

# ASMPH



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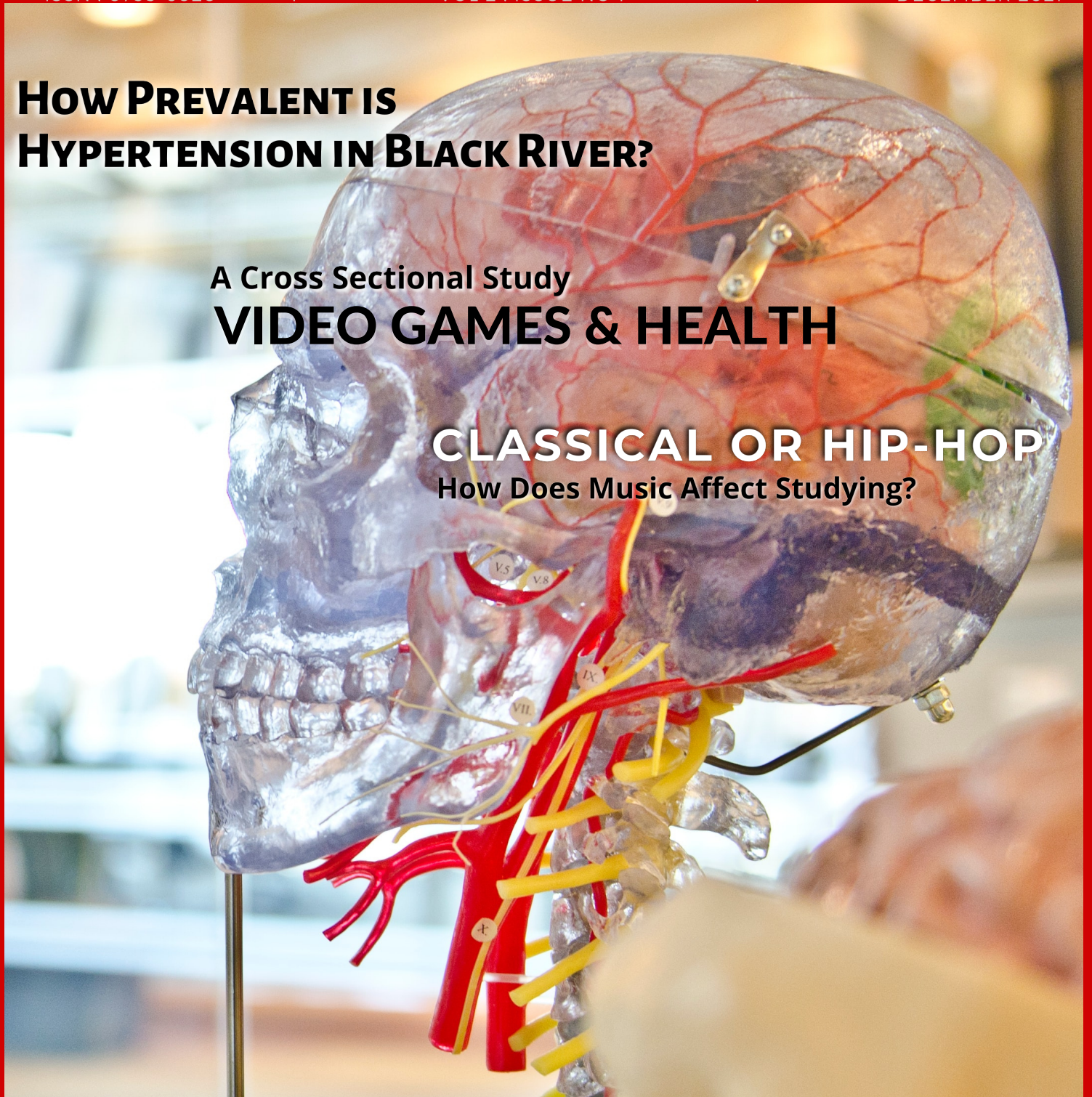
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A Cross Sectional Study

## VIDEO GAMES & HEALTH

## CLASSICAL OR HIP-HOP

How Does Music Affect Studying?

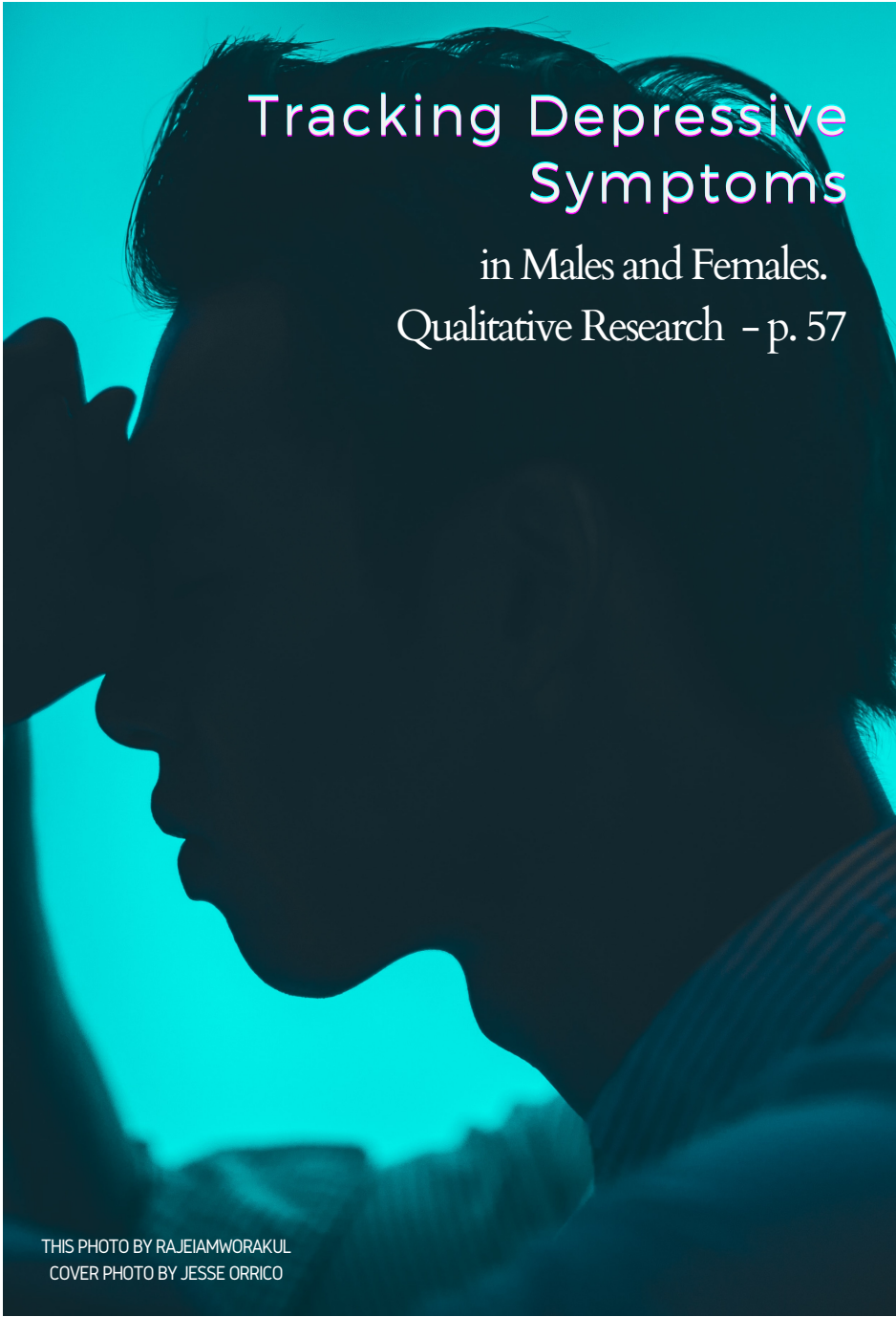


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# *Managing* **EDITOR'S NOTE**

## *Bridging Innovation & Community*

At the core of research is the drive to better understand, innovate and find solutions that improve society. The footprints that students leave at AAIMS should be ones of both progress and prowess. Researchers often push the envelope with - "What if?" then forge ahead with the mindset of "Why not?"

Ask questions no one else would dare to ask and seek to answer them with skill, discipline and accuracy.

The greatest attestation of good research is a profiting community, one that is healthier because you dared to be different in your thought process. Untapped areas of research are right in front of you; in your classrooms, in the streets, clinics and even your own living spaces.

*The mission in mind is to -  
"become physicians who will serve the community, be lifelong learners committed to excellence, faith, leadership and service,"  
This mission of AAIMS should be echoed in your research.*

# ASSOCIATION OF BLOOD SUGAR, BODY-MASS INDEX AND AGE WITH HYPERTENSION IN BLACK RIVER RESIDENTS

AUTHORS >

Shoib Khan, Ankush Wats,  
Sameer Khan

## ABSTRACT

**B**lack River, the capital of St. Elizabeth Parish, in southwestern Jamaica has a fast-growing population. Besides seafood, people prefer on fried, foods and rich carbohydrates on a day to day basis. We predicted that the prevalence of hypertension in the Black River population was related to blood glucose levels and body mass index (BMI). This study examined the BMI, Blood Pressure (BP), Blood Glucose, and other questionnaire data. 70 subjects were randomly selected during a health camp and were divided into two groups based on age.. 35 were recorded in a group of the age group of 45 and below and rest 35 were selected in the age group of above 45. Our study shows an increasing trend in blood pressure with not only increasing age but also with increasing blood sugar and BMI. It is concluded that factors affecting hypertension like blood pressure, BMI and blood sugar are predominantly on an increasing scale with aging within Black River.

Key words: Hypertension, blood sugar, BMI



PHOTO BY CDC

## INTRODUCTION

In today's fast paced lifestyle, fast food has become popular. Consumption of these high fat and sugary foods such as shakes and carbonated drinks cause people to suffer from hypertension and hyperglycemia. Various lifestyle factors are associated with high blood pressure and cardiovascular diseases. (Huzar)



PHOTO BY MUFID MAJNUN

DETAIL >

Blood pressure (BP) is determined by the amount of blood pumped by the heart and the resistance provided by the wall of arteries to this blood. The BP rises in the conditions when the heart pumps more blood or the arterial walls are thicker or the arterial lumen gets narrow. (Rye et al., 2015)

High BP or hypertension remain ignored by the majority, as initially it remains non-symptomatic and takes a long time to develop the clinical stages. Uncontrolled hypertension, though without obvious symptoms, increases the risk of many serious health issues like Cardiovascular disorders.(High blood pressure hypertension)



Jamaicans prepare foods in a similar fashion to Americans, utilizing boiling, seasoning, drying, baking, drying and roasting methods. Hypertension is a major public health issue for Jamaicans. Also, pre-clinical studies have reported acute cardiovascular effects of cannabis including a dose-dependent increase in blood pressure while orthostatic hypotension may follow as a result of decreased vascular resistance. (Omayma, 2017)

Hypertension may be primary/essential hypertension with no specified cause and take years to develop or secondary with specified reasons like kidney problem, adrenal tumor, thyroid problem, congenital problems, and legal or illegal drugs, etc. BP does vary with age, as after the age of 50 the number of systolic matters more. Most of the people have 130 mmHg or higher systolic pressure while their diastolic values remain normal. (Secondary hypertension 2021)

BP measurements belong to four general categories:

1. Normal BP-. Between 120/80 mm Hg.
2. Elevated BP- When the systolic pressure ranging from 120-129 mmHg and a diastolic pressure below 80 mmHg. This category, over time, has a chance to jump to hypertension if corrective steps are not taken into consideration.
3. Stage 1 hypertension- When systolic pressure ranging from 130-139 mmHg or a diastolic 80-89 mmHg.
4. Stage 2 hypertension- It is more severe kinds of hypertension, having a systolic pressure of 140 mmHg or higher and diastolic of 90 mmHg or higher. (Omayma, 2017)

According to a study done in 2000, hypertension has been found very much prevalent in Jamaica. Though it has been found affecting both the sexes but is higher in females and many older adults with a mean age set greatest at 60 years. As reported by Dr. Rainford Wilks, the rate of increase in the number of women is approximately 3% while in males 2%. (Eldemire-Shearer, 2014).

It has been reported by World Health Organization (WHO) in its global report that 63% of the deaths were due to Non-Communicable Diseases (NCDs) like hypertension, cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases and it is expected to rise by 80% by 2030. In this light, all nations have committed to reducing this premature mortality due to NCDs by at least 25% by 2030.[5] Hypertension or high blood pressure is often referred to as Non-Communicable Diseases (NCDs).

The causes of hypertension are classified into modifiable and non-modifiable factors. The majority of the NCDs are preventable by opting a healthy diet, physical activity, avoiding the use of tobacco and excessive alcohol consumption and reducing obesity. (Lifestyle diseases: 2017)



PHOTO BY USH NAIDOO JADE

Hypertension is the main modifiable risk factor for all cardiovascular diseases. According to American Epidemiological studies, 40.6% of cardiovascular mortalities are due to hypertension.

The objectives of the study shall be:

- 1.To observe the trends of blood pressure amongst the population.
- 2.To classify the values under specific categories of hypertension, if any.
- 3.To correlate the values with specific factors causing hypertension.
- 4.To suggest some corrective steps to control hypertension.

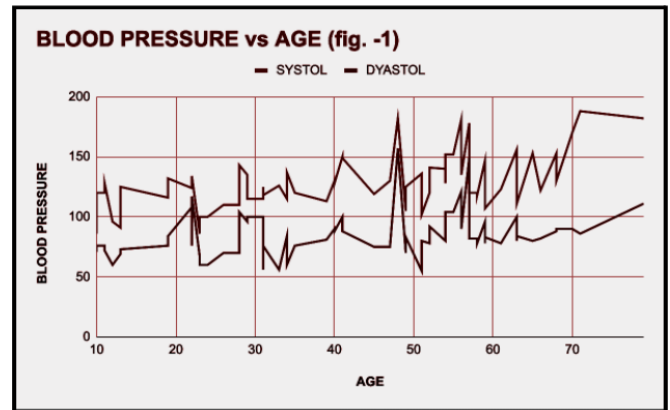
## METHOD

A cross-sectional study was done in Black River, Jamaica to assess the levels of hypertension in 70 subjects. All subjects were informed about the research and agreed to participating. They were randomly selected from different age groups during a Black River health camp and were divided into two groups based on age. 35 were recorded in a group of the age group of 45 and below and rest 35 were selected in the group of above 45 of age.

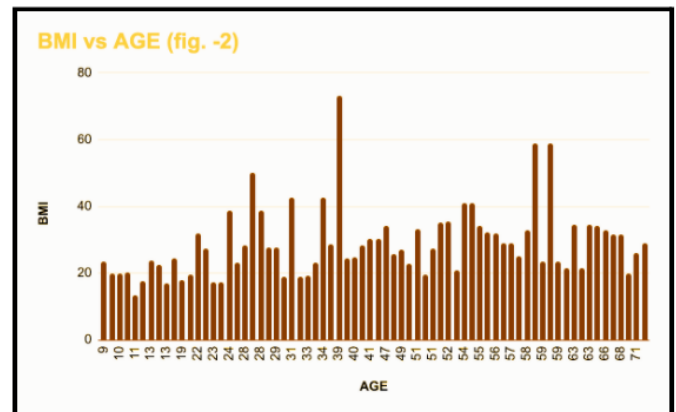
Participants were required to fill a pre-designed questionnaire with a combination of open and closed questions. The data collected from subjects were with their due consent and confidence about not disclosing their identity. Questions were mostly focused on the subject's Body Mass Index (BMI), Blood Pressure (BP), Blood Glucose and personal health. The data collected from the survey was organized and analyzed then presented as tables and graphs.

## RESULTS

The result that is obtained from the study of factors on which hypertension depends, is in favor of our hypothesis. The study shows us that with increasing age there is a trend of increase in hypertension. The prevalence of hypertension has been found to show a direct correlation with the trends of blood glucose, BMI. So according to our results, there is an average increase in blood pressure levels across increasing age. (fig.-1).

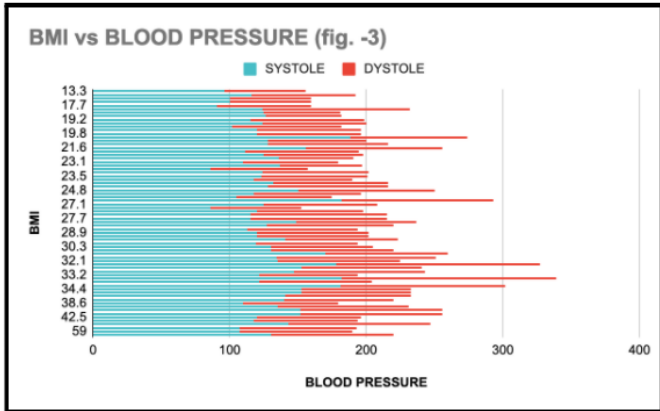


As BMI is a direct factor affecting hypertension, there is a high chance that a person having a high BMI will suffer from hypertension. Thus, when the result was collected there was seen a steady increase in levels of BMI through age groups. (fig. -2).

