

Factors affecting the Academic performance of Medical Students,
University of ELGedarif, Sudan (2017)

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of ELGedarif, Sudan (2017)

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Date // 2018

Declaration of Academic Integrity

I declare that in the attached submission I have not presented anyone else's Work as my own. Where I have taken advantage of the work of others, I have given full acknowledgement. I am aware of and I understand the University rules on cheating and plagiarism, and also any more detailed rules specified at the faculty.

Date: *Signature:*

Dedication

to My Father, sole of my mother My wife and kids.

To the sole of professor Salah Taha during his time as a dean I have been graduated from faculty of medicine University of Gazera

Acknowledgement

I would like to express my gratitude to my supervisor professor Salwa Elsanousi Muhammad professor of community medicine and child health, University of Gezira ,Sudan ,for her valuable guidance and criticism. I am really in at debt to her for her unlimited advice patience and kindness. My thanks extended to all those who contributed in a way or another for the success of this study.Thanks also to all participants who without their cooperation this research would not have become possible.

Finally special thanks to my students in faculty of medicine University of Gedarif batches 15,16,17 and 18 for cooperating so readily in the conduct of the study.

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Abstract

Medical students' academic performance attracts the attention of all those involved in medical and health education. The study objective were to identify the factors that affecting the academic performance of medical students in The Faculty of Medicine University of Gedarif (FMUG), namely, the sociodemographic, communication and learning facilities factors. A comparative analytical study was conducted in the period between 1.5.2017 and 1.12.2017 to study those factors.. It involved the medical students of semester 4,5,6,and 8 who were academic performance was ≥ 3.5 selected as best academic performance and students ≤ 2.5 selected as low academic performance. A self administered questionnaire was used and tested. The collected data were analyzed using SPSS Version 20. The frequency distribution of various variables were obtained and Chi square tests were used. A total of 191 undergraduates students participated in the study. 141(73.8%) of them was students with CGPA ≥ 3.5 . Their mean age was 21 years with Std of (1.82). Male students represented 55(25.8%), while the females students were 136(71.2%), of them the Sudanese were 180(94.2%) and the international students were 11(5.8%). The students participants of semester 4,6,7 and 8 was 67(35.1%), 55(26.7%), 33(17.3%) and 40(20.9%) respectively. Socio demographic factors as students intake, international students, sudanese students from Gulf area and students staying with their relative or friends negatively affecting the on academic performance. The language barriers, disinterest students and students regretting studying medicine later, loss of interaction with lecturer and large class size affected performance negatively. The motivation of the students by their lecturer has positive predictive effect. Career choice motivation, Academic guidance should be a rule in all medical and health institutes to increase the quality of their graduates Finally the study showed clearly factors that effects performance negatively and positively.

