which Gender=Female
c. Pre2dictors: (Constant), QSA

The result in Table 8 reveals that at 17.297 F-value the probability value of .000 was obtained which is less than the 0.05 level of significance. Therefore, the null hypothesis was rejected. Hence, there is a significant relationship (P<0.05) between female students' attitude and their academic achievement in animal physiology. This implies that attitude made a significant contribution to the female students' academic achievement in animal physiology.

Hypothesis Five: There is no significant relationship between male students' test anxiety and their academic achievement in animal physiology

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Table 11: Regression analysis on significant relationship between male students' test anxiety and their academic achievement in animal physiology

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	37.429	1	37.429	.317	.577[c]
	Residual	4133.868	35	118.111		
	Total	4171.297	36			

a. Dependent Variable: Achievement Score
2 b. Selecting only cases for which Gender=Male
c. Predictors: (Constant), QSTA

The result in table 10 reveals that at .317 F-value the probability value of .577 was obtained which is greater than the 0.05 level of significance. Therefore, the null hypothesis was not rejected. Hence, there is no significant relationship (P>0.05) between male students' test anxiety and their academic achievement in animal physiology. This implies that test anxiety made no significant contribution to the male students' academic achievement in animal physiology.

Hypothesis Six: There is no significant relationship between female students' test anxiety and their academic achievement in animal physiology

Table 12: Regression analysis on significant relationship between female students' test anxiety and their academic achievement in animal physiology

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	16.553	1	16.553	.066	.798[c]
	Residual	16013.220	64	250.207		
	Total	16029.773	65			

a. Dependent Variable: Achievement Score
b. Selecting only cases for which Gender=Female
c. Predictors: (Constant), QSTA

The result in table 12 reveals that at .066 F-value the probability value of .798 was obtained which is greater than the 0.05 level of significance. Therefore, the null hypothesis was not rejected. Hence, there is no significant relationship (P>0.05) between female students' test anxiety and their academic achievement in animal physiology. This implies that test anxiety made no significant contribution to the female students' academic achievement in animal physiology.

Discussion

The findings of the study showed that the relationship between students' attitude and their academic achievement in animal physiology is moderate and positive. It accounted for 11.1% variance in students' achievement in animal physiology. Also,

further analysis revealed that students' attitude has a significant relationship on their academic achievement in animal physiology. This implies that an increase in students' attitude led to a significant increase in their academic achievement in animal physiology. This is in line with the finding of Kabungu, Mohamed and Mngokava (2016) that attitude, age and gender had significant relationship with students' performance in science subjects. Therefore, students' attitudes should be very central to teachers, because affective dispositions are powerful predictors of students' performance.

The findings of the study also showed that the relationship between students' test anxiety and their academic achievement in animal physiology is low and positive. It accounted for 0.00% variance in students' achievement in animal physiology. Also, further analysis revealed that students' test anxiety has no significant relationship on their academic achievement in animal physiology. This implies that an increase in students' test anxiety led to a significant decrease in their academic achievement in animal physiology. This finding is in agreement with Eman, Hind, Rufa, Nadiah and Brouj (2016) who found out that there was a statistically significant negative relationship between test anxiety scores and undergraduate nursing students' academic level which explain that undergraduate nursing students had higher academic level experience and less test anxiety. The finding is also in line with Oluchi, Aloka, and Odongo (2018) that there was statistically significant negative correlation between test anxiety and chemistry academic and that test anxiety accounted for 18.7% of the variation in students' performance in chemistry.

The findings of the study further showed that the relationship between male students' attitude and their academic achievement in animal physiology is low and positive. It accounted for 0.06% variance in students' achievement in animal physiology. Also, further analysis revealed that male students' attitude has no significant relationship on their academic achievement in animal physiology. This implies that an increase in male students' attitude do not lead to a significant increase in their academic achievement in animal physiology. This finding is supported by the findings of Akerele, Awoyemi and Ogunniyi (2022) that there is no significant relationship between male students' attitude and academic achievement. The finding is also in line with the finding of Prihatini, Etika and Bunga (2018) which showed that most of male students have 8positive attitude toward mastery English vocabulary.

Furthermore, the findings of the study showed that the relationship between female students' attitude and their academic achievement in animal physiology is moderate and positive. It accounted for 21.3% variance in students' achievement in animal physiology. Also, further analysis revealed that female students' attitude has a significant relationship on their academic achievement in animal physiology. This implies that an increase in female students'

attitude lead to a significant increase in their academic achievement in animal physiology. This is in line with the finding of Prihatini, Etika and Bunga (2018) that almost all of female students have positive attitude toward English vocabulary mastery. This finding is also supported by the finding of Lane, Kaya-Capocci, Kelly, O'Connell, and Goos (2022) which indicated that female students had significantly more positive attitudes to science compared to males while in comparison, males had significantly more positive responses to mathematics compared to females.

In addition, the findings of the study showed that the relationship between male students' test anxiety and their academic achievement in animal physiology is low and positive. It accounted for 0.09% variance in students' achievement in animal physiology. Also, further analysis revealed that male students' test anxiety has no significant relationship on their academic achievement in animal physiology. This implies that an increase in male students' test anxiety leads to a significant decrease in their academic achievement in animal physiology. This finding is supported by the findings of Farzaneh, Roonak, and Hayeda (2012) that showed that test anxiety occurs less in male students and this difference was significant. The findings are also, in agreement with a study conducted by Siddiqui and Rehman (2016) on Academic anxiety (test anxiety) among Reserved & Non-Reserved category of Senior secondary students of Jammu division and revealed that in terms of academic anxiety mean score differences among all comparative groups under study, only reserved females were suffering more from academic anxiety than reserved categories male sample.

Finally, the findings of the study showed that the relationship between female students' test anxiety and their academic achievement in animal physiology is low and positive. It accounted for 0.01% variance in students' achievement in animal physiology. Also, further analysis revealed that female students' test anxiety has no significant relationship on their academic achievement in animal physiology. This implies that an increase in female students' test anxiety leads to a significant decrease in their academic achievement in animal physiology. This is in line with the finding of Alemu and Feyssa (2020) that there is a significant negative relationship between test anxiety and students' achievement scores. The results of the study were suggested that the female reported significantly higher test anxiety level compared to male students. The finding is also supported by Saima, Imtiaz, Memona, and Nighat (2012) that female students experience significantly higher level of test anxiety as compared to male students.

Conclusion

Based on the findings of the study, it was concluded that there is a moderate positive and significant relationship between students' attitude and their academic achievement in animal physiology. The relationship between students' test anxiety and their academic

achievement in animal physiology is low, positive and not significant. In addition, the relationship between male students' attitude, test anxiety and their academic achievement in animal physiology is low, positive and not significant while there is a moderately positive and significant relationship between female students' attitude and their academic achievement in animal physiology. Similarly, the relationship between female students' test anxiety and their academic achievement in animal physiology is low, positive and not significant.

Recommendations

Based on the research findings, the following recommendations were made;

1. Educational guidance services should be made mandatory in universities and educational stakeholders should equally focus on improving the attitude of students towards education and also find ways to reduce test anxiety among the students.
2. Students' attitude and test anxiety can be improved by using appropriate teaching strategies and academic activities to ensure active participation of students and improve their academic achievement.
3. Students should avoid reading for exam purpose only, rather they should read to gain knowledge of the course content.
4. Government should set up trainings that will enlighten educators on psychological construct such as anxiety

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