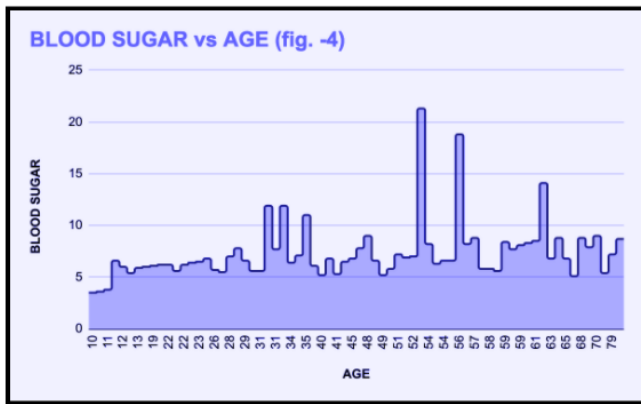




Also, with increases in BMI, an increase in blood pressure is observed (fig. -3).

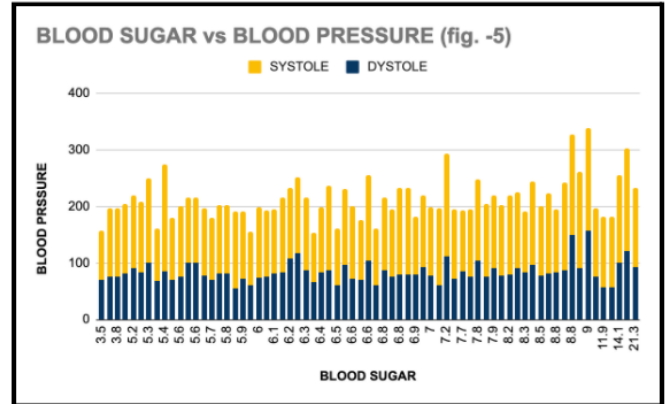


The third factor was observed in the study was blood sugar levels in the body. The study also provided evidence of an increase in levels of blood sugar during increasing age groups (fig. -4).



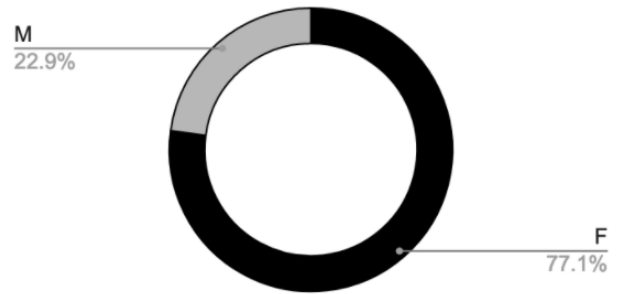
They were required to fill a self-designed questionnaire with a mixture of open and closed questions. They were informed about the importance of the topic. The data collected from subjects were with their due consent and c

Also, with increases in blood sugar, an increase in blood pressure is observed (fig. -5).

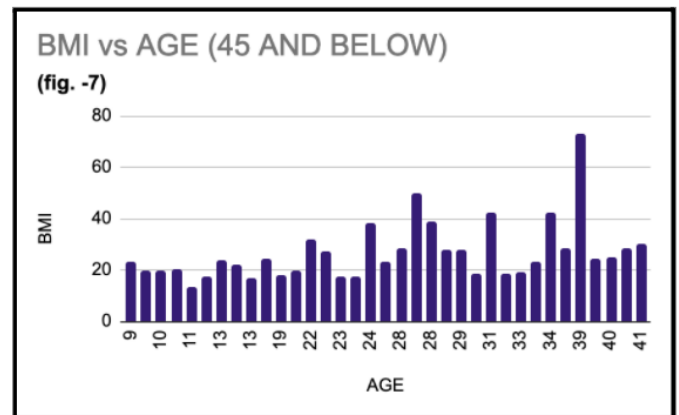


In the conducted study 77.1% of participants were females. Rest 22.9% were males. (fig.-6)

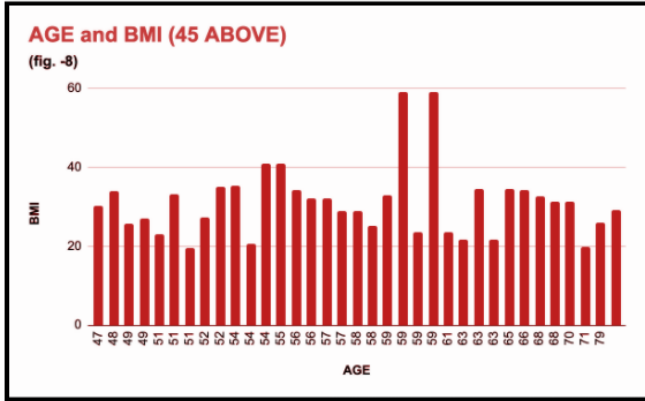
Count of GENDER (TOTAL)  
(Fig. -6)



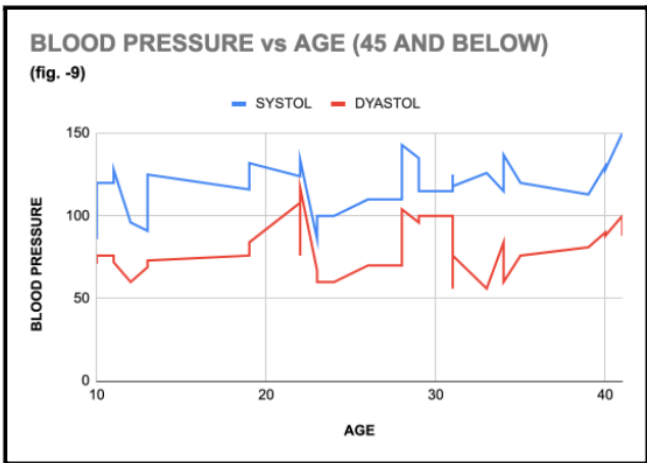
In the age group, 45 below the progression of BMI is observed (fig.-7). With an increase in age, an increase in BMI is seen, with a peak at age near 40.



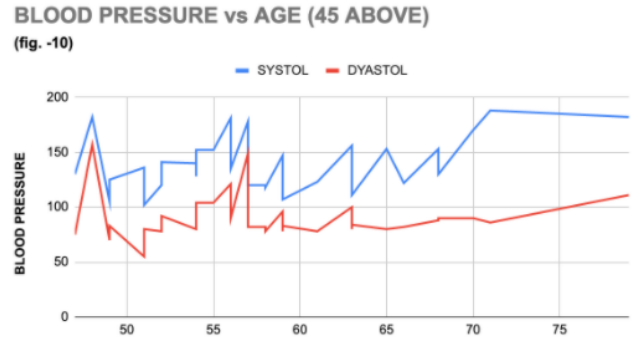
In the age group, 45 above also an increasing trend is observed, a maximum near the age of 60. However, after age 60 a slight decrease is observed. (fig.-8)



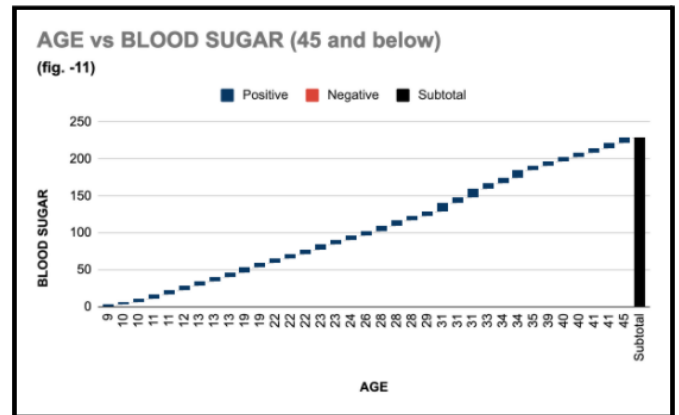
The third factor was observed in the study was blood sugar levels in the body. The study also provided evidence of an increase in levels of blood sugar during increasing age groups (fig. -4). An increasing trend of blood pressure is observed with an increase in age with its peak above 40. (fig.-9)



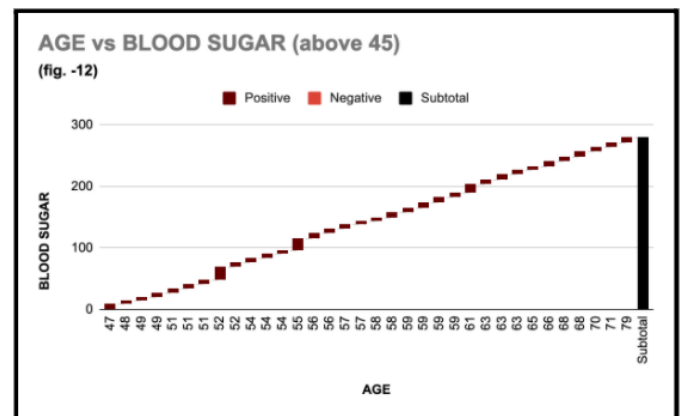
The same happens in the age group 45 above where blood pressure is seen increasing as the increases. (fig.-10)



The blood sugar in the age group of 45 and below exhibits an increasing trend. (fig.-11)



The Age vs Blood sugar, waterfall chart of age group above 45 also reveals an increasing trend in blood sugar with age. (fig.-12)





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## DISCUSSION

The study conducted was to check the trend of hypertension among the people of Black River in relation to other factors. 70 subjects in total were selected at random during a health camp out of which only 22.9% were male and the rest 77.1% were female. The subjects were divided into 2 groups on the bases of individuals' age. As a result, half i.e., 35 subjects were present in the group of age 45 or below, and the rest 35 were selected in other groups of age above 45. This was done to compare the results of the study between the two groups.

Three main factors were used to evaluate the trend of hypertension, viz.,

1. Blood Pressure
2. BMI
3. Blood Sugar

The first factor, blood pressure is directly interrelated with hypertension. It was observed that an increase in blood pressure affects hypertension directly thus increasing its chances of occurring.

Our study also shows us that as age increases, cases of high blood pressure also increase, therefore directly increase the chances of hypertension in later stages of life. In both age groups below and above 45, growth in blood pressure is noticed. The age group of 45 and below shows a gradual increase in blood pressure with age, with its peak at age 41. Whereas, in the age group 45 above blood pressure is increasing till age 57 and then declines until age 59 to 60, however, it rises again with its maximum value at 71 to 79.

The second factor is the Body Mass Index or BMI. The trend of fast food being high means a high intake of fat and calories. These fats get deposited in the body resulting in an increase in BMI over a while. The increase in fatty tissue increases the vascular resistance and in turn, increases the work of the heart is to pump blood throughout the body. Obesity is one of the major causes of high blood pressure or hypertension. As obesity directly affects blood pressure, it contains a high risk of hypertension. Weight loss significantly reduces blood pressure. It is observed that both of the groups have their high and low when it comes to BMI. The minimum BMI that is hit under the age of 45 is 13.3Kg/m<sup>2</sup> which is considered underweight to a maximum of 73.1Kg/m<sup>2</sup> which comes under obese class-III. Similarly, the minimum above the age of 45 is 19.6Kg/m<sup>2</sup> which is normal to 59Kg/m<sup>2</sup> which is also obese class-III.

The third factor is blood sugar. A person with diabetes either don't have enough insulin or it doesn't work properly. As insulin helps in absorbing blood glucose in cells of the body, a diabetic patient becomes unable to do so due to the insulin level in the body. Thus the glucose remains in the blood and further damages blood vessels and kidney. As these organs play a vital role in stabilizing blood pressure, due to damage provided to them, blood pressure can rise and increase the risk of hypertension.[7] The result shows us that out of 70 subjects only 27 have a history of diabetes in the family which adds up to just 38.57% of the total.

Which further shows us that people of Black River due to their lifestyle are predisposed to diabetes. The data collected shows us that there is a constant increase in blood sugar levels below the age of 45. It peaks twice both at the age of 31 and amounts to 11.9mmol/L. The same pattern of the increase was shown but at a much more drastic level above the age of 45. The peak was 21.3mmol/L at the age of 52 years.

Hypertension could be controlled by making some changes in the lifestyle and following some simple routines.

Here are some corrective measures:

- Lose extra pounds

Blood pressure often increases as weight increases as proved by our study. Being overweight also can cause disrupted breathing while you sleep (sleep apnea), which further raises your blood pressure. Weight loss is one of the most effective lifestyle changes in controlling blood pressure. Losing even a small amount of weight if you're overweight or obese can help reduce your blood pressure. In general, you may reduce your blood pressure by about 1 millimetre of mercury (mm Hg) with each kilogram (about 2.2 pounds) of weight you lose. (Niklas, 2018)

- Exercise regularly

Exercise is one of the best things you can do to lower high blood pressure. Regular exercise helps make your heart stronger and more efficient at pumping blood, which lowers the pressure in your arteries.[9] Regular physical activity – such as 150 minutes a week, or about 30 minutes most days of the week – can lower your blood pressure by about 5 to 8 mm Hg if you have high blood pressure. It's important to be consistent because if you stop exercising, your blood pressure can rise again.

Some examples of aerobic exercise you may try to lower blood pressure include walking, jogging, cycling, swimming or dancing. (Niklas, 2018)

- Eat a healthy diet

Eating a diet that is rich in whole grains, fruits, vegetables and low-fat dairy products and skimps on saturated fat and cholesterol can lower your blood pressure by up to 11 mm Hg if you have high blood pressure. This eating plan is known as the Dietary Approaches to Stop Hypertension (DASH) diet. (Niklas 2018)

- Reduce sodium in your diet

Eating salt raises the amount of sodium in your bloodstream and wrecks the delicate balance, reducing the ability of your kidneys to remove the water. The result is a higher blood pressure due to the extra fluid and extra strain on the delicate blood vessels leading to the kidneys. (High Blood Pressure 2021)

The American Heart Association recommends no more than 2,300 milligrams (mgs) a day and an ideal limit of no more than 1,500 mg per day for most adults, especially for those with high blood pressure. Even cutting back by 1,000 mg a day can improve blood pressure and heart health. Sodium chloride or table salt is approximately 40 percent sodium.

It's important to understand just how much sodium is in salt so you can take measures to control your intake.

1/4 teaspoon salt = 575 mg sodium

1/2 teaspoon salt = 1,150 mg sodium

3/4 teaspoon salt = 1,725 mg sodium

1 teaspoon salt = 2,300 mg sodium [11]

These amounts are approximate. (Sodium and kids)



- Limit the amount of alcohol you drink

Alcohol can be both good and bad for your health. Drinking alcohol can raise blood pressure. In fact, alcohol is linked to 16% of high blood pressure cases around the world. While some research has suggested that low-to-moderate amounts of alcohol may protect the heart, those benefits may be offset by negative effects. (LJ;, P. (n.d.). Alcohol is bad for blood pressure)

By drinking alcohol only in moderation – generally one drink a day for women, or two a day for men – you can potentially lower your blood pressure by about 4 mm Hg. One drink equals 12 ounces of beer, five ounces of wine or 1.5 ounces of 80-proof liquor. But that protective effect is lost if you drink too much alcohol. (Niklas 2918)

- Monitor your blood pressure at home and see your doctor regularly.

## CONCLUSION

In conclusion, the results of the study provide some insight into the trend of hypertension among young to the older generation of Black River, Jamaica. It was observed that the population of Black River is prone to an increase in hypertension as there is an increase in age. That may be due to hereditary reasons or their lifestyle. It is concluded that factors affecting hypertension like blood pressure, BMI and blood sugar are predominantly on an increasing scale with aging. Although there are some peak values in both the groups below the age of 45 and above in each factor, the overall trend increases with age.

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# MENSTRUAL HYGIENE AMONG GIRLS IN JAMAICA

## AUTHOR >

Sri Vaishnavi Deshmukh Lingala

## ABSTRACT

**M**enstrual hygienic practices are not well understood by all girls above the age of puberty. This study was conducted to elicit the beliefs, conception, and source of information regarding menstruation among the study population and to find out the status of menstrual hygiene among adolescent girls. H1 (Alternative Hypothesis) is that Menstrual hygiene practiced by girls in the AAIMS campus, UWI, and other parts of Jamaica is satisfactory. H0 (Null Hypothesis) is that Menstrual hygiene practiced by girls in the AAIMS campus, UWI, and other parts of Jamaica is unsatisfactory.

A descriptive, cross-sectional study was conducted among 71 girls and 33 boys from the AAIMS campus, UWI, and other parts of Jamaica using a pre-designed and pre-tested questionnaire. A face to face Interview was also conducted. Data were analyzed statistically by simple proportions. Out of 71 respondents, 54 (79.3%) girls were aware of menstruation prior to attainment of menarche. The family was the first source of information regarding menstruation.

in the case of 56 (84.8%) girls. 63 (94%) girls use sanitary napkins during menstruation. 36 (53.7%) girls bathe twice a day during menstruation. In the interview, girls faced a problem with the disposal of menstrual materials on campus and boys showed support and acceptance towards girls in their answers regarding menstrual hygiene. Menstrual hygiene followed by girls in the AAIMS and UWI campuses was satisfactory.

**KEYWORDS:** Menstrual hygiene, Sanitary pad, Jamaica.



PHOTO BY STOCKPHOTO

## DETAIL >

## INTRODUCTION

**A**dolescence is the transition from youth to maturity characterized by physiological, mental, and social changes. Menstruation is a physiological change that adolescent girls must learn to deal with (Damtie et al., 2021). Women and adolescent girls use smooth menstrual control cloth to collect menstrual blood that may be changed in privateness regularly in the course of menstrual periods. The availability of cleansing soap and water for washing the body and having access to facilities to take away used menstrual materials is necessary.

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MHPs have essential health and socio-economic importance (Damtie et al., 2021). Even though menstruation is a natural process, it's a way whole of misconceptions, terrible attitudes, and disciplinary moves that have terrible outcomes on health. Poor MHP programs affect the dignity, health, and fitness of women in low- and middle-income countries and require well-organized and effective water, sanitation, and sanitation (WASH) interventions. Lack of menstrual hygiene can have an effect on health, on the side of an elevated danger of genital and urinary tract infections (Holmes, K., 2021).