العوامل التي تؤثر على الأداء الأكاديمي وسط طلاب كلية الطب جامعة القضايف

اسامه عبد الله الشريف

ملخص الدراسة

إن الأداء الأكاديمي لطلاب الطب يثير انتباه جميع الذين لهم دور في الطبي والصحي وان هنالك اهتمام بطلاب الطب من قبل المختصون في مجال التعليم والمستفيدون من مخرجات التعليم الطبي لان ذلك يعكس اهتماماتهم و مجالاتهم المختلفة وان أصحاب المصلحة ليس هم فقط أعضاء هيئة التدريس بل هنالك أيضا لجانا اختيار المدارس الطبية، ومخططي المناهج الدراسية ومصممي الخطط التعليمية لهم مصلحة حقيقة. هدفت هذه الدراسة إلى التعرف على العوامل المؤثرة على الأداء الأكاديمي لطلاب الطب في كلية الطب جامعة القضايف وهي العوامل الاجتماعية الديموغرافية والاتصال والتعلم. أجريت هذه الدراسة التحليلية لمقارنة هذه العوامل في الفترة ما بين 2017/7/1 و 2007/12/1. وتشمل الدراسة طلاب الطب من الفصل الدراسي 4،5،6، و 8 الذين كان أداءهم الأكاديمي 3.5 فما فوق كأفضل أداء أكاديمي والطلاب أقل من 2.5 كأقل أداء أكاديمي. تمت الموافقة رسميا على هذه الدراسة من قبل لجنة أخلاقيات البحث العملي كلية الطب، جامعة الجزيرة و استخدم فيها الاستبيان لجمع البيانات بعد أن تم اختياره. و تم تحليلها باستخدام البرنامج الإحصائي النسخة العشرون. تم الحصول على التوزيع التكراري للمتغيرات واستخدم مربع كاي للمقارنة بين الأداء الأكاديمي العوامل الاجتماعية الديموغرافية والاتصال والتعلم. مجموع الطلاب الذين شاركوا في هذه الدراسة كان عددهم 191 طالب وطالبة منهم 141 (73.8%) كان معدلهم التراكمي أكثر من 3.5 ومتوسط أعمارهم كان 21 عاما يقع بين (18 – 32) وبانحراف معياري يساوي 1.82 و عدد الطلاب الذكور 55 (25.8%)، بينما بلغت نسبة الإناث 136 (71.2%). بلغ عدد الطلاب سودانيين 180 طالبا (94.2%)، والطلاب الأجانب عددهم 11 طالبا (5.8%) من فلسطين والصومال. وكانت المستويات الأكاديمية للطلاب الفصل الدراسي الرابع 67 (35.1%)، الفصل الدراسي الخامس 55 (26.7%) الفصل الدراسي السادس 33 (17.3%) والفصل الدراسي الثامن 40 (20.9%). تشمل هذه العوامل العوامل الديموغرافية الاجتماعية، عوامل الاتصال والتعلم في هذه الدراسة التي تم تقييمها من آخر معدل تراكمي للطلاب. كانت العوامل الديموغرافية الاجتماعية لها الأثر على الأداء الأكاديمي ظهر ذلك جليا وسلبا في الطلاب الوافدين. وكان أداء الطلاب السودانيين أفضل من غيرهم، كما أن الطلاب المقبولين من المدارس الثانوية السودانية كانوا أفضل أداء من الذين جلسوا لشهادة العربية من الخارج مثل شهادة المملكة العربية السعودية. وظهر دور الأسرة واضحا في الطلاب المقيمين مع أسرهم في أدائهم الأكاديمي ويرجع ذلك لاهتمام الأسرة بأبنائها وتوفير كل المعينات مما انعكس إيجاباً علي أدائهم. كما أن عوامل الاتصال لها الأثر على أداء الأكاديمي للطلاب وكان ذلك الأثر سلبياً للذين يواجهون صعوبة في اللغة الانجليزية و أيضاً أظهرت الدراسة إن الرغبة لها أثرا إيجابيا علي الأداء، كما أن كبر حجم القاعة يؤثر سلباً علي تلقي الطلاب من قبل للمحاضر. وقد تم اختبار جميع عوامل التعلم ووجدت غير مؤثرة ماعدا للطلاب من قبل المحاضرين. دافع اختيار المهنة هي واحدة من السمات التي يجب أن ننظر لها في اختيارات طلاب الطب وينبغي أن يكون الإشراف الأكاديمي حاضرا في جميع المعاهد الطبية والصحية لزيادة التفاعل بين الطلاب وهيئة التدريس للمساعدة في حل الصعوبات الاجتماعية والتعليمية لدى الطلاب والتدخل في الوقت الأمثل. كما أن الأسرة لها دور فعال في المشاركة في حل بعض صعوبات التعلم للطلاب. يعد التقييم النفسي مهما قبل إجراء اختبارات على طلاب الطب لتقليل عوامل الخطر المذكورة أعلاه.

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List of abbreviations

CGPA	Cumulative Grade Point Average
EC	Ethical Committee
FMUG	Faculty of Medicine, University of Gedarif
SPSS	Statistical Package for Social Sciences

Chapter One

Introduction

Chapter 1

1.1- Introduction

Students are the most important property in any educational institute. They represent the core around which the whole process takes place. The social and economic development of the country is directly linked with students' performance and academic achievement. University plays an important factor for high quality graduates who will become great leaders and manpower responsible for country economic and social development (Mushtag I,2012). Medical students' performance attracts the attention of all these involved in medical education .stakeholders not include only the faculty members ,but besides them includes medical students selection committees, curriculum planners, instructional designers and students' families(Lanna Al Shawwa,2015,) (AlFayez SF,1990). Academic performance is affected by many factors, namely, social, economic, psychological, environmental and personal factors as well as medical student concentration, interest and depth of understanding of the subject, language levels of understanding and expression. Also factors like sleeping disorders, parental, familial and peers support(Ananya Mandal,2012,5)(Manicham LS,2007). These factors vary from person to person and rural to urban areas as well as from country to another(Mushtag I,2012)(Raneem O Salem,2013).