Inadequate opportunities to practice healthy menstrual hygiene have recently attracted attention as an educational barrier for girls in low and middle-income countries. Studies have shown that poor hygiene at schools and the lack of access to proper hygiene products can reduce school enrollment rates for girls, increase absenteeism, and drop out of school. Insufficient water, hygiene, and hygiene will cause girls and teachers to be absent from school during menstruation (Damtie et al., 2021). Access to secure and dignified menstruation is an essential need for females. Meeting the hygiene requirements of all adolescent girls in all settings promotes human rights, dignity, and public health.

Increasing evidence from low- and middle-income countries shows that many girls are unable to treat menstruation and its associated hygiene with dignity. This deprivation is even more imperative for girls and women in emergencies. These girls and women cannot practice good menstruation in homes, schools, workplaces, or other public facilities due to a combination of discriminatory social environments, inaccurate information, inadequate facilities, and a limited selection of absorbent materials (see Damtie et al., 2021 for more).

Many women and girls face discriminatory attitudes and ideals about menstruation that cause them to experience menstruation with disgrace and

embarrassment. Girls' experiences at school often reveal common challenges due to the unsupported social environment. Stress, teasing, and various restrictions from going to school to choosing food are common. Girls should be able to participate in regular activities during a period without being stigmatized or excluded.

Community involvement, especially in boys, men, and religious leaders, is a way to change awareness, practices, and ultimately national affairs (UNICEF, 2019).

Many girls reach menarche without important information about menstruation, which leads to anxiety and stress. These facts can be after the girls' menarche, or not at all, because of the taboo of adolescent schooling associated with sexual and reproductive health. Before reaching menarche, girls need the opportunity to understand the biology of the menstrual cycle, the skills to manage menstruation safely and personally, and the pain they may experience in the meantime. Boys need to understand the changes in a girl's body and her contemporaneous female, conveyed in the cultured way of solidarity and social support. Teachers, parents, and traditional leaders have similar needs for accurate information to better assist girls approaching menarche and during menstruation (Coast, 2019).

Girls and women often lack water, toilets, and disposal mechanisms for the management of menstruation in schools, homes, workplaces, and other public facilities. In some cases, it can be a barrier to education and prevent girls from being educated. Menstrual health and hygiene services must be installed in a sustainable, safe, and appropriate manner. WASH facilities and reliable services need to enable females to manage their menstruation safely, comfortably, and personally. It should also be available to girls with disabilities (UNICEF, 2019). In many countries, most girls and women do not have access to high-quality and proper sanitary absorbents suitable for the treatment of menstruation. There are no menstrual materials or products that suit every girl and woman in every situation. Females have different requirements and priorities for menstrual health and hygiene materials. And priorities continue to change depending on the environment. Girls and women with disabilities can also



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have specific preferences depending on the situation. Further efforts should be made to boom the supply and choice of sanitary napkins, deliberating affordability, sustainability, disposal, and nearby marketplace considerations. To procure suitable menstrual hygiene materials for females in each maturation and emergency, it's crucial to apprehend the benefits and downsides of those products in particular contexts. Cloths are reusable fabrics worn on the exterior of the body, underwear, or around the waist to absorb the flow of menstruation. It is generally agreed that usage of cloth should not exceed one year. They need a frequent inspection of supply, obtainability, and affordability. Usually, the cloth is not advised for menstrual hygiene. As its usage is associated with abnormal vaginal discharge, skin irritation, and genitourinary infections. However, it is not clear whether this is a unique characteristic of the fabric or simply an indication of poor conditions of use. In some cases, cloth can be handled hygienically. In general, wearing damp or dirty materials can lead to rashes and infections (UNICEF, 2019). Reusable pads are worn externally to the frame inside the underwear to absorb menstrual flow and are held in the vicinity using snaps. They are crafted from several natural or artificial substances. After use, they may be washed, dried, and re-used for about one year. They are consumables that require regular evaluation of supply, availability, and affordability. There could be very little proof of the health effects of reusable pad use. There is presumably an association between urinary tract infections and bacterial vaginosis. The usage of damp materials can cause skin irritations. A restful place for changing in addition to proper washing and drying are required (Kumar, 2017).

Disposable pads should be worn on the outside of the underwear to absorb the flow of menstruation. It should be discarded after up to 8 hours of usage. Sanitary napkins come in various sizes, materials, levels of absorbency, and consist of a layered design made from a mixture of plastic, viscous, and cotton. The sanitary napkins should include wings to prevent leaks and secure them more securely. Most studies have not reported any significant adverse health effects. But there is no conclusive evidence on the effects of disposable pads and bacterial vaginosis and genital infections associated with long-term wear in particular. Although skin compatibility is very high and quality control is important, disposable pads are well tolerated by users in different parts of the world. Disposing of used pads in flush toilets can cause clogging of pipes and backflow of sewers to the building. This is a serious health risk and maintenance issue (UNICEF, 2019).

Tampons are absorbent substances crafted from cotton and/or rayon that are inserted into the vagina to take in menstrual flow. They enlarge with moisture and thereby keep away from leakage. They may be worn for up to eight hours and then removed using the elimination string and disposed of. They are available in quite a few sizes, substances, and without or with an applicator to help insertion. Tampons are consumables that require frequent evaluation of supply, availability, and affordability. Tampon use is related to toxic shock syndrome, an unprecedented however doubtlessly deadly disease. To decrease this risk, using a tampon with the bottom absorbency is recommended, and Tampons should be changed after 8 hours at the latest. Residual chemical substances and fragrances can cause allergic reactions. Soap for handwashing and access to clean water is critical to keep away from UTIs and vaginal infections (UNICEF, 2019).

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A menstrual cup is a non-absorbable bell-shaped device that is inserted into the vagina to collect the flow of menstruation. It forms a seal and is held in place by the vaginal wall. It is usually made of medical-grade silicone. It should collect three times as much blood as a sanitary napkin or tampon and empty it every 6-12 hours. It is then flushed and re-inserted. After each menstrual cycle, the cup should be boiled for 5-10 minutes. Most manufacturers offer at least two sizes, and different shapes are becoming more common. The cup can be reused for 5-10 years. (van Eijk, 2019).

Since the cup does not interfere with the vaginal flora and pH, the health risks such as toxic shock syndrome, infections, and skin irritation are minimal compared to other materials. The cup can be worn with an intrauterine device. Hand hygiene is important for the safe use of the cup (UNICEF, 2019).

LITERATURE REVIEW: Pranjal Sonowal and Kaushik Talukdar (2019) conducted a cross-sectional study on Menstrual Hygiene Knowledge and Practices amongst Adolescent Girls in Urban Slums of Dibrugarh Town. Half of the girls were not aware of menstruation before menarche.

Many girls were not aware of the cause of menstruation and the source of menstrual bleeding. The conclusion was that menstrual hygiene awareness was essential. It is crucial to design a mechanism for gaining access to hygienic menstrual practices for adolescent girls.

Dr. Deshpande TN et al.,2018 conducted a study on Menstrual hygiene among adolescent school girls from an urban slum. They reported that menstrual hygiene was unsatisfactory among adolescent girls. Therefore, girls should be educated about menstruation.

Reena v. Wagh et al.,(2018) in their work on menstrual hygiene practices in young girls of Urban India, reported that some girls still believed menstruation was a curse of God. Some girls disposed of sanitary napkins on the roadside. About 96% of girls avoid going to the temple. The majority of girls avoided going to the kitchen, family functions, and touching things at home. The researcher concluded that young girls should be educated about the misbeliefs and also about the importance of maintaining hygiene during menstruation to prevent the risk of reproductive tract infections.

Linda Scott (2010) led the study involving more than 180 girls in four remote villages in Ghana. She says menstruation is often a taboo subject. A girl without sanitary protection faces serious consequences. Many of the girls get discouraged and drop out of school. But they face a physical risk as well. In Africa, menarche brings discrimination between girls and boys. It can bring an end to many girl's education. The study says the free sanitary protection will prevent girls from school absenteeism, household chores, and socialism.

El-Gilany et al.,(2007), the different aspects of personal hygiene were generally found to be poor, such as not changing pads regularly or at night, and not bathing during menstruation with lack of privacy being an important problem. Different restrictions were practiced by most of the girls in the present study, possibly due to their ignorance and false perceptions regarding menstruation.

Savannah Scully & Dr. Rudolph Stevens, (2021) World Menstrual Hygiene Day gave WHN-Jamaica the opportunity to look at menstrual hygiene through the lens of girls and young women, especially those residing in underserved communities such as the incarcerated. Dr.Dasima Martin, who led the WHN team, remarked that “the team was able to demystify the menses and debunk cultural taboos and misconceptions surrounding menstruation”. The interaction with the girls was high spirited and ended with a quiz to assess whether learning has taken place.

## METHOD

**RESEARCH DESIGN:** A pre-designed, pre-tested questionnaire was used to conduct a survey. The type of study was a descriptive, cross-sectional study and was undertaken

predominantly by adolescent girls on the AAIMS Black River campus, UWI, Mona campus, in addition to other parts of Jamaica.

The duration of the study lasted from August 1st, 2021 to September 3rd, 2021 (~One Month).

The study population included 71 girls and 33 boys, the later of which responded to a survey based specifically on their knowledge of menstrual hygiene practices. 31 girls and 25 boys from the AAIMS campus were interviewed. Girls were asked about the problems faced by them on campus. Boys were asked about their opinion on menstrual hygiene.

After taking permission from the school authority, the questionnaire was sent to approximately 104 students. This included topics relating to awareness about menstruation, source of information regarding menstruation, hygiene practiced during menstruation, and restricted activities practiced during menstruation. Girls were interviewed about the menstrual hygiene problems faced by them on campus. And boys were asked about their opinion and knowledge on menstrual hygiene.

**STATISTICAL ANALYSIS:** Data obtained were collated and analyzed statistically by simple proportions.

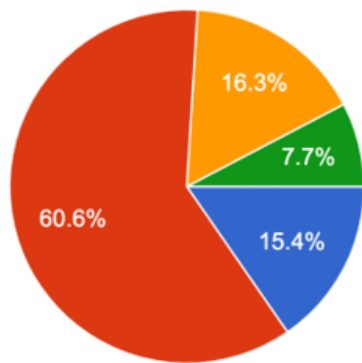
## RESULTS

This study shows that the age of menstruating girls ranged from 13-20 years, maximum (63.9%) number of girls were 20 or above years of age group. Among 104 respondents in the present study, seventy-one (68.3%) were girls, whereas thirty-three (31.7%) were boys. In which sixty-three (60.6%) students were from the AAIMS Campus, sixteen (15.4%) students

were from UWI campus, seventeen (16.3%) students from other places in Jamaica (places weren't mentioned for safety purposes), eight (7.7%) students were from outside of Jamaica.

### Where do you study? / Live

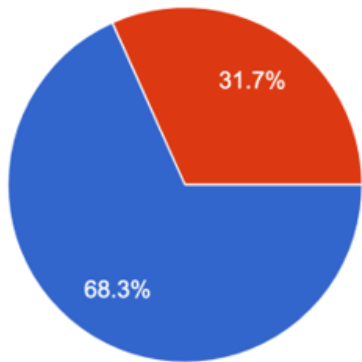
104 responses



- The University of west indies, Kingston
- All American Institute Of Medical Sciences, Black river
- JAMAICA (Other universities or schools in Jamaica)
- Other (any place outside of Jamaica)

### Gender

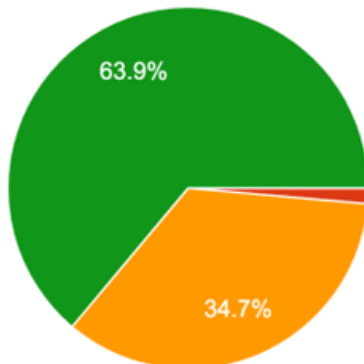
104 responses



- Female (Please continue in this section and submit the form)
- Male ( Please move to next section and submit the form)

### Age

72 responses

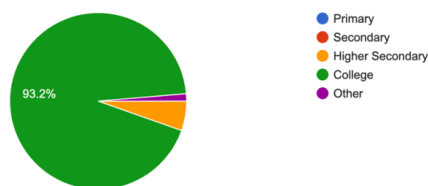


- below 10
- 10-13
- 14-19
- 20 or above

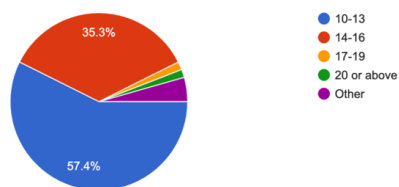


This study shows that sixty-nine (93.2%) girls were college students. Age at menarche for a majority of thirty-nine (57.4%) girls ranged between 10 and 13. Fifty-four (79.4%) girls knew about menstruation before menarche.

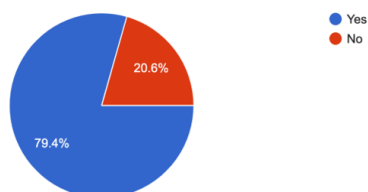
Education  
74 responses



Age at Menarche  
68 responses



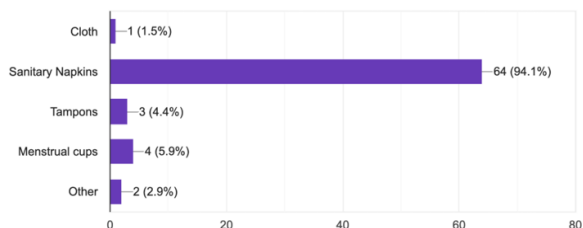
Knowledge of Menarche prior to menstruation  
68 responses



This study shows that sixty-four (94.1%) girls used sanitary napkins during menses. A majority of thirty-one (45.6%) girls changed the menstrual materials three times per day. Thirty-seven (54.4%) girls bathed two times per day during menses.

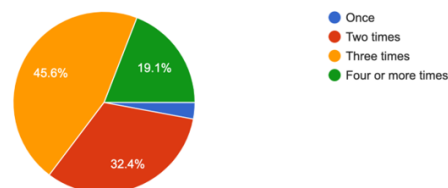
Materials used during menstruation

68 responses



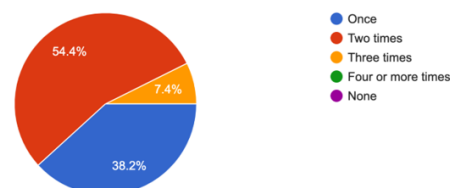
Change of Materials during menses per day

68 responses



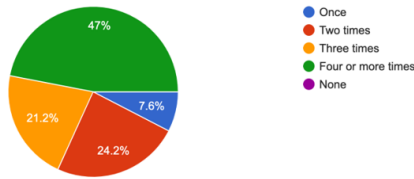
Bathing during menses per day

68 responses

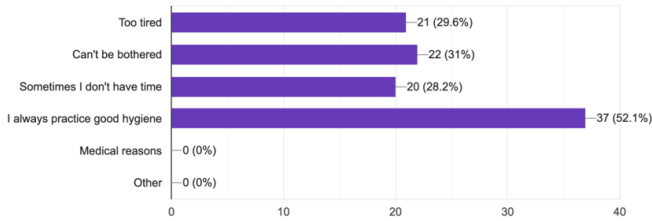


This study shows that thirty-one (47%) girls clean their external genitalia four or more times per day. Twenty-one (29.6%) girls answered that they were too tired and twenty (28.2%) girls said they don't have time when asked why they don't practice good hygiene. While a majority of thirty-seven (52.1%) girls practiced good hygiene. The Source of information for fifty-seven (85.1%) girls was their family.

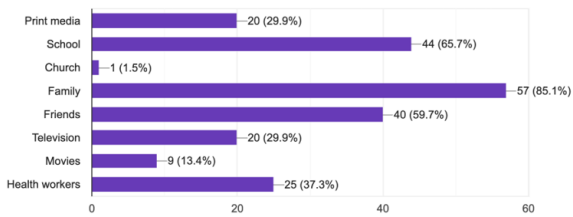
Cleaning of external genital per day  
66 responses



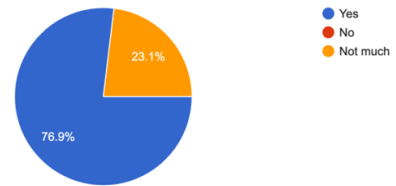
What has been your reason for not practicing good hygiene during menses?  
71 responses



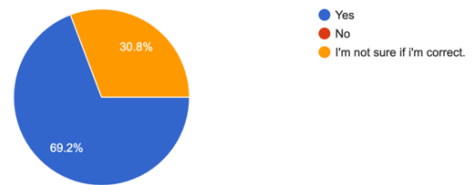
Source of information regarding menstrual hygiene (click all that apply)  
67 responses



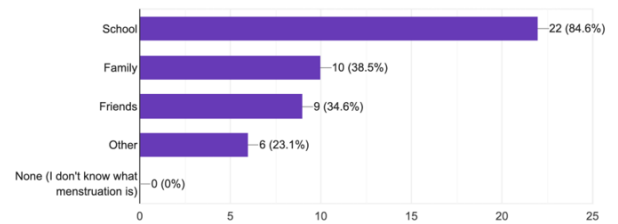
Do you have any knowledge on menstruation?  
26 responses



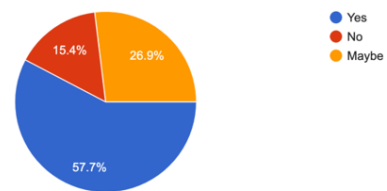
Do you know what menses is?  
26 responses



Source of information regarding menstruation  
26 responses



Do you help someone in menstrual emergency?  
26 responses



This study shows that twenty (76.9%) boys knew about menstruation. Eighteen (69.2%) boys knew about menses. For a majority of twenty-two (84.6%) boys, the school was the source of information regarding menstruation. Fifteen (57.7%) boys would help someone in a menstrual emergency.