1.2- The rationale for the study:

Gedarif Faculty of Medicine started in 1998 and since that time 21 batches has been admitted to the faculty with about one thousand and two hundred graduates working in different part of Sudan, Golf area and Saudi Arabia as well as European countries and United State of America (USA). Currently, there are more than one thousand of students still doing their under graduates studies in this faculty. During these twenty one years there is no even single research conducted to evaluate the students' and graduates' performance and no research conducted to explore the factors that affect their academic achievement. The results obtained from this study will help both the faculty policy makers and the parents. They help the faculty administration to design, implement and select the suitable policies to improve the students' academic performance and the quality of education by changing the attitude of students towards learning and improving the teaching procedures. The parents can use the outcomes of the study to solve the

students' problems especially the financial and psychosocial ones. Also these results can create the awareness among the students about their rights and responsibilities to achieve high quality education (MushtagI,2012) Lanna Al Shawwa,2015)(Raneem O Salem2013).

1.3- Research question:

What are the important factors that affect the academic performance among the students of Faculty of Medicine and Health Sciences, University of Gedarif (FMUG).

1.4- General objective:

Is to explore the important factors affecting the academic performance of the students of Faculty of Medicine and Health Sciences, University of Gedarif.

1.5.1- Specific objectives:

1. To describe the sociodemographic factors,, communication factors and learning facilities factors.
2. To find out the association between the sociodemographic factors and the academic performance.
3. To assess the association between the communication factors and the academic performance.
4. To evaluate to association between the learning facilities factors and the academic performance.

Chapter Two

Literature review

Chapter 2

2.1- Literature review:

Medical student's academic performance attracts the attention of all those involved in medical education and other stakeholders who are not faculty members, but also medical schools selection committees, curriculum planners and instructional designers. Improvement of medical students' achievement has always been the main goals of education (Lana AlShawwa,2015)(Alfayez FS,1990,).

Medical students academic achievement is affected by many factors, sociodemographic factors, learning facilities factors and communication skills factors such as the interaction between the students and lecturers. Identifying those factors and correlation between them is very complex process,but essential to correct the academic performance and directed it the right way(Lanna Alshawwa,2015)(HouseJD,2002).

2.1.1- The socio-demographic factors:

Study conducted in Saudi Arabia medical school reveals that the academic performance is affected by several factors such as marital status, age, and gender. Therefore such factors like age of student, gender of student, income of the family, parents occupation and number of children will be studied to assess the socioeconomic status(Lanna Al Shawwa,2015)(Raneem O Salem,2013) (Mishra,2003).

The concept of ethnicity is complex politically charges and sensitive issue. It has been defined by senior and Bpapal as one or more of the following things; people shared origin or social background, shared culture and tradition that are distinctive and maintained between generation and lead to sense of identity and group and common languages or religious tradition(Woolf K,2011)(Senior PA,1994). Ethnic differences are wide spread across different medical schools, type of examination, undergraduate and postgraduate studies. Woolf K,2011, examined these differences by doing meta analysis

on united Kingdom medical students and trained medical doctors. This Meta analysis has been done on 22 reports comparing white candidates with non white candidates which included Asian, Africans and Caribbean ones. It has been found that the academic performance was significantly better among the white candidates comparing with other group, both the undergraduates and post graduates members. This in all kinds of examination, written, practical and clinical examination. However when the same comparison has been done between the Asian and African members, it has been found no significant differences between them especially after correction of the other socio-demographic data(Woolf,K2011).

Regarding the type of entrance certificate to the medical school and the academic levels of the students prior to the entrance of to the faculty of medicine a 25-year retrospective study conducted in a UK medical schools concluded that high grades in second-level chemistry and biology examinations were predictors of later academic success in medical school. Similarly, high examination grades at second-level education were also deemed predictive of academic success in a Croatian study. Conversely those with evidence of less than optimal second-level at an early undergraduate academic achievement are more likely to drop out of medical school (Irish 2016).