**STATISTICAL ANALYSIS:**

One Way ANOVA test:

Using F distribution df(13,74) (right tailed)

**H0 hypothesis**

Since p-value < α, H0 is rejected.

The difference between the averages of some groups is big enough to be statistically significant.

**P-value**

p-value equals 0.0279152, [p( x ≤ F ) = 0.972085].

This means that the chance of type1 error (rejecting a correct H0) is small: 0.02792 (2.79%)

The smaller the p-value the stronger it support H1

The test statistic F equals **2.048460**, is not in the 95% critical value accepted range: [-∞ : 1.8548]

Effect size

The observed effect size f is **large** (0.60). That indicates that the magnitude of the difference between the averages is large.

The η2 equals 0.26. It means that the group explains 26.5% of the variance from the average (similar to R2 in the linear regression)

There is no significant difference between the means of any pair. It is possible that a combined mean of more than one group differs significantly from the mean of one group or from the mean of other combines mean.

Test power

Although the priori power is low (0.2264), the H0 is rejected.

**Quality of variances:**

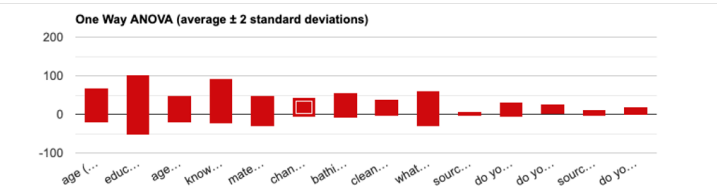
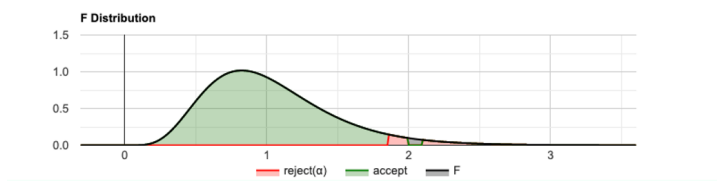
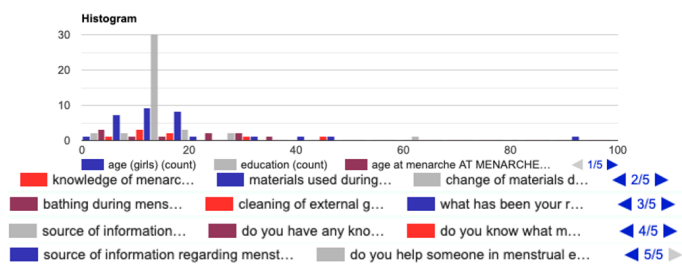
This study shows that twenty (76.9%) boys knew about menstruation. Eighteen (69.2%) boys knew about menses. For a majority of twenty-two (84.6%) boys, the school was the source of information regarding menstruation. Fifteen (57.7%) boys would help someone in a menstrual emergency.

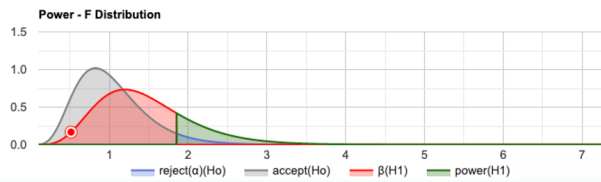
The tool used was the Levene's test to assess the equality of variances.

The population's variances consider to be equal. (p-value = 0.224).

Levene's test power consider to be weak (0.23).

The groups' size consider different. (The ratio between the bigger group and the smaller group is: 15.00)





Thirty-one girls on campus were interviewed about the menstrual hygiene problems they faced on campus. Every girl answered that the disposal of menstrual materials is the biggest problem. Twenty-five boys were interviewed regarding their knowledge of menstrual hygiene and whether it is embarrassing for them to talk about it. All boys had a good amount of knowledge regarding menstrual hygiene. They said it was not embarrassing to talk about menstruation and that one should talk about it.

This study shows that the age of menstruating girls ranged from 13-20 years with a maximum number of girls were above 20 years of age. A similar study conducted by Deo et al. reported that the age of menstruating girls ranged from 12 to 17 years with a maximum number of girls between 13 and 15 years of age. In the present study, the mean age at menarche of the respondents was 13.8 years, whereas, in a study conducted in Rajasthan by Khanna et al., the mean age at menarche was found to be 13.2 years.

In this study, more than half (79.4 %) of the students had good knowledge about menstruation and menstrual hygiene before menarche. The findings were higher than those in previous studies done in Ethiopia, Nigeria, and Nepal, which were 51.36 %, 4.0 %, and 40.6 %, respectively.

This difference could be due to minimal communication in families about menstruation and menstrual hygiene issues. Contrary to the findings of this study, high knowledge about menstrual hygiene was obtained in a study done in Amhara, northern Ethiopia, which was 90.7 %, possibly due to information provided about menstruation and menstrual hygiene by schools and families. 59.7% of the respondents got information about menstruation from their friends, followed by family at 85.1% (57); teachers, mothers, and books were the main sources of menstrual information in this study. These findings are consistent with the results from studies done in Egypt and India. A possible explanation for this similarity maybe that girls discuss menstruation and its hygiene with their friends and peers openly.

The mass media play a prominent role in the dissemination of reproductive health information including menstruation and menstrual hygiene. The knowledge level of menstrual hygiene appears to be increasing with an increase in time spent watching TV/listening to the radio. Thus the finding of this study showed that the availability of mass media (radio/ TV) at home is the highest predictor of good knowledge of menstrual hygiene. The reason might be mass media may be endorsed to the effect of technology on increasing knowledge and gaining needed information about menstrual hygiene. In this study, thirty-seven (52.1 %) of the respondents had good practice of menstrual hygiene. The finding of this study was lower than studies conducted in Ethiopia and Northwestern Nigeria which were 90.9 % and 88.7 %, respectively.



Comparatively, a lower level of practice of menstrual hygiene was recorded from a similar study conducted on Gujjar girls it was indicated that only 3.1 % of the study participants practice good menstrual hygiene. Thus, the reason for the observed difference could be due to low awareness and communication of menstrual hygiene by Gujjar girls which affects their menstrual hygienic practice.

**LIMITATIONS:** One limitation of this study was the cross-sectional nature of the data that could obscure the causal effect relationships of different factors and it lacks qualitative data. The study addressed the sensitive issue about menstrual hygiene and the possibility of social desirability bias is unavoidable even if we have tried our best to minimize it. It was observed in this study that 100% of girls believed it to be a physiological process, whereas, in a similar study conducted in Rajasthan by Khanna et al., nearly 70% believed that menstruation was not a natural process. It was very sad to observe in the present study that most of the girls did not know about the source of menstrual bleeding and more than half of the girls were ignorant about the use of sanitary pads during menstruation. The above observations might be due to the poor literacy level of mothers or the absence of proper health education programs in school, which should focus on menstrual hygiene among girls.

## CONCLUSION

79.4% of the participants had good knowledge of menstruation and menstrual hygiene. More than half of the participants (52.1%) practiced good hygiene. Awareness regarding the need for information about good menstrual practices is essential.

Mass media should also emphasize health information about menstrual hygiene. Therefore, policymakers and stakeholders should set up health education programs to create awareness and practice of good menstrual hygiene.

Reproductive tract infections, which have become a silent epidemic that devastates women's life is closely interrelated with poor menstrual hygiene. Therefore, proper menstrual hygiene and correct perceptions and beliefs can protect the womenfolk from this suffering. Before bringing any change in menstrual practices, the girls should be educated about the facts of menstruation, physiological implications, the significance of menstruation and development of secondary sexual characteristics, and above all, about proper hygienic practices with a selection of disposable sanitary menstrual absorbents. This can be achieved through educational television programs, school nurses/health personnel, compulsory sex education in the school curriculum, and knowledgeable parents so that she received education would indirectly wipe away the age-old wrong ideas and make her feel free to discuss menstrual matters including cleaner practices without any hesitation. All mothers irrespective of their educational status should be taught to break their inhibitions about discussing with their daughters regarding menstruation much before the age of menarche.

Lack of privacy is an important problem. In resource-poor contexts, where women do not have access to basic facilities such as water, bathroom, and privacy, the standard of hygiene one can maintain is severely compromised. There is a need to improve the housing conditions with respect to basic facilities. Universalized use of sanitary pads can be advocated for every girl only by making them available at affordable prices (social marketing).

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# THE EFFECT OF ECTOLINE AFTER MAGGOT TREATMENT

AUTHOR >

Kirkland Anderson

## ABSTRACT

**W**hen Ectoline is placed on wounds, the wounds will heal much faster and maggots will reach a quicker state of expiration.

The aim of this research is to test the efficacy of Ectoline on large and small wounds of animals.

All procedures and medication were applied to 2 canines, after which Ectoline was used to treat their respective wounds.

A goat kid was used as a control. The ingredients of Ectoline contain fipronil, a broad use insecticide that belongs to the phenylpyrazole chemical family and disrupts the insect's central nervous system by blocking GABA-gated chloride channels and glutamate-gated chloride (GluCl) channels. There were more fly larvae exiting the wounds of the animals on which Ectoline was applied in comparison to the goat kid even though there was maggot extraction before its application.

The null hypothesis  $H_0$  was rejected as the maggots were significantly affected.

Key words: Hypertension, blood sugar, BMI, maggot, ectoline



PHOTO BY JIRI BRTRNIK

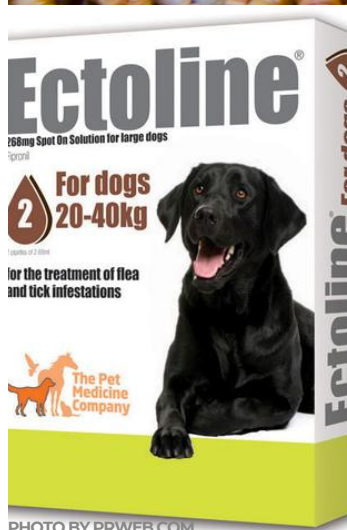


PHOTO BY PRWEB.COM

## INTRODUCTION

**O**ne of the biggest challenges post-surgery is keeping the animals confined, and restricting activities for the entire recovery period. This is often 8-12 weeks. This long period of restriction is critical for proper healing. It is advised not to bathe the animal or allow them to get wet for 10 days after surgery. In addition, it is advised not to use chemical flea care products (including sprays, dips, powders or collars) on pet for 10 days following surgery.



## DETAILS

Several issues could arise after surgery that may cause harm to an animal. Post-op instructions. (Maryland SPCA, 2021)

Myiasis is an infestation of maggots. Flies reproduce by laying eggs, which hatch and release maggots. Pets confined outside or who are weak and debilitated, are susceptible. A draining wound can become the perfect spot for flies to lay their eggs. Maggots will begin to feast on any dead or dying tissue when the eggs hatch. (Myiasis (maggots) in pets, 2021). They may even begin to eat healthy tissue. Myiasis is diagnosed by the presence of maggots on the skin, in the coat, or in the wound of the dog or cat. To treat this, the hair is shaved and maggots removed. One type of myiasis is Cuterebra infestation, which requires surgical removal of maggots. Once the maggots are removed, the underlying skin infection or other cause of infestation should be treated. (Myiasis (maggots) in pets, 2021)



Maggots are the larvae stage of a fly. A pregnant fly only takes 24 hours before they lay their eggs and will take another 24 hours for the maggots to take form and emerge from the eggs. Post-op instructions. Decomposition: Fly life cycle and development times. (The Australian Museum, 2021)

Given the right resources maggots of any species of fly can live for five to ten days before going into pupation. In order to turn into fully developed flies the maggots will undergo three stages namely: the larvae stage, the pupation stage, the adult fly stage. In the larvae stage (which is the stage mostly observed during an infestation) the larvae needs to have enough energy to turn into a pupa and as mention before, can last for five to ten days. The length of this stage is heavily dependent on food and temperature. (House fly, 2021)

When a larvae successfully acquires enough food it goes into pupation which will last for ten days given that the temperature is warm. After pupation a fly will emerge and will lay eggs within two days of its adult life. (Geiger, 2017)

Not all the ticks may be killed within the first 48hrs but they may be killed within a week.

The sulfur powder which is normally chalky-white, will help to coagulate the blood to prevent bleeding, dry out wounds to prevent infection, and speed the healing process.

Ectoline spot on solution is for the treatment of flea and tick infestation. The product has a persistent insecticidal efficacy for up to 8 weeks against fleas and a persistent acaricidal efficacy for up to 2 weeks against ticks. (Summary of product characteristics - VMD.DEFRA.GOV.UK.)

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## METHOD

The animals used were canines, which were a golden retriever mix and a shepherd pit. The Golden Retriever mix had a myiasis under arm of the front left leg two weeks after birth, while a German Shepherd Pit Bull had a myiasis at the scapha of the ear which led to amputation. All procedures and medication were applied to both canines, after which Ectoline was used to treat their respective wounds. Procedure taken from -Jamaica Broilers group, Pro Veterinary Compendium.

A goat kid was used as a control.

The materials used were Ectoline Screw Worm, 70% Isopropyl Alcohol, Boric Acid Powder and Sulfur Powder. The boric acid was diluted in order to prevent possible tissue damage.

All procedures and medication were applied on the goat kid with the exception of the Ectoline.

Application is as follows:

- Hold the pipette upright. Tap the narrow part of the pipette to ensure the contents are within the main body of the pipette.
- Break the snap-off top of the spot-on pipette along the score line.
- Part the pets coat until its skin is visible and place the tip of the pipette directly against the bared skin and squeeze gently several times to empty its contents.
- Repeat this procedure at one or two different points along the cats back, preferably at the base of the head and between the shoulders.

The maggots were extracted and examined and the amount of maggots in relation to the size of each wound was noted. Measurements of the wounds, reaction of the animals before and after treatment and the healing progression of each wound were recorded.

## RESULTS & DISCUSSION

In order to view the effects of Ectoline in different animals (mainly canines) and to see the efficacy of its treatment, it should be noted that most of these animals had wounds of different sizes. A myiasis was formed on the wounds even though one was smaller. In order to get the full effect of the Ectoline treatment, other procedures were taken, such as, providing anesthetics to the animals that had very large wounds. Some body parts needed to be removed to prevent the spread of gangrene infection.

Other medications used the wound and to kill the larvae of the myiasis were used before the treatment.

Upon observation of the wound environment, there was an increase in the amount house flies, specifically the *Musca domestica*. There is a strong possibility that it was these flies that laid their eggs in the wounds of the animals. When regular medication was applied to the goat kid, the goat kid started to scratch and shake its body in distress. The same reaction occurred with the other subjects. This might be an indicator that the regular medication may have caused severe pain.

Upon further observation of the wounds of each animal, it was observed that there was scabbing around each wound. The subjects upon which the Ectoline was applied showed more evidence of clotting. However, there were more fly larvae exiting the wounds of the animals on which Ectoline was applied in comparison to the goat kid even though there was maggot extraction before the application of the medication. This might be due to the harsh environment to which the medication has created within the wounds.

The medication that may cause this is the sulfur powder which coagulates the blood to prevent bleeding, dry out wounds to prevent infection, and speed the healing process. Maggots are very sensitive to moisture and will attempt to migrate to suitable environments hence the appearance of maggots outside of the wound. It should be noted that maggots can survive a wide range pH ranging from 3.2 to 8.0. This would rule out the diluted boric acid powder as a potential killer for the maggots in the wound but it can be used as an antiseptic. However, observing the ingredients of Ectoline it has shown to contain the ingredient fipronil. Fipronil is a broad use insecticide that belongs to the phenylpyrazole chemical family. Fipronil is used to control ants, beetles, cockroaches, fleas, ticks, termites, mole crickets, thrips, rootworms, weevils, and other insects. Fipronil disrupts the insect central nervous system by blocking GABA-gated chloride channels and glutamate-gated chloride (GluCl) channels. This causes hyperexcitation of contaminated insects' nerves and muscles. In order to find the effectiveness of Ectoline a Chi-squared test was used to see if there is any significant relationship between the observed groups. Chi-squared test was used because the data obtained from the experiment was categorical and had more than one sample

Table Showing the Significance Between Living and Dead Maggots After Treatment.

	Dead	Alive	Row Totals
Goat kid	100 (105.52) [0.29]	60 (54.48) [0.56]	160
Shepherd pit	180 (185.98) [0.19]	102 (96.02) [0.37]	282
golden retriever mixed	150 (138.50) [0.96]	60 (71.50) [1.85]	210
Column Totals	430	222	652 (Grand Total)

The chi-square statistic is 4.2195. The p-value is .121268. The result is not significant at  $p < .05$ .

There is a significant relationship between the two variables. Maggots are affected by Ectoline treatment.  $\chi^2 (1, N = 652) = 4.2195, p < .05$ .

The provided sample variance is  $s^2=0.1295$  and the sample size is given by  $n=652$ .

(1) Null and Alternative Hypotheses

The following null and alternative hypotheses need to be tested:

$H_0: \sigma^2 \geq 5$

$H_a: \sigma^2 < 5$

This corresponds to a left-tailed test, for which a Chi-Square test for one population variance will be used.

(2) Rejection Region

The significance level is  $\alpha=.05$ , and the rejection region for this left-tailed test is  $R= \{\chi^2: \chi^2 < 592.807\}$

(3) Test Statistics

The Chi-Squared statistic is computed as follows:

$$2 = n - 1s^2 = (652 - 1)50.1295 = 16.861$$

4) Decision about the null hypothesis

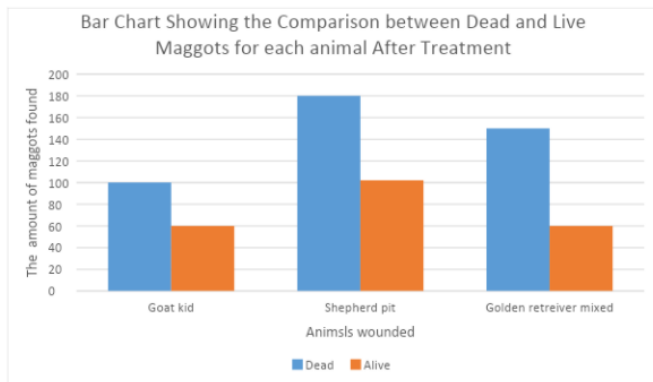
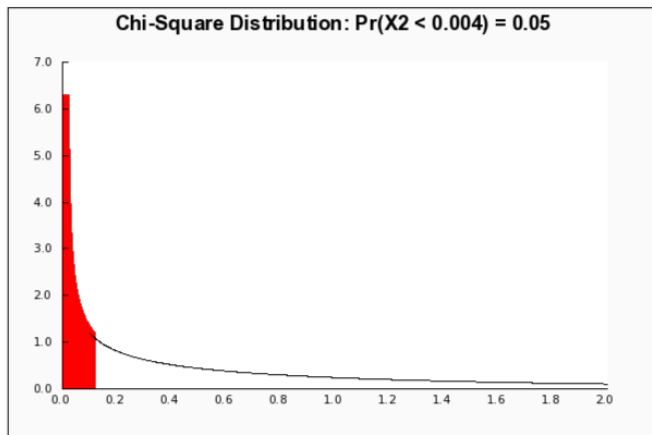
Since it is observed that  $2 = 16.861 < 2L = 592.807$  it is then concluded that the null hypothesis is rejected.

The following information is provided:

$\alpha=.05$

$df = 1$

The Chi-Square critical value for a left-tailed test, for a significance level of  $\alpha = .05$  is:  $\chi^2_{L2} = 0.004$



The Bar graph shows that there were more maggots found dead in each case. However comparing the ratios of the test groups to that of the control group, there was a greater chance that dead maggots would be found in the test groups.

The initial size of the wound would also play part in the comparison of wound healing however as stated before there was more scabbing in the test group in comparison to the control group.

Confidence Interval

The 95% confidence interval is  $0.1165 < \sigma^2 < 0.1448$ .

## CONCLUSION

It was concluded that since the null hypothesis was rejected, Ectoline had no significant effect on the maggots inside each wound in the test group and any significant change may be due to chance.

A qualitative analysis can be used to see how the wound healed by observing the volume scabs formed around it.

There is evidence to claim that the population variance  $\sigma^2$  is less than 5, at the .05 significance level.

The reactions seen in each animal could be due to the medicines placed upon the wounds and the healing process observed may be natural.

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# IMPACT OF SLEEP DEPRIVATION ON THE ACADEMICS OF MEDICAL STUDENTS

AUTHOR >

Lincy Rebekah Augustine Koilraj

## ABSTRACT

**S**leep is very important in life. Lack of sleep causes a person to experience fatigue, social changes, clumsiness, day time sleepiness and changes in their eating schedule. The purpose of this research is to determine the effects of sleep deprivation on academics ailing students of AAIMS. It was hypothesized that sleep deprivation has a negative impact on student's performance in academics. It is also assumed that sleep plays an important role in memory. The students who lack sleep also lacks in memory.

Participants were from the students of AAIMS in Black River, Jamaica. Sleep deprivation is a major problem faced among college students of the present generation. A validated sleep deprivation questionnaire surveyed the students sleep data. Questionnaire surveys were distributed to the students of AAIMS. 70 surveys were received as valid results and was statistically analyzed. From the result obtained, the students who slept less than six hours performed less in their academics and also felt sleepy in their classes.

**KEY WORDS:** Academic performance, college students, sleep deprivation, memory, GPA (Grade Point Average)

*From the survey, it was observed that 19 % (13) of the students suffer from insomnia. Most of the students scored between 61 – 80% was 44% (31). The findings indicate that college students are not aware of the extent to which sleep deprivation negatively affects their ability to complete cognitive tasks. . From the experiment and survey, it was proved that sleep deprivation affects student academics performance and their cognitive skills.*



DETAIL >

## INTRODUCTION

**S**leep deprivation is a term used to describe a state caused by inadequate quantity or quality of sleep, including voluntary or involuntary sleeplessness and circadian rhythm sleep disorders. A condition where a person stays awake for more than normal, and as a result may experience fatigue, lethargy, or other effects is called sleep deprivation (Harvard Health Publications).

Healthy adults need between 7 to 8 hours of sleep per night. Babies, young children and teens need at least 8 hours of sleep to enable their growth and development (National Sleep Foundation,1990). Sleep is as important to the human body as food and water, but many of us don't get enough sleep. According to the National Heart, Lung, and Blood Institute, (Suni, 2021)

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people with sleep deficiency have a greater risk of many health complications, including heart disease, kidney disease, high blood pressure, diabetes, stroke, and obesity. Too little sleep causes the loss of concentration and can lead to memory impairment and compromised physical performance. It can be either chronic or acute and may vary widely in severity. Acute sleep deprivation is when an individual sleeps less than usual or does not sleep at all for a short period of time usually lasting one to two days. (Colten, 1970)

Chronic sleep deprivation means when an individual routinely sleeps less than an optimal amount for ideal functioning. Adequate sleep has a crucial role in enhancing cognitive skills especially memory retention. Poor night time sleep quality and the consequent daytime sleepiness affect cognitive health of students and their academic performance. Memory is essential to learning, but it also depends on learning because the information stored in one's memory creates the basis for linking new knowledge by association. (Pacheco, 2020)

It is a symbiotic relationship that continues to evolve throughout our lives. According to the National Sleep Foundation, 35.9% of adults 18 to 29 years of age describe themselves as night-owls. Unable to fall asleep earlier in the evening, they cannot get enough sleep if they must get up early. (Gaultney, 2010).

Sleep deprivation can lead to many consequences. Without an adequate amount sleep, our minds and bodies are unable to perform at their peak. There are several potentially bad outcomes that are associated with inadequate sleep. Sleep influences the immune system, memory consolidation, attention, hunger, mood, response time, and many other body functions (American Sleep Association (ASA)).

For students, getting enough rest is essential for proper growth and development.

For example, when children don't get enough sleep, it can interfere with how well they do in college. Memory is also negatively impacted if you're sleep deprived, which affects learning at any age. Sleepiness and irregular sleep schedules have many unintended consequences, one of which is to negatively impact learning, memory, and performance. A common sleep problem among the college students is sleep deprivation and insomnia because they go to bed late and wake up early. The consequences of sleep deprivation and daytime sleepiness are especially problematic to college students and can result in lower grade point averages, increased risk of academic failure, compromised learning, impaired mood, and increased risk of motor vehicle accidents (Shelley D Hershner, Ronald D Chervin, 2014). They lack sleep because of studying, assignments, playing games, watching movies and sleep disorders. This research was done so as to assist the students about the negative effects of sleep deprivation on their physical, social and cognitive behavior. Lack of sleep can lead to major health issues, and the link between sleep deprivation and chronic disease has grown significantly. According to the Center for Disease Control (CDC), these diseases include diabetes, cardiovascular disease, obesity and depression. Sleepiness and poor sleep quality are prevalent among university students, affecting their academic performance and daytime functioning. Students with symptoms of sleep disorders are more likely to receive poor grades in classes without symptoms of sleep disorders. College students with insomnia have significantly more mental health problems than college students without insomnia. College students with medical-related majors are more likely to have poorer quality of sleep when compared to those

with a humanities major. College students who pull “all-nighters” are more likely to have a lower GPA. In the article, 'The prevalence of sleep disorders in college students: impact on academic Performance' by JF Gaultney, sleep disorders that affected the academics of students. A common sleep problem among the college students is sleep deprivation and insomnia and sleep apnea because they go to bed late and wake up early. The sleep disorder that I encountered in my questionnaire survey was insomnia and 13 students were affected by insomnia.

Another article, 'How Sleep Deprivation Affects Psychological Variables Related to College Students' by June J. Pilcher PhD, it is shown that sleep deprivation affects student's memory and cognitive skills by making them sleepy, tired and also affecting physical, mental and social behavior. Sleepiness and irregular sleep schedules have many unintended consequences, one of which is to negatively impact learning, memory, and performance. This article proved that lack of sleep affects not only academics but also a student's physical, mental and social behavior.

Shelley D Hershner stated in an article, 'Causes and consequences of sleepiness among college students'. The consequences of sleep deprivation in a student's life include loss of concentration and can lead to memory impairment and compromised physical performance. It can be either chronic or acute and may vary widely in severity. A related article states, 'Good quality sleep is associated with better academic performance among university students in Ethiopia'. This article by Seblewengel Lemma, emphasizes how good quality of sleep improves student's academic performance. This led to the hypothesis of this research. Adequate sleep has a crucial role in enhancing cognitive skills especially memory retention.

## METHOD

The study is a quantitative research which include the following methods:

- Questionnaire survey
- Experiment
  - The survey includes questions which will be send to AAIMS students via google forms to complete it. From the collected form, the results will be obtained. The result obtained will give information on the student's performance in academics and memory.

Location: The study was conducted among the students of AAIMS.

Participants: Students of All American Institute of Medical Sciences (AAIMS).

Sample size: The total sample size was 70, males (34) and females (36).

Sampling unit: Students between the age group 15 – 30 yrs.

- The experiment conducted was observational. 12 students were selected and their sleeping schedule and their academics performance was observed individually. First, the student's academics observed was when they lacked enough amount of sleep (< 6hours) which resulted in less concentration and memory that led to lower academic performance. Then, they were advised to follow a correct sleeping schedule of about at least 7 – 8 hours. The results were observed after one month. This tested the impact of sleep deprivation on the students in their memory which directly affects their academic scores. The experiment took place between August – September 2021.

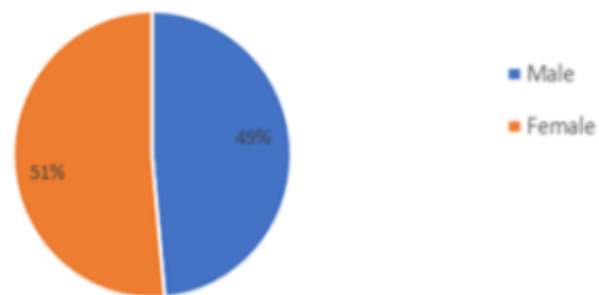
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Sample size: The total sample size is 12, males (5) and females (7).  
Participants: Students of AAIMS.  
Sampling unit: Students between the age group 17 – 21 yrs.

## RESULTS

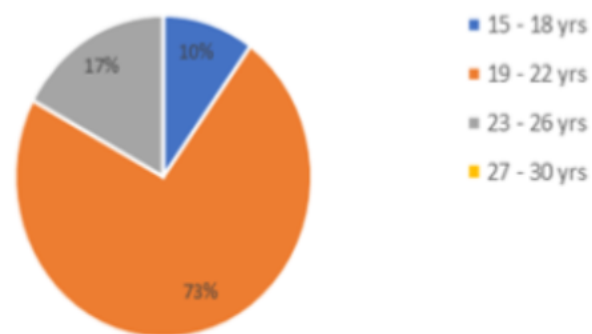
Questionnaire survey:

### 1. Gender:



The pie chart (Fig 1) represents the number of males (49%) and the number of females (51%) participated in the questionnaire survey.

### 2. Age:



This pie chart represents the number of students who participated in the survey based on age.

The pie chart representing the responses to the question (3) of the survey related to memory and learning. The pie chart representing the responses to the question (4) of the survey is related to how many hours of sleep do you get every day?

3. Do you think sleep is important for memory and learning?



4. How many hours of sleep do you get every day?

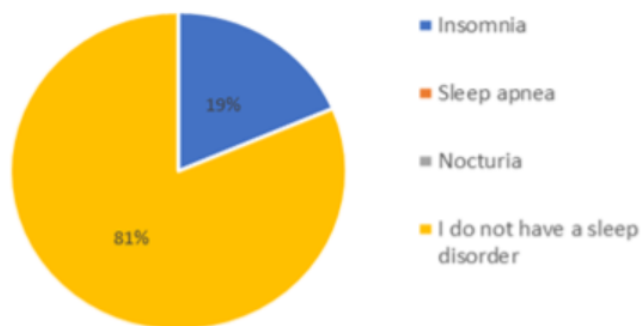


The 2 pie charts represent the responses to each of the question listed below based on their major cause of sleep loss and sleep disorders respectively.

5. What is your major cause of sleep loss?



6. Which sleep disorder cause you to stay up?



7. If you answered 'Yes' to previous question, then have you ever taken any prescription drugs for getting normal sleep?



8. How do you feel in your class hours due to lack of sleep?

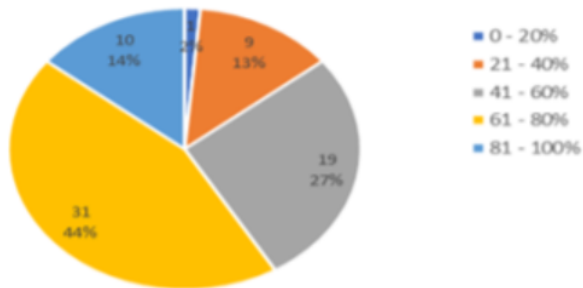


This pie chart represents the responses the participants responded to the question how do you feel in your class hours due to lack of sleep?

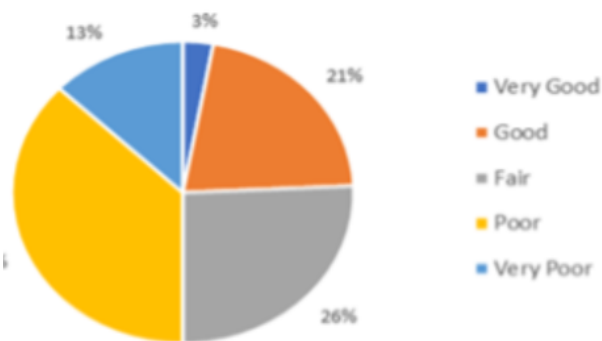


The pie chart represented below is the response given by the participants based on the question what is your GPA (Grade Point Average) in % and the rating of their sleep respectively.

9. What is your GPA (Grade Point Average) in %?



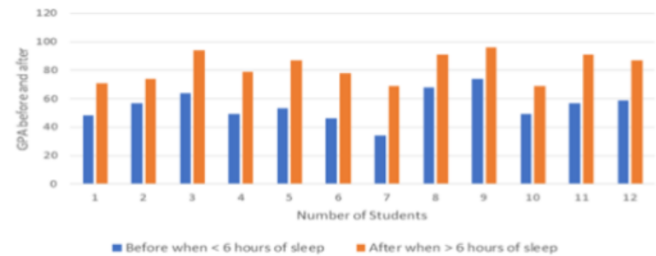
10. How would you rate the quality of your sleep?



The table showing the GPA of the 12 students before one month when they had < 6 hours of sleep and next column represents the GPA of the same 12 students after one month when they were advised to sleep > 6 hours and their GPA were observed.

Students	Before (< 6 hours) one month GPA Values	After (> 6 hours) one month GPA Values
1	48	71
2	57	74
3	64	94
4	49	79
5	53	87
6	46	78
7	34	69
8	68	91
9	74	96
10	49	69
11	57	91
12	59	87

The table showing the GPA of the 12 students before one month when they had < 6 hours of sleep and next column represents the GPA of the same 12 students after one month when they were advised to sleep > 6 hours and their GPA were observed.



This graph represents the GPA of the 12 students based on their sleeping hours before and after. Before the students slept < 6 hours and after the students slept > 6 hours

**STATISTICAL ANALYSIS**

PAIRED t-test for the experiment:

P value and statistical significance:

The two-tailed P value is less than 0.0001

By conventional criteria, this difference is considered to be extremely statistically significant.