A study held in Malaysia (Muneer G Babar, 2015) studying the perceived source of stress among Malaysian dental students was showing significant gender differences. Stress was higher among females' students concerning academic performance such as fear of failing a course and learning clinical skills such as shortage of allocated clinical time. Stress has negative and positive effect although it can be source of motivation for the study, excess stress can be debilitating and has a negative impact on the student learning ability (Muneer G Babar, 2015)(Shirina MS,2004). Other studies had the same Malaysian study findings done in Turkey and Japan (Muneer G Babar, 2015) (Peker, 2009) (Sugiaria G,2005). Another study done in India contradicting the pervious mentioned studies, Acharya and et al reported that male students perceived greater overall stress (Muneer G Babar2015,A)(charya S,2003).Higher stress reported by females may be due to the way they respond to the stressful events and males being less expressive of their worries(Muneer G Babar,2015)(AlSaleh SA,2010).

Some parents' micromanage their kids in every decision, Helicopter parents, may lead to academic stress and they may have long term detrimental effects on their academic and professional life (Muneer G Babar, 2015). Neuroticism as a personal characteristic is an essential personality trait in the study of psychology, manifested by characteristics of anxiety, moodiness, worry, envy and jealousy. Individuals classify as neurotic persons are more likely than the average to experience such feelings as anxiety, anger, envy, guilt and depressed mood.]They are self-conscious and shy and they may have trouble in controlling urges and delaying gratification. Neurotic-ism is a risk factor for the "internalizing" mental disorders such as phobia, depression, panic disorder and other anxiety disorders (traditionally called neuroses).Neuroticism is the tendency to experience negative emotions, such as anger, anxiety or depression. It is sometimes called emotional instability or reversed referred to as emotional stability. It is associated with low tolerance for stress. They are more likely to interpret ordinary situations as threatening, and minor frustrations as hopelessly difficult. Their negative emotional reactions tend to persist for unusually long periods of time, which means they are often in a bad mood. . Lacking contentment in one's life achievements can correlate to high neuroticism scores and increase a person's likelihood of falling into clinical depression and failing their academic courses. (Muneer G Babar, 2015)

According the study conducted in Ethiopia university ,Jimma University ,high parental expectations as well as the students also face stress factors like social environmental, physical and family problems which may affect their academic performance and results in substance use(Melaku l,2015).

Family support is essential in helping the student collecting and analyzing information depending on the experience and knowledge of the family members. However if the family is not educated and staying away from the student it will be of no help (Hamza, 2014). Family could help in time allocated by student to study without interruption, free time for student to study. Hence family support could contribute towards effective time management (Hamza,2014).Study conducted in Ankara University reveled that high father educational level is more associated with high academic performance(EsinEdem H,2013).The sociodemographic status is one of the factors that

affecting students learning. Students learn better if they are from the above and average income families (Lanna Alshawwa,2015)(House JD,2002).

Some students study away from their home towns, which make them feel homesick and depressed which can be avoided by socialization with colleagues and engaging in other activities. Frequent visits to the family are important to avoid homesickness. Family size and example are important predictor of the student performance(Hamza,2014)(Lanna Alshawwa,2015).

2.1.2- Communication factors:

Some studies revealed that the interest of medical student to study medicine as well as the student lecturers interaction, the size of the class and the motivation of the student by both the lecturers and the family are important predictors factor which can affect the students' academic performance , therefore all these factors will be studied(MushtagI,2012) (RaneemOSalem,2013) (Rippey RM,1981).Performance in the medical school are affected largely by the prior academic abilities and English language capabilities (Lanna Alshawwa,2015) (Crede,2008).

Language of the study plays a major role in both understanding and expression of the subject in both written and oral examinations as well as clinical examinations. The language of the study is English language in the majority of faculties of medicine. Some students spend a lot of time translating medical terminology into their own languages (Hamza, 2014).

Study conducted at Middle East technical University in Ankara, Turkish has been found that there are association between preparatory school attendance, high school graduates from and class attendance(EsinEdem H,2013).