Confidence interval:

The mean of GPA Before minus GPA After equals -27.33

95% confidence interval of this difference: From -31.22 to -23.45

$\alpha = 0.05$

Intermediate values used in calculations:

$t = 15.4965$

$df = 11$

standard error of difference = 1.764

Group	GPA Before	GPA After
Mean	54.83	82.17
SD	10.79	10.00
SEM	3.12	2.89
N	12	12

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## DISCUSSION

On average, a student should sleep about nine hours but the hormonal eruption causes changes in the biological clock making them fall asleep and wake up later. There is no doubt that there is an association between a good sleep hygiene and academic success, and there are studies attesting that students who sleep more have better ratings, being safe to say that early to bed and early to rise is good for learning (Antunes, 2009). Every student has his/her own rhythm of sleep, and on average they require to sleep nine hours a night. This study is to prove that sleep deprivation has negative effect on student's academic performance. From the questionnaire survey conducted, the number of males which is 49% (34) and the number of females which is 51% (36) participated. The age group of students who participated in the survey was between 15 - 30 yrs. Most of the student who participated ranged between 19 - 22 yrs is 73% (51). The other ages ranged between 15 - 18 yrs which is 10% (7) and between 23 - 26 yrs which is 17% (12). There were no persons ranging between 27 - 30yrs. The age is important as sleeping hours varies for different age group of students. A 100% response was obtained for the question "Do you think sleep is important for memory and learning?". The response proved that sleep is very important for good memory and learning. If sleep is not adequate, consequently memory and learning will be affected. Sleep is important for a healthy lifestyle, likewise the amount of sleep is also very important. The number of students who sleep for less than 5 hours is 29% (20). This short time sleep will affect their health and academic performance. 50% (35) of the students slept for 5 - 6 hours per night. 14% (10) of the students slept for 7 - 8 hours and 7% (5) of the students slept more than 8 hours.

The students with at least 7 or > 7 hours of sleep were active and was able to concentrate on their studies. Thus, sleeping hours plays a vital role in a student's daily routine. Most of the college students lacked enough sleep due to their unnecessary behaviors like staying on the phone for too long before sleep 37% (26), watching movies 10% (7), talking with friends late at night 16% (11), studying /assignments 21% (15) and others 16% (11) like depression, stress, sleep disorder, etc. The student's such behavior forces them to deprive their sleep and results in day-time sleepiness. Studying /Assignments are not bad to do at night but it can be done by going to bed early and waking up early morning. Early morning study is very beneficial as your brain is refreshed and this leads them to concentrate more on their studies which improves their memory and thereby increasing their GPA (Grade Point Average) in their final courses. Some students are affected due to some sleeping disorders like insomnia. From the survey, it was found that 19% (13) of the sleep were affected by insomnia. Insomnia is a condition where it makes hard for a person to fall asleep or cause you to wake up too early and not be able to get back to sleep. The students may feel tired when they wake up. 81% (57) of the students do not have any sleep disorder. Some of the students 13% (9) are taking prescription drugs for their sleep disorders. The remaining students 87% (61) do not take any prescribed drugs. But continuous lack of sleep can cause sleep disorders which can make a student's life miserable. So, sleeping on time can help student avoid these serious illnesses. Most of the students felt sleepy 43% (30), tired 36% (25), bored 14% (10) in their classes due to lack of sleep. Because of lack of sleep, the students could not concentrate on their studies which led them to have a very lower grades in their final exams. Only some students who were attentive 4% (3) and energized 3% (2) were able to concentrate on their classes and get a very good score in their final exams.

Most of the students scored between 61 – 80% was 44% (31). Some of the students scored between 41 – 60% was 27% (19), between 81 – 100% was 14% (10). Some of the even scored between 0 – 20% and 21 – 40% were 2% (1) and 13% (9) respectively. From this we can conclude that, most of the students could not reach their expected scores in their final course due to lack of sleep. Some students even got very low grades ranging between 0 – 40% which shows that lack of sleep have a great impact on the student's academic performance. Most of the students had a very poor quality of sleep 37% (26). Some of the students had fair quality of sleep 26% (18), good quality of sleep 21% (15), very good quality of sleep 3% (2) and very poor quality of sleep 13% (9). From the survey obtained, it can be concluded that lack of sleep will affect the academic performance in a student life.

In the experiment conducted, the student's sleeping hours were observed for some days and they all slept less than 6 hours daily. This lack of sleep resulted them in lower grades. Afterwards the students were advised to sleep more than 6 hours, which resulted them in better grades in their exams. This showed that sleep is related to academics and memory. The obtained p-value from the experiment conducted is less than 0.0001. If the p-value is less than 0.05 (typically  $\leq 0.05$ ) is statistically significant. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct. Therefore, we reject the null hypothesis and accept the alternative hypothesis. From the questionnaire survey and experiment conducted, it was proved that sleep is related to memory and academics performance. The p-value is 0.0001 which is less than 0.05 which represents statistically significant.

The statistical analysis in the experiment also proved that sleep deprivation has negative impact on the student's academic performance. Thus, sleep deprivation has negative impact on student's academic performance and memory.

## CONCLUSION

Sleep is very important in a student's life. So, it is the responsibility of the students to make sure that they sleep at least > 7 hours to have a very good memory which consequently leads to greater grades in their academics. Good sleep not only improves memory but also boost your immune system, maintain a healthy weight, strengthen the heart, promotes longevity and helps us to focus and think clearly and creatively. Adequate sleep also reduces diseases like diabetes, high blood pressure, stress. Creating a study routine involves determining the best time of day for coursework. Consult a calendar or create one that includes part-time jobs, classes, and advising meetings. Other responsibilities may make studying at the same time each day challenging. However, scheduling time for studying prevents all-nighters and promotes a healthier sleep schedule. This can help students who lack enough amount of sleep due to studies and assignments. The students who are playing games, watching movies, talking with friends can reduce their usage in these unnecessary things so as to get a normal sleep routine. So, adequate sleep is very important for memory and academic performance and also to lead a healthy lifestyle.



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# ONLINE VIDEO GAMES: THIER IMPACT ON THE GPA AND HEALTH OF MEDICAL STUDENTS

**AUTHOR>**

Vamshi Vadavalli

## ABSTRACT

**T**he Online game industry has flourished to become the world's largest entertainment, one of the problem students playing with \*2online games for long time without thinking about negative affections especially on their GPA and health. In this paper to present impact of online games on creativity and academic achievement of aaims school students, I proposed a questionnaires form for 100 students in our school. The result of our research explained that the students playing between 1-3 hours per day with Online games their GPA not decreased or very few which is -0.22% per hour, in same time students that playing more than 3 hours per day their GPA decreased more which is -2.41% per hour. The result help the students to play with electronic games carefully, because if they were playing more than 3 hours

**KEY WORDS:** Video Games, Health, GPA, Exercise.

that may cause a huge impact on students GPA and health. As some of the students spend most time on game they neglect their personal needs like sleep, food, etc. according to timings. These types of activities leads to different diseases such as anxiety, depression, obesity, sleeping disorders and stress. This main motto of this research is to create awareness among students at AAIMS about how they are indirectly affected by online games.



**DETAIL >**

## INTRODUCTION

Online gaming is one of the widely used leisure activities by many people. For some people it is said that playing video games has a number of reasons to be played, for it can be a stress reliever, challenge and competition, relaxation, enjoyment, social interaction, and even mentally escaping from the real world. (Dumrique, 2017)

For most people, on-line gaming is one of the best past time that they acquire specially for teenagers, youngsters and students. According to Kuss & Griffiths, teens who play online games are just having fun. They do not just actually play because of some sort of seriousness, but also because they just want to feel relief.



During school hours, students tend to feel stressed due to loads of school works and through playing it will relieve their stress.

It is undeniably questionable that playing online games provide them something that no one can give. According to some researches it is beneficial. It enables the mind of the players to be more active, especially those puzzle-based games. Furthermore, it helps the player to come up with decisions in tight situations, especially those adventure games that keep the players to be alert, active and strategic.

Students' learning takes place unexpectedly, but the inappropriate usage of playing online games also leads in some problems such as being distracted in school. Further, it is where the attention of the child were divided that even their health and social life is unknowingly affected. (Dumrique, 2017)

Several studies in psychology have found out that increased time spent on the Internet can lead to negative impact on a person's ability to communicate appropriately face-to-face with friends, peers, family members including parents.

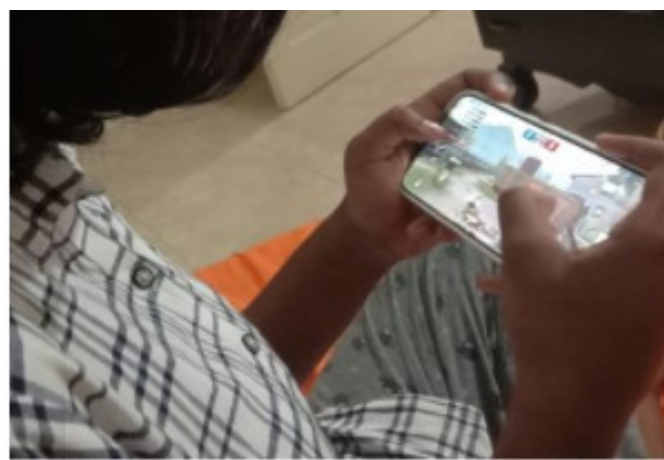
Studies revealed that the human brain is easy to destruct and one of the reasons is using technology. The education system tends to go with the flow with this constant change in the society in order to get things relevant with the generations today.

LITERATURE REVIEW: Dennis O. Dumrique of the Polytechnic University of the Philippines, College of Education, performed research on Online Gaming: Impact on the Academic Performance and Social Behavior of the Students. It was shown that the Academic Performance of the respondents was not affected even if they play online games. Their grades were still good enough even if they spent time for playing. To sum up with the result, the respondents have a good academic performance despite their involvement in playing online games.

## METHOD

The study was designed and conducted from August 12th to August 26th in 2020.

The research design was that of a Cross-sectional study of pre-selected students who play online games on a regular basis.



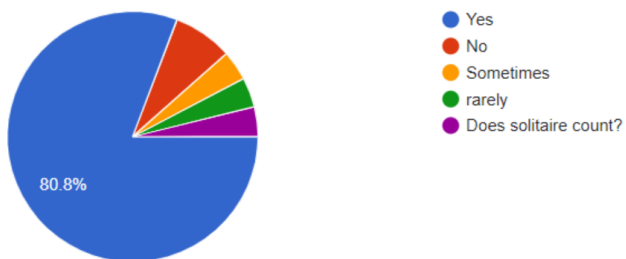
40 questionnaires were used to obtain data for this research. Questionnaires were issued to both males (20), females (20) of AAIMS.

Sampling unit: Students between the age group 17-21 years.

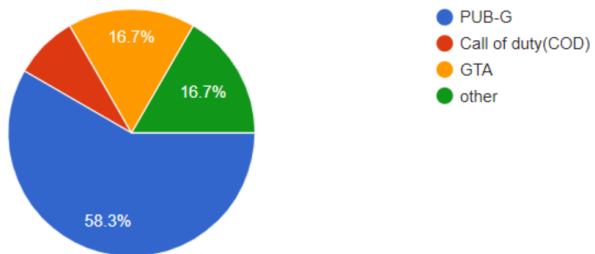
The questionnaires comprised 9 open ended questions. The sampled participants were drawn from the students of the All-American Institute of Medical Sciences population, in Black River, Jamaica.

# RESULTS

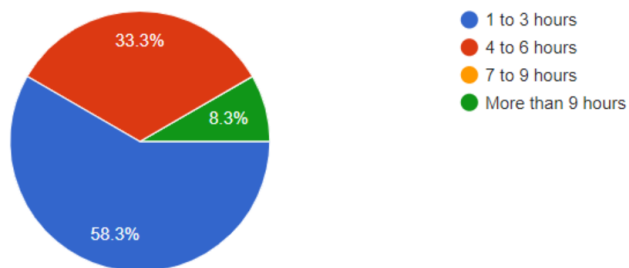
Do you play online games?



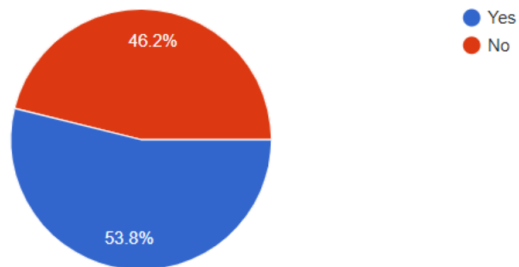
Which is your favorite online game?



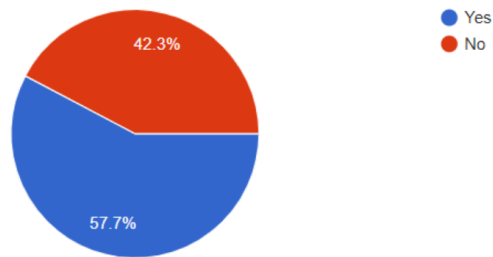
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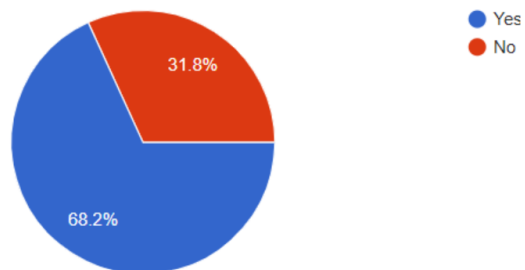
Does this online game effects your Daily Routine Schedule?



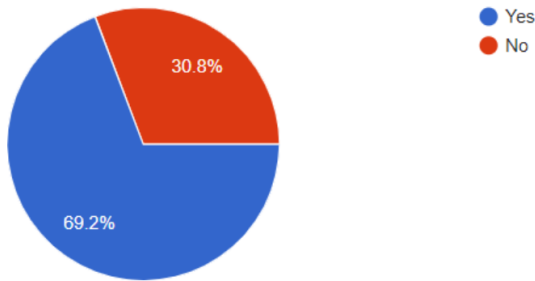
Are you skipping your Daily activities (food, sleep, exercise) just to finish your Game?



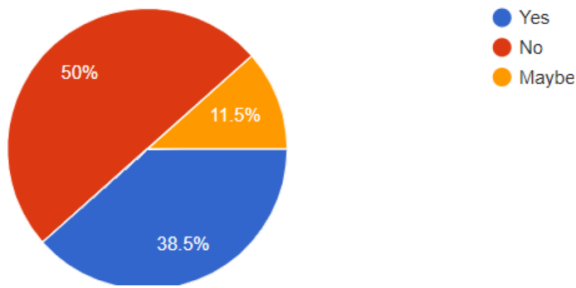
Does playing online games effects Health or GPA?



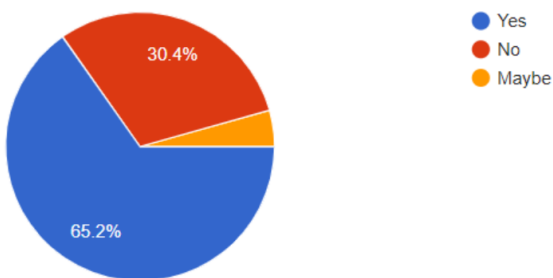
Do u play Online games during Class or Assignment?



Do you skip class just to play Online Games?



Do you Experience any health problem (Headache, Back Pain, Neck Pain) because of Playing Online Games?



Through the questions that were asked to the students we obtained the following are observed. Overall 80% of the students are playing online games. In those students 68.2% are saying that playing online games for long period of time affects their GPA. 65.2% are saying that they are suffering from health problems such as headache back pain and neck pain. It is found that from the results online gaming have effects on students GPA and Health but it varies from student to student and time that they spent on online games.

**STATISTICAL ANALYSIS:**

**Observed proportion**

Observed proportion (%):

Sample size:

**Null hypothesis value**

Null hypothesis value (%):

z-statistic	2.670
Significance level	P = 0.0076
95% CI of observed proportion	88.43% to 100.00%

The P Value for Percentage of Students Playing Online games is 0.0076 and Z-Statistic is 2.670.

Observed proportion (%):

Sample size:

**Null hypothesis value**

Null hypothesis value (%):

**Results**

Z-statistic	3.740
Significance level	P = 0.0002
95% CI of observed proportion	88.43% to 100.00%

The P Value for Percentage of students affecting their Health or GPA by playing online games is 0.0002 and Z-statistic is 3.740.

Observed proportion (%):

Sample size:

**Null hypothesis value**

Null hypothesis value (%):

**Results**

Z-statistic	4.002
Significance level	P = 0.0001
95% CI of observed proportion	88.43% to 100.00%

This is the P value for students who are experiencing Headache, Back pain or Neck pain because of playing Online games is 0.0001 and the Z-statistic is 4.002.

## DISCUSSION

Through the questions that were asked to the students we obtained the following are observed.

Overall 80% of the students are playing online games. In those students 68.2% are saying that playing online games for long period of time affects their GPA. 65.2% are saying that they The aim of this research was to find if there were any adverse effects of online games on GPA and health of AAIMS students.

This study also investigates the time that was spent on online games among AAIMS students.

This study also investigates the effects of online games on their daily schedule and health problems.

Research has found that playing online games for more time has an great impact on their health and studies. It should be noted that spending more time on online games consumes their time of their daily schedule in which students skip classes and their study time.

It also found that online gaming decreases the physical activity of students and continuous playing in mobile causes neck pain, head ache, etc. It shown that online gaming effects the GPA due to lack of time and health problem also indirectly affects the GPA. Some students suggested that there are many ways to combat these problems.

It is advised to do the following steps to cope with these problems:

Spend leisure time exploring new and different things rather than on online games.

Reducing the time spending online games.

Spending time on physical game rather than online games.

Eating a healthy diet and enough sleep is necessary for good health. The adverse effects are rarely seen in these students. of the sample

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# CONCLUSION

This research has led us to find that online games have effect on the GPA of students. It also leads to health problems that may worsen over time. However, it was found that these effects can be countered and avoided when the students follow certain health and study guidelines.