The vastness of the courses, overcrowded lectures halls and dissatisfaction with the class lecture will affect the academic performance of the students negatively and can results in substancesuse(Melaku I,2015). These can lead to communication problems with peers, teachers and families as well as mental problems such as loss of memory and overall dissatisfaction with life. Not only that stress can lead to physical illnesses such as hypertension, diabetes mellitus and heartsattacks(Melaku I,2015)

2.1.3- Learning facilities factors:

There are several determinants of academic success in medical school, include: previous academic performance , personal characteristics of the students and individual differences in cognitive strategies employed during learning. A study done in Irish (Bickerdike A,2016) reveals that learning strategies , study habits and use of social networking and their relationship with academic performance playing an important role in academic performance, study habits including time management. Poorer academic achievement was associated with poor time management and increased use of social network as well as surface learning. School-leavers are not equipped with the ability to manage their workload in a less structured university learning environment. If this is the case, remedial program to improve study skills and time management amongst incoming students should be considered an important element of all entry-level orientation program

Factors such as the approach of learning greatly affect the students achievement. Firstly, a deep learning strategy, where the student intends to achieve a well understanding of his subject matters. Secondly, a surface strategy, where student learns without necessarily understanding the material, and finally, a strategic approach, where students are motivated by a desire for academic success and modify their learning strategy according to the mode of assessment. The surface approach, that focuses on reproduction of learned material, is associated with a poor academic outcome(Bickerlike A2016)(Diseth A,2010)(Malie S,2012). A deep learning strategy leads to the greatest level of academic understanding, but there is ongoing debate regarding how well it is correlated with superior examination results(Bickerdike and A,2016). Choice of learning strategy is affected by many factors such as demographic characteristics, conceptions of learning, and contextual factors of the learning environment((Bickerlike A2016)(Diseth A,2010)(Malie S,2012).Gender differences have been explored previously in relation to preferred learning strategies, with women reported to be more likely to employ a deep learning strategy. (Bickerdike and A,2016).

Learning facilities such as can the student gets a place in the library all the time, is he satisfied by the electronic library , study time per day are important factors can affect the students' academic performance(House JD,2002).

The large class size and the levels of study and type of curriculum can be a source of stress to the student and has negative effects on students' academic performance (Muneer G Babar, 2015) (Polychronopoulou A, 2009).

Learner's motivation and personal interest are closely related to each other. Motivation can be divided into extrinsic and intrinsic motivations which reflected activities for personal interest and enjoyment. The extrinsic motivation is student engaged in activities desirable outcome such as to obtain rewards or pressure from others such as family or parents will (Kim,2016)(PintrichPR,2001).

Learner's motivation is crucial components of learning process and researches indicate that it influences his or her learning performance. Motivation is also known to be a predictor for students persistence and continuation in study and psychological well being such as distress and burnout (Kim,2016)(PagninD,2013). According to Kim, 2016 study the intrinsically motivated group outperformed the extrinsically motivated group in all years in medical program. Motivational factors such as enjoyment of study is a significant predictor for excellent academic performance.

Factors like regular attendance to the lectures, early revision, prioritization of the learning needs, learning in small groups, mind mapping, learning in skills laboratory, and learning with patients as well as learning from mistakes , all these together participate in excellent academic performance(Hamza Abdulghani,2014). High grades achieved previously acts as important motivational factors as well as completion for scholarships or postgraduate training in the university also has a significant role in improving the academic performance(Lanna Alshawwa,2015).

Student attending lecture regularly and immediately goes back to revise it and gets the most concepts about the topic. Prioritization of learning needs is essential giving wait to more difficult and major subjects(HamzaAbdulbagi,2014).

However, when it comes to the teaching methods it was found that students are performing better with problem based learning. Discussion encourages better integration of new information into the existing knowledge base, making the resulting knowledge more accessible and recallable(LannaAlshawwa,2015).However there are no significant

differences between the low and high achieving students in the sources of information material such as books, videos, handout and self-taking notes(LannaAlshawwa2015).

As study habits, high grade students are ensuring silence and no interruption during revising their subjects. Study in small group, not more than five students will help the student to clarify the difficulties for each other. In short time the student can grasp better and study large subjects. Deep learning is very important to understand the basic concept, however the surface and superficial learning which depends on memorization easily forgotten and can be a direct cause of failing the examination. Mind mapping and classification and structure organization of the subject will help in easily retrieving and recalling during the examination(HamzaAbdulghani, 2014). Asking help of senior colleagues, big brother, and tutor is good practice in overcoming the difficulties of learning and encourage socialization and communication. Learning from mistakes besides learning the practice subjects such as catheterization and suturing in skill laboratory and clinical practice with patients will fastening the grasping of both knowledge and skills. Enthusiasm is needed by the student to internally motivates himself, therefore interest is corner stone in any success(Hamza,2014).

Chapter three

Methods

Chapter

3.1 Methods

3.1.1- The study area:

The study has been carried out in Gedarif state East of Sudan boarding to Ethiopia. It consists of 12 localities in each locality there is a rural hospital besides other health centers and other health and medical units. Recently Fao hospital has been upgraded to teaching hospital. Also there is regional hospitals such as Gadarif Teaching Hospital , metarntal Hospital, Pediatrics Hospital as well as police Hospital , Military Hospital and specialized medical and diagnostic centers where the students get train.

3.1.2- Study population:

It included all the medical students with last CGPA of 3.5 and above as excellent performance students and the students with last CGPA of less than 2.5 as low performance students in the final four batches who spent two years at least in the faculty of medicine, namely batches number 18,17,16 and 15 . They were at semesters 4 (67, 35.1%) ,5 (51, 26.7%), 6 (33, 17.3% and 8 (40, 20.9%) respectively the total number of students were 191.

3.1.3-Inclusion criteria:

All the participants who fulfilled the above criteria of the research had been included.

3.1.4- Exclusion criteria

All medical students in batches 19, 20 at semester 3 and 1 . These besides the students with performance, last cGPA, of less than 3.5 and or above 2.5 in the selected batches above.

3.1.5- Sample size:

All participants performing 3.5 and above and less than 2.5 as a last CGPA in the above mentioned batches were recruited in the study,191 students.

3.1.6- Study design:

An analytical comparative study is designed to study the Factors affecting the academic performance among the medical Students University of Gedarif, Sudan.

3.1.7- Study variables :

3.1.8.1- The independent study variables:

These are classified into sociodemographic factors, communication factors and learning facility factors.

3.1.8.1.1-Sociodemographic factors:

- Age of the student
- Gender of the student
- Academic level of the student
- Type of student admission
- Nationality of the student
- Residency of the student
- Type of student entrance certificate
- Numbers of family member
- Household of the student's family
- Availability of household of the student's family
- Household's educational level
- Mother educational level
- Student stay at the moment

3.1.8.1.2- Communication factors:

- Student has difficulties in understanding English language
- Student interested to study medicine from the beginning
- Student regretting to study medicine after that.
- Class size
- Interaction between the student and his/her lecturers
- Student preferable study style

3.1.8.1.3- Learning facilities factors:

- Student got place in the library
- Student satisfaction about electronic library
- Student personal electronic facility
- The type of personal electronic facility
- Student motivation by his family
- Student motivation by his lecturers

3.1.8.2.The **dependable variable** was the last CGPA achieved by the targeted student.

3.1.9.. Data collection method:

A Questionnaire had been designed for this purpose and above mentioned study variables with their values included in this questionnaire (Appendix 1) and filled with direct interview of the students. Questionnaire was tested in 20 students from batch 19, semester 3 students. Eight students were selected and trained to do the interview after taking verbal consent from the targeted student. The CGPA for each student was retrieved from the records in the examination office.

3.1.10- Data processing and analysis:

Data was processed and introduced into the computer program, Statistical Package for Social Sciences (SPSS) version 20. Descriptive analysis was done to obtain the frequencies distribution of the sociodemographic factors, communication factors and the learning facilities factors.

Cross tabulation of the above mentioned factors with the last CGPA levels was done and correlation and association was tested to compare the strength and significance between them using Chi square, Ninety five (95%) confidence interval and p value was calculated (level of significance was set at P. value of 0.05 or less).

Logistic regression model was conducted to control for the confounders.

3.1.11- Ethical consideration:

The study was carried out in accordance with students' verbal informed consent documents and the approval of ethical committees of the Faculty of medicine, University of Gezira and the faculty of medicine & health sciences University of Gedarif.

Chapter four

Results

Chapter 4

4.1- The results

The followings are the results of current research which include the sociodemographic, communication, and learning facilities factor.

4.1.1- The Frequency Distribution of the Sociodemographic factors:

The age of participants in the study ranged between 18 years and 32 years with a median of 21 years and mean of 21.45 years with standard deviation of 1.82 (Table1).

Male participants were 55(25.8%) while female participants were 136 (71.2%) (Table1). The students participated in the study were at semester 4, 5, 6 and semester 8 and their numbers were 67(35.1%), 51(26.7%), 33(17.3%) and 40(20.9%) respectively (Table1).