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# THE EFFECT OF CLASSICAL AND HIP-HOP MUSIC ON CONCENTRATION AMONG THE MEDICAL STUDENTS OF AAIMS

AUTHOR>

APARNA VINOD

## ABSTRACT

**T**o determine the effect of classical and hip-hop music on concentration among the students of AAIMS campus.

*It was hypothesized that while studying, listening to classical music has a more positive impact on concentration than hip-hop music.*

*30 AAIMS students participated in the experiment that tested their concentration in memorizing a text that they studied while in one of the two different auditory settings. Participants were randomly assigned to study a text while listening to either hip-hop music or classical music. a repeat design was used. Previous studies have shown mixed performance effects of listening to music while studying a text. The current experiment focused on how AAIMS students performed on a test after studying a text in varying auditory environments. Also survey and questionnaire were conducted between thirty students of AAIMS.*

**KEY WORDS:** Music, Concentration, Performance, Studying

## INTRODUCTION

According to Schafer, 2013, Medical students have an enormous variety of study situations to choose from, ranging from quiet study rooms to listening to various audio of their own choice. For some students, studying informational materials may involve some type of background noise, such as television or music. However, a variety of studies have investigated exactly how music affects concentration while studying;



PHOTO BY C D-X

DETAIL >

their results point to the notion that there are many different factors associated with how music influences memory. This research seeks to examine the common issue, that listening to music while studying may affect memory and thus grades. Specifically, the current experiment sought to investigate the performance of AAIMS students on a learning task while listening to either hip-hop music or classical music.

It was hypothesized that students who listened to hip-hop music while studying a text would recall less information and that students who studied in classical music would recall the most information. These expectations have been based on the observation that the popular music contained verbal lyrics, potentially causing the most distraction for the participants during reading. (Bugter, 2012)

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Music is a form of art that uses sound organized in time. Music is also a form of entertainment that puts sounds together in a way that people like, find interesting or dance to. Most music includes people singing with their voices or playing musical instruments, such as the piano, guitar, drums or violin. Performance ability is how effective something or someone is at doing a good job. Studying is the act of making an effort to learn by reading, practicing, or memorizing and concentration is giving exclusive attention to one object or close mental application. (Sarrazin, 2016)

**LITERATURE REVIEW:** In the study, The Impact of Music on Studying Ability in College Students, Nathaniel T. at Lutmer College of Saint Benedict/Saint John's University showed that further research needs to be performed to determine if there is a relationship between listening to both lyrical and instrumental music and effective studying ability in college students. The study investigated the relationship between listening to music and studying ability in college students and was conducted by utilizing a convenience sampling technique to have participants partake in the study. Each participant was randomly assigned to either a control or one of two experimental groups based on block-random assignment.

## METHOD

Students of Indian nationality were selected and Indian classical songs which are considered as good for studying were used, For the classical music listening group to make them more interested.

## EXPERIMENTAL RESEARCH DESIGN

A group of students are selected and randomly assigned to either hip-hop music or classical music and given a particular topic to all for reading. Headphones are also provided for hearing music. Allowed them to read the given text along with playing music. After all, conduct a test containing the given topic for analyzing which genre of music has an impact on concentration.

- Survey - Classical or Hip-Hop? Which will increase concentration?

## EXPERIMENT PARTICIPANTS

30 medical students from AAIMS participated in the experiment. Participants ranged in age from 17-22 years old and 18 were females and 12 were males. All the participants were Indians. In this research, I have selected 18 females and 12 males. Among this, 10 males and 15 females listen to classical music while studying and 2 males and 3 females listen to Hip-Hop music while studying. Totally 25 students listen to classical music and 5 students listen to Hip-hop music while studying (see table 1).

## MATERIALS

Participants received a short informational text on phosphorus, adapted from Bill Bryson's (2003) book, A Short History of Nearly Everything. The text was a single page, and was 530 words in length. In addition, the text packet contained a recall sheet that 10 comprehension questions

and Appendix B). For participants in the Hip-hop music condition, the song, Born This Way (Lady Gaga, 2011, track 2) was played during the five-minute reading period. For participants in the classical music condition, an Indian classical music, Raga Kaunsi Kanhra (Vishwa Mohan Bhatt- 1992) was played during the five-minute period.

- PROCEDURE

Participants were randomly assigned to either the popular music or classical music condition. Participants were seated at a table, given the text packet, and were instructed to read the passage carefully. For participants in the Hip-hop and classical music conditions the appropriate music was played at a reasonable volume once participants began reading. After the five-minute reading period, the music was stopped and the participants were instructed t

## RESULTS

From the survey, I found the types of music listened to by 30 students of AAIMS while studying. The pie chart given below shows that most of the participants are interested to listen classical music than all others. From this, I got that 57% are interested to listen to classical music, that is, 17 students. 20% are interested to listen to Hip-hop music, i.e., 6 students. 13% are interested to listen to melody i.e., 4 students. 7% are interested to pop music i.e., 2 students. 3% are interested to listen to everything i.e., 1 student.

TABLE-1: CLASSIFICATION OF TYPE OF MUSIC LISTENED AMONG FEMALES AND MALES

	Classical	Hip-hop	Total
Males	10	2	12
Females	15	3	18
Total	25	5	30

TABLE-2: RESPONSES TO COMPREHENSION QUESTIONS

Questions	Classical		Hip-hop	
	Correct	Incorrect	Correct	Incorrect
Q.no-1	11	4	9	6
Q.no-2	10	5	11	4
Q.no-3	12	3	8	7
Q.no-4	9	6	7	8
Q.no-5	14	1	10	5
Q.no-6	13	2	10	5
Q.no-7	11	4	7	8
Q.no-8	9	6	6	9
Q.no-9	12	3	10	5
Q.no-10	15	0	9	6

Participant answers on the comprehension questions were assigned one point for a correct answer and zero points for an incorrect answer. Means were first calculated for participants who were exposed to classical music during reading and participants who were exposed to hip-hop music. A marginal main effect of sound was observed, in that participants assigned to read the text in the classical music Condition produced slightly more correct answers after reading, compared to the Hip-hop Music Conditions (see table1).

Unpaired t test results:

P value and statistical significance:

The two-tailed P value equals 0.0523

By conventional criteria, this difference is considered to be statistically significant.

**Confidence interval:**

The mean of classical minus Hip hop equals 10.00  
95% confidence interval of this difference: From  
-0.97 to 20.97

**Intermediate values used in calculations:**

t = 3.9223

df = 2

standard error of difference = 2.550

Students who listened classical music while studying got better results than the hip-hop music listeners. Obviously, the simplest explanation for this effect would be that the students of All American Institute of Medical Science are generally better, or at least adept at, studying or performing tasks while listening to classical music.

However, a variety of outside factors may have also influenced the results of this study.

## DISCUSSION

TABLE-3: A REVIEW OF THE DATA:

A review of the data:

Group	Classical	Hip-Hop
Mean	12.50	2.50
SD	3.54	0.71
SEM	2.50	0.50
N	2	2

It is possible that many participants were not motivated to participate in the experiment. As the experiment was not part of a class grade, participants may not have put in their full effort to read and understand the text. In addition, it may also be the case that five minutes of reading time was not sufficient for full comprehension of the text. In future experiments, allowing additional or unlimited time to read the test might enable participants to fully comprehend and remember the test.

Also, there were limitations in conducting this research. The primary limitation of my study was the sampling technique used as well as the number of participants. The small number of participants established a very low power level for this study which provided a much smaller opportunity to achieve statistical significance. The sampling technique utilized did not provide a representative sample which does not allow me to externalize any conclusions that I may reach. The secondary limitation was face to face interaction with the sample population that I have selected for the research.

It is also a possibility that the music was simply not distracting for the participants. Participants may have simply not found the provided music samples distracting to their study of the tests. The possibility exists that, if participants had been allowed to adjust the music volume, they may have increased the volume level to the point the music caused distraction and damaged performance.

The findings of this study should be taken with some caution, however. One potential extraneous factor that may have had an impact on performance is that of personal taste in music.

## RESULTS

For instance, if a participant disliked classical music, it may have impaired their ability to focus on the reading task. Another problem is that there are many different types of hip-hop music enjoyed by students at the All American Institute of Medical Science.

For instance, if a participant disliked classical music, it may have impaired their ability to focus on the reading task. Another problem is that there are many different types of hip-hop music enjoyed by students at the All American Institute of Medical Science.

Although the experiment data yielded a small significance between the classical music and hip-hop music comparison. What was observed does matter, a larger sample sized might have yielded significance, though more importantly, the observations reflected that the students of All American Institute of Medical Science performed that the classical music listeners answered almost correctly and the hip-hop music listeners got less result according to classical music listeners.

## CONCLUSION

This research shows that students who listened to classical music while studying a text would recall most information and that students who studied in hip-hop music would recall the less information. The results suggest that the participants who studied the test in classical music appeared to score slightly higher on the comprehension test compared to hip-hop music, the findings indicated that classical music did better than hip-hop music. From the experiment and the survey that I have conducted, I got my Hypothesis as true. That is, listening to classical music will have more concentration than hip-hop music.

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# EFFECT OF AMBIENT TEMPERATURE ON SLEEP IN BLACK RIVER, JAMAICA

**AUTHORS >**

ANTO CAMILLUS &  
DHILIP DHAMODHARAN

## ABSTRACT

**S**leep is vital for healthy human functioning. Yet, approximately one-third of adults' report sleep difficulties, making insufficient sleep a pressing public health issue. It was hypothesized that Colder temperature is favorable for sleep phase.. Therefore the aim of the study is to determine the ambient temperature necessary for optimal sleep at AAIMS., in Black River, Jamaica. Both survey and experimentation were conducted where the participants were the students of AAIMS. For the experiment, a sleep monitoring app was used by the participants. The data/sleep score was collected and analyzed using the t-test method.

Results showed that people like to sleep in a cooler environment. The ambient temperature for optimal sleep was the same as that at AAIMS, 16-25C. Temperature does have an effect on sleep and plays a role in the quality of sleep. Colder temperature and cold exposure prove to be a quality increasing factor.

KEY WORDS: Sleep, temperature,

## INTRODUCTION

Too little sleep increases susceptibility to disease and chronic illness and harms psychological and cognitive functioning. Both body temperature and ambient temperature significantly influence sleep patterns.



PHOTO BY DAN LEFEBVR & KINGA CICHEWICZ

**DETAILS >**

To improve sleep quality, first of all, it is imperative to first understand the mechanisms of human sleep. Normal human sleep consists of two phases— non-rapid eye movement (NREM) and rapid eye movement (REM). NREM sleep is further divided into three stages: N1, N2, and N3. The N1 and N2 stages are associated with light sleep, and N3 is characterized by slow wave sleep and deep sleep [6].

A person's sleep cycle is a progression of episodes from the N1 stage to the N3 stage and finally to the REM phase. Any disturbance to these synchronized sleep episodes can result in poor sleep quality and the negative mental and physical health effects associated with it.

The thermal environment is one of the most important factors that can affect human sleep and influence the sleep phases, especially the REM phase.



The stereotypical effects of heat or cold exposure are increased wakefulness and decreased rapid eye movement sleep and slow wave sleep. These effects of the thermal environment on sleep are strongly linked to thermoregulation, which affects the mechanism regulating sleep. The effects on sleep also differ depending on the use of bedding and/or clothing. In semi-nude subjects, sleep is more affected by cold exposure than heat exposure. In real-life situations where bedding and clothing are used, heat exposure increases wakefulness and decreases slow wave sleep and rapid eye movement sleep. Humid heat exposure further increases thermal load during sleep and affects sleep stages and thermoregulation. On the other hand, cold exposure does not affect sleep, though the use of beddings and clothing during sleep is critical in supporting thermoregulation and sleep in cold exposure. (Okamoto, 2012)

The ratio of distal to proximal skin temperature is highly predictive of sleep onset, suggesting that heat loss from distal skin temperature regions helps to cool the core in the evening and early morning. Once core body temperature drops to produce sleep onset, it remains low throughout the night and rises again shortly before awakening. By affecting circadian thermoregulation, ambient temperatures can interrupt the normal physiology of sleep. (Nick Obradovich)

In Jamaica, 1 in 5 people report sleep deprivation. Students are the most affected with their quality of sleep. This study is conducted in order to help the citizens to know the optimal temperature for sleep and to improve their sleep quality. The climate and temperature in Jamaica are typically tropical and hot all year round, this could also be a reason for a low-quality sleep. This study could help the citizens, and also the students to improve their sleep quality by changing one of the many factors for a good sleep.

LITERATURE REVIEW: Ngarambe, J., Yun, G., Lee, K., and Hwang in their study entitled, Effects of Changing Air Temperature at Different Sleep Stages on the Subjective Evaluation of Sleep Quality. Sustainability, illustrated in their results that the suitability of using the IoT to control the air conditioning in bedrooms to provide improved sleep quality. Obradovich, N., Migliorini, R., Mednick, S. C., & Fowler, J. H. studied nighttime temperature and human sleep loss in changing climates. This study represents the largest ever investigation of the relationship between sleep and ambient temperature and provides the first evidence that climate change and temperature change may disrupt human sleep.

## METHOD

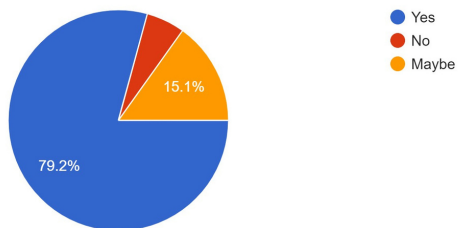
### SURVEY:

- This was conducted in order to analyze the participant's desired sleep habits and temperature.

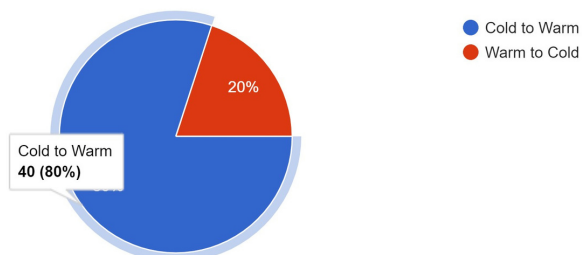
### EXPERIMENT:

- 2 groups (Group A and Group B) were pre-selected, each containing 5 members in the AAIMS campus.
- It was made sure that participants of Group A had access to either an A/C or an Air cooler.
- Each individual in Group A was asked to sleep in a colder environment (16-25C), while Group B was asked to sleep in a warmer environment (30C or more). The participants were also asked to use a sleep monitoring/tracking app to measure their quality of sleep.
- The data was collected and analyzed from and according to the app.

Have you ever woken up from sleep due to a change in the ambient environment?

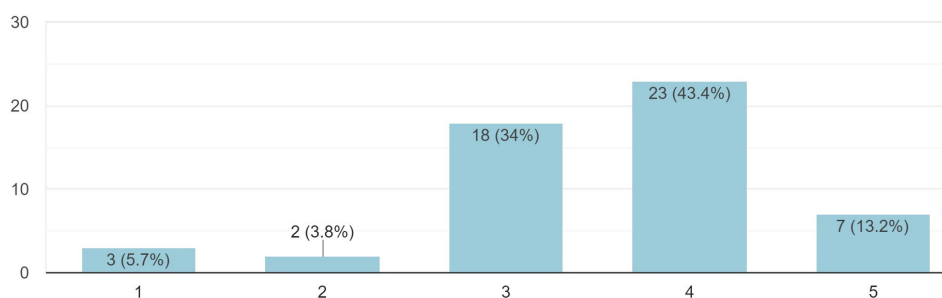


If yes, what was the change?



On a scale of 1 - 5, how do you rate your quality of sleep?

53 responses



**TABLE 1.**  
Group A has a better sleep score and also the Rem/deep sleep percentage of Group A is higher than Group B. Therefore, in this study, cooler environment of is the better ambient temperature for sleep.

Experiment:	
SLEEP SCORE OF GROUP A AND GROUP B	
Group A (Cold)	Group B (Warm)
92	31
86	62
89	28
81	67
83	69
<b>AVG- 86.2</b>	<b>AVG- 51.4</b>

Rem/DEEP SLEEP PERCENTAGE ACCORDING TO THE APP	
Group A (Cold)	Group B (Warm)
25%	7%
23%	13%
25%	6%
19%	14%
21%	15%
<b>AVG- 22.6%</b>	<b>AVG- 11%</b>

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## DISCUSSION

An appropriate thermal environment is essential for high-quality sleep. This study's purpose was to find out the ambient temperature for optimal sleep in Black River. From the results it can be better understood how to achieve good quality sleep in the particular climate. The sleep quality of the participants was generally higher in the room with a colder temperature than in the room with warmer temperature. This is because a colder temperature is also favorable for the Rem/deep sleep phase. Studies suggest that the core temperature and the heart rate have a relation and during cold exposure, the cardiac autonomic response may be affected without affecting sleep stages and subjective sensations.

In the survey, most people preferred a colder temperature, chill and light clothing, and their desirable environment was related to cold exposure. There are responses even stating their desirable temperature and choosing colder environment. This proves that people do like to sleep in a colder environment than in a warmer environment. The survey also says that a shift in temperature from cold to warm result in a disturbance of sleep.

According to the conducted experiment, we could see the significant difference in sleep score of both the Groups, Group A in colder environment did better on their sleep score than Group B in warmer.

**P value and statistical significance:**

The two-tailed P value equals 0.0055

By conventional criteria, this difference is considered to be very statistically significant.

**Confidence interval:**

The mean of Group One minus Group Two equals 34.80

95% confidence interval of this difference: From 13.49 to 56.11

**Intermediate values used in calculations:**

$t = 3.7657$

$df = 8$

standard error of difference = 9.241

## CONCLUSION

The ambient temperature for sleep is between 16-25 C. Most people desire for a colder environment and cold exposure factors. The study proves that cold environment aids the sleep phase and improves the quality of sleep, people are able to get more deep sleep time, and less undisturbed/ less awake time. Colder temperature and cold exposure prove to be a quality increasing factor. Temperature does have an effect on sleep, and now from this study we learnt the ambient temperature for a good quality sleep.

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# PREVALENCE OF DEPRESSIVE SYMPTOMS AND ITS CORRELATION WITH GENDER AND DURATION OF TIME SPENT IN BLACK RIVER

**AUTHORS >**

ROHI RACHEL MUNDRU & BHAVIKA PRIYA PURRA

## ABSTRACT

**M**edical students usually experience higher levels of stress than the average university student, and higher levels of anxiety and depression have also been recorded in medical students. In this paper, the correlation between gender, time spent in Black River, Jamaica, and the severity of depressive symptoms in the students of AAIMS (All American Institute of Medical Sciences) is investigated. ten articles are analyzed, and the results of those studies are used, along with the results taken from the study conducted at AAIMS, to draw conclusions regarding the manifestation of depressive symptoms in college-age students (young adults) with respect to gender and time spent in Black River, and the need for proper counseling for students studying university-level courses- specifically medicine. It can be assumed that, due to statistics given by the WHO, females will show more severe depressive symptoms than males, and that their symptoms become worse based on the duration of time spent by them in

KEY WORDS: depression, severity, correlation, symptoms, Black River

*Black River. The results of the study conducted at AAIMS showed that many students showed minor depressive symptoms before arriving in Black River, and those who didn't show any symptoms before arriving also didn't exhibit symptoms after relocating to Black River. Out of the 32 students who took part in the survey, only 9 showed high scores, and there was no correlation between the severity of their symptoms, the time from which their symptoms began to manifest, and the amount of time they spent in Black River.*



PHOTO BY DAN LEFEBVR & KINGA CICHEWICZ

**DETAILS >**

## INTRODUCTION

Students taking university-level courses are more susceptible to mental illnesses such as depression and anxiety. This is due to the high levels of stress that university students face, and also due to things such as academic pressures, obstacles to their goal achievement, environmental changes, and difficulty in transitioning from school to university. Medical students

usually experience higher levels of stress than the average university student, and higher levels of anxiety and depression have also been recorded in medical students.

A study conducted in private universities showed that male students exhibit more depressive symptoms than female students, and a study conducted in public universities showed that students in their first year of medical school showed higher levels of depression and anxiety when compared to students from higher years. [1] Depression is one of the most common mental illnesses present today. According to an article published by India Today in 2018, India shows the highest rates of depression in the world.[2] This could be caused by genetic factors [3] or societal pressures [4].

or it could be caused by other factors, such as having a bad home environment, or due to having a death in the family [5] or being relocated to a different place. [6] Depression also plays a role in the nutritional intake of the person affected. People with depression tend to eat more, which leads to weight gain, and in some cases, obesity. In this research paper, the prevalence of depressive symptoms in students of AAIMS and the correlation between the duration of their time in Black River and the severity of their symptoms is investigated.

Relocation depression is a type of depression that sets in shortly after moving to a new location; in this case, Black River, Jamaica. The symptoms of relocation depression usually include lethargy, lack of interest, reluctance to interact with people, trouble sleeping, and general sadness. Although these symptoms usually fade soon enough, it is still recommended that you seek help if the symptoms persist for over two weeks. If people still experience these symptoms after 6 months, it might indicate a bigger issue. In the sample of students who were surveyed, all of them had stayed in Black River for longer than 6 months, and only a few showed moderately severe depressive symptoms.

Depression usually manifests in teens and young adults as withdrawn behavior. This does not indicate depression by itself but plays a role in causing the manifestation of other symptoms. Other symptoms of depression include lack of interest, lack of appetite, falling grades, tiredness, lethargy, and problems communicating. The withdrawn nature of some young adults may lead to them feeling a sense of isolation from their peers and can lead to the suppression of emotions, which can also cause depression. [5] Lack of proper emotional support can also lead to students developing depressive



symptoms, as depression often results in those affected being unable to process and deal with the negative emotions they feel.(Easterbrook and Meeran, 2017)

In this paper, we determine the cause of the depressive symptoms in the students, along with whether the severity of the depressive symptoms indicates the need for additional emotional support for the students of AAIMS.

**LITERATURE REVIEW:** Most people who are affected by mental illnesses are adolescents or young adults, and most of the people affected are from low or middle-income countries. Learning how to identify the symptoms and getting the affected proper help can be more beneficial than medication. Previous studies have focused on symptoms affecting a certain age range (usually adolescents), in a certain setting (low-income countries). By conducting a comparative study of the predictors for adolescents in both high and low-income countries, it is possible to address the issue of prevention of depression in that age group after identifying the similarities in the symptoms found in both high income and low-income countries.



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In most high-income countries (Stage 4 or higher of the demographic transition model), the symptoms which are used to commonly identify depression are often linked with anxiety and people who are affected show symptoms of both.(Pedersen et. al., 2019)

While both males and females are affected by depression, it affects women more than men. [8] However, when the search parameters are narrowed down to just medical colleges, a study conducted in 2014 showed that their data was found to be inconclusive as the results

gathered from different locations varied beyond the margin of error. The results of this study showed us that, in university students, there is no one biological factor (such as gender) that causes it to have more of an effect on a certain group of people. Multiple factors (such as academic stress and societal expectations) can cause the appearance of depressive symptoms, and the results of our study showed that more males showed depressive symptoms, most likely caused by academic stress. The processing of emotions is also different in males and females, which could also explain our results.

Women are diagnosed more often, because “women tend to be more tuned into their emotions, and better able to describe them when depressed. Men might not recognize their symptoms like depression, perhaps denying or hiding their unhappiness, so the illness might get overlooked in men until it becomes more severe” (Goldstein, 2016).

One of the biggest obstacles in treating mental illnesses is physicians not recognizing the illnesses for what they are. This is because the symptoms are usually interpreted as signs of a physical illness instead of a mental one. In a study conducted in the state of Goa in India, patients were surveyed and the symptoms they presented with were recorded.

This study showed that patients primarily complained about sleep problems and general aches and pains in the body when asked about physical symptoms. However, when asked about psychological symptoms, 90% reported feelings of anger and irritability, as well as a marked lack of interest in their day to day activities. 10% spoke about being “fed up with life” and 3 people in the sample of 117 people spoke of dealing with suicidal thoughts. There was a clear distinction in the symptoms experienced by the different genders; men were more likely to feel nervousness and fear, while women spoke more about feeling sadness. [4] Although the data gathered from this study showed similar trends to the data gathered by us, it must be noted that the age range for this study was mostly middle age and elderly people, while our study focused more on adolescents/young adults.

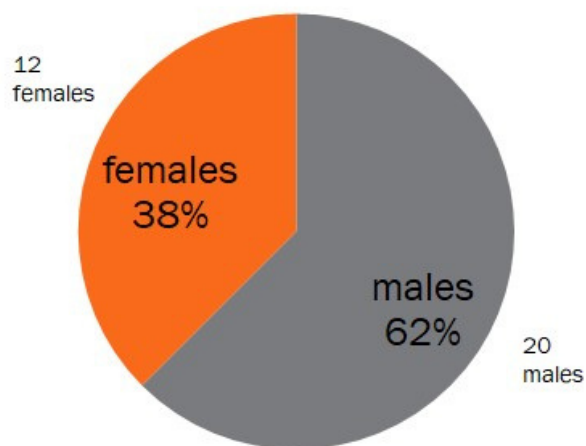
Most of the people, when asked about what triggered their illness, mentioned a major life event, such as the passing away of a loved one[5], or an accident, or a major surgery.[4] Many of the patients interviewed spoke of major episodes causing emotional distress, eg: substance abuse, domestic violence, conflicts between the patient/patient’s family and neighboring households, etc. The study concluded by determining that although somatic symptoms are present, more familiar symptoms- those of anxiety and depression, are usually noticeable in the patients, even if the patients themselves are unaware of it.[4]

## METHOD

The questionnaire used was taken from the US preventative services. This form, marked PHQ-9, is part of a larger module which is used to assess the mental health condition of patients. [9]

A cross-sectional survey was conducted, with 32 students participating. The scores spanned from a range of 0 to 18, with 0 being the best score and 18 indicating moderately severe depression. The reference scale for the form indicated that 0-9 meant that the person showed mild depressive symptoms, 10-14 indicated moderate depression, 15-20 was moderately severe depression, and anything over 20 indicated severe depression.

## RESULTS



No. of People Vs. Age

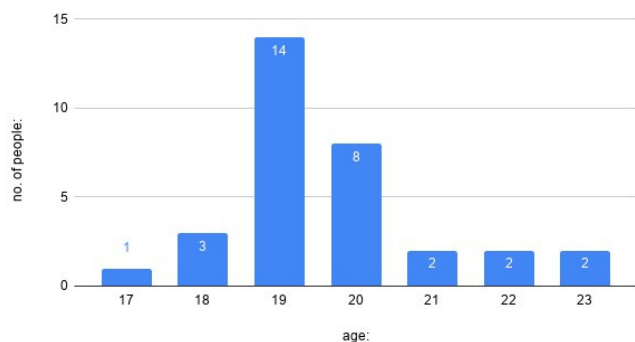


Chart A: a pie chart showing the number of people who participated in the survey based on gender.

Chart B: a graph showing the number of people who participated in the survey based on age.

Chart A: a pie chart showing the number of people who participated in the survey based on gender

Chart B: a graph showing the number of people who participated in the survey based on age

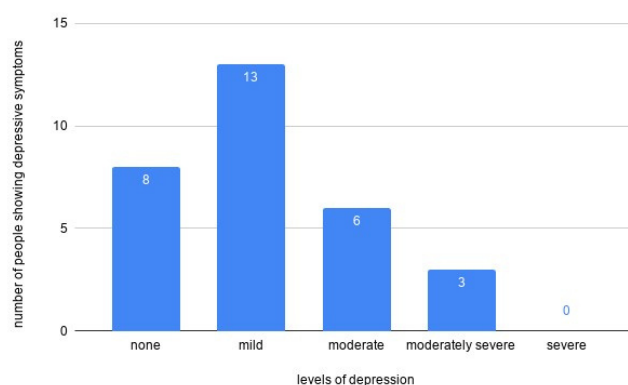
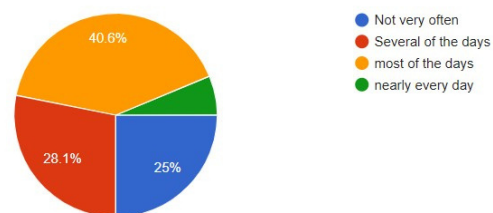


Chart C: graph depicting the relation between number of people and the severity of depressive symptoms.

Chart D: graph depicting the relation between number of people and time spent in Black River

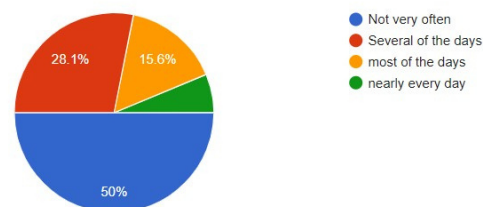
### Little Interest or Pleasure in Doing Things

32 responses



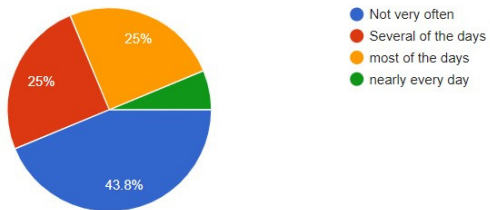
### Feeling Down Depressed or Hopeless

32 responses



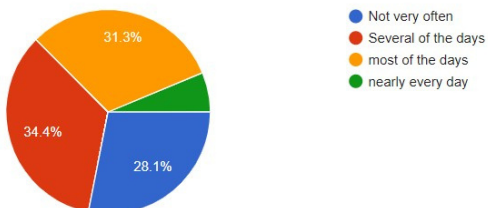
### Trouble Falling or Staying Asleep

32 responses



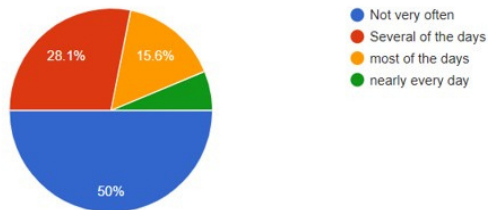
### Feeling Tired or Having Little Energy

32 responses



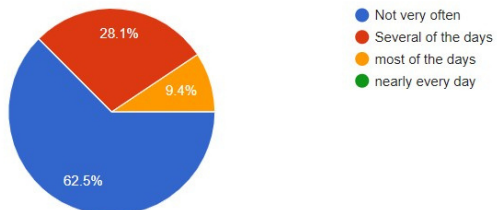
### Poor Appetite or Overeating

32 responses



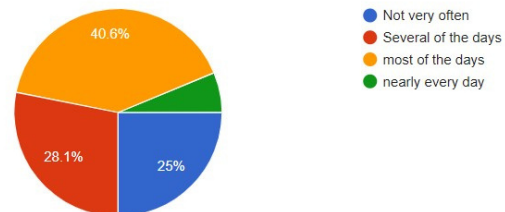
### Feeling Bad About yourself. that you are a Failure or have let yourself or your Family Down

32 responses



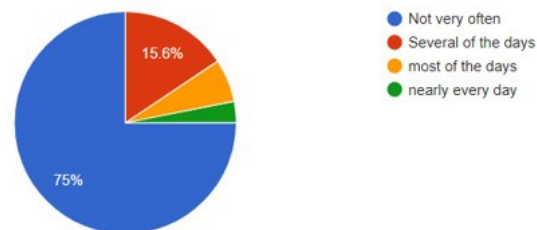
### Trouble Concentrating on Things, such as reading the newspaper or watching TV

32 responses



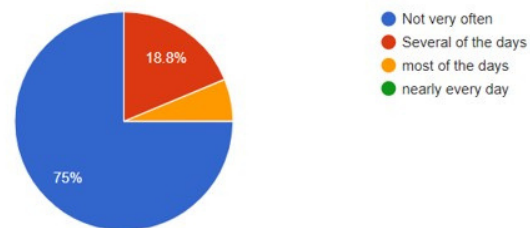
### Moving or speaking slowly or the opposite, being fidgety or restless so that you move around more than usual.

32 responses

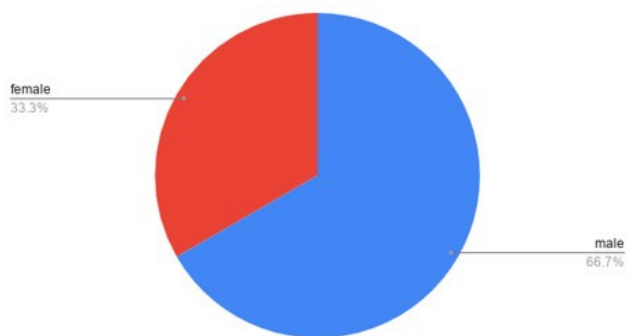


### Thoughts that you would be better off dead or hurting yourself.

32 responses



Number of people who scored over 12 in the questionnaire.



## DISCUSSION

It was found that the results of our survey were inconclusive. Our results showed that most of the people interviewed only showed mild symptoms of depression, and that out of the people who scored higher, only a minority showed signs of having developed depressive symptoms after their arrival. The rest spoke of experiencing similar feelings even before arriving in Black River.

SCORE	TIME OF MANIFESTATION OF SYMPTOMS	DURATION OF TIME SPENT IN BLACK RIVER
9	more than 4 years ago	11 months
0	less than a year	8 months
13	N/A	9 months
5	1 month	10 months
5	half day	10 months
6	10 months	10 months
2	N/A	11 months
7	N/A	11 months
15	4 months	11 months
7	N/A	12 months
5	N/A	11 months
12	12 months	12 months
18	less than a month	N/A
13	more than 4 years ago	11 months
5	less than a month	12 months
7	less than a month	4 years
2	over 2 years	2 years
12	over 2 years	2 years
4	3 days	N/A
14	3 months	12 months
0	N/A	4 years
4	less than a month	9 months
7	2 -3 weeks	11 months
3	N/A	3 years
9	1 month	11 months
7	over 4 years	8 months
18	5 months	12 months
2	N/A	11 months
12	2 months	11 months
2	N/A	11 months
0	N/A	4 years

Out of the 32 responses we received, only 9 students scored over 10 in the questionnaire, indicating that they showed moderate depressive symptoms. Out of those 9, 6 were male and 3 were female.

The limitations of this research experiment were the small sample size, the limited time frame in which the results were gathered, and the variables which were being tested. Better results could have been obtained if more

students had participated in the survey and if we had allowed a wider range of time for them to fill out the surveys. Better results could have also been obtained if the variables we were testing were slightly different. Instead of testing whether the time of the students' stay in Black River was increasing the levels of depression in students on campus, the experiment would have yielded better results if the question we asked was related to the quality of their education here at the institution and the students' grades, as well as the stress induced by their academics. The data collection would have worked a lot better if, instead of using a questionnaire, we conducted individual surveys for each of the students who participated in this project.

## CONCLUSION

We can conclude that although many students at AAIMS exhibit depressive symptoms, in most cases, the symptoms presented are not severe enough to warrant attention or serious treatment. In such cases, if the stressor is removed, the students' mental health condition goes back to normal and the symptoms subside. We can also conclude that, contrary to the statistics given by the WHO, more males on-campus show significant depressive symptoms when compared with females on-campus.

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