The type of the participants admission were regular governmental admission, state admission, private admission and other admission, participants accepted from outside the country. They were 120(53.4%), 47(24.6%), 30(15.7%) and 12(6.3%) respectively (Table 1). The Sudanese students recruited in the study were 180(94.6%) and other students were 11(5.8%) (Table1). Those international students were from Palestine and Somalia. However participants admitted to the faculty having the Sudanese certificate were 175(91.6%) and those with other certificates 16(8.4%) (Table1). Those participants admitted because of foreign certificate were from Saudi Arabia and other Gulf countries.

The participants coming from Gedarif town were 115(60.2%), while those coming from outside the town were 76(39.8%) (Table1). Those coming from outside the town, they were from other Gedarif state localities or from other parts of the country.

The family members of students participating in the study ranged between 2 persons and 20 persons with median of 8 persons and mean of 7.8 with standard deviation of 2.51 (Table1).

When the participant were asked about the household of their families 168 (88%) answered they were their fathers and 23(12%) their houses run by others such as their mothers, uncles and brothers. One hundred and fifty three of those father staying with their families 153(80.1%), while 38(19.9%) not staying with their families (Table.1). They were either in Saudi Arabia, Gulf region or inside Sudan.

Father educational level was divided into four categories, illiterate, primary educational level, secondary educational level and high educational level. They were 2(1%), 25(13.1%), 65(34%) and 99(51.8%) respectively (Table1). However when students were asked about their mother educational level, 16(8.4%) answered they were illiterates, 49(25.7%) had their primary school education, 73(38.4%) completed their secondary education, while 53(27.7%) had high education (Table1).

When the student were asked about their current residence: whether it was with his family, at the hostel or with relative or friend, they answered 102(53.4%) staying with their families, 71(37.2 %) staying at the hostel and 18 (9.4%) staying with relative or friend (Table1).

➤ **Table1:The Frequency Distribution of the Sociodemographic Factors of medical students at the Univeristy of Gedarif participating in the study,2016 (n=191):**

characteristic	Variable	n	%
Gender:	- Male	55	28.8
	- Female	136	71.2
Student's Level:	- Semester 4	67	35.1
	- Semester 5	51	26.7
	- Semester 6	33	17.3
	- Semester 8	40	20.9
Type of Student Admission:	- Governmental	102	53.4
	- State	47	24.6
	- Private	30	15.7
	- Other	12	6.3
Nationality of Student:	- Sudanese	180	94.2
	- Other	11	05.8
Residency of the Student:	- Gadarif Town	115	60.2
	- Outside the town	76	39.8
Type of Entrance Certificate:	- Sudanese Certificate	175	91.6
	- Other	16	8.4
The number of Family members:	- Mean	7.8 (2.51)	
	- Median	8 (2.20)	
Family sponsor:	- Father	168	88
	- Other	23	12
family sponsor living with family or not	- yes	153	80.1
	- No	38	19.9
Father's educational level:	- Illiterate	2	1.0
	- Primary school	25	13.1
	- Secondary school	65	34.1
	- Higher education	99	51.8
Mother's educational level:	- Illiterate	16	8.4
	- Primary school	49	25.7
	- Secondary school	73	38.2
	- Higher education	53	27.7
current residence of student	- With family	102	53.4
	- At hostel	71	37.2
	- With a relative or friend	18	9.4

4.1.2- The Frequency Distribution of the Communication Factors:

The factors helped the students to continue his/her education without difficulties such as English language , interaction with the lecturers, and the class size.

When participants asked whether they met difficulties in understanding English as study language, 10(5.2%) answered yes,78(40.8%) answered sometimes had it and 103(54%) answered did not have it(Table2). Majority of the participant had chosen to study medicine as their first choice, 157(82.2%), only 34(17.8%) study medicine was their families' choice and not theirs (Table2). However 31(16.2%) of the participant were regretting to study medicine after that and 160(83.8%) were not regretting, including those who were not interested at the beginning to study medicine.

One hundred and thirty two of the participant, 132(69.1%) they thought that the class size was reasonable for them to follow the lecturers, while the rest of the participant thought it was too large for them to follow their lecturers talks, 59(30.9%) (Table 2). participant were asked whether they could interact with all the lecturers, some of them, few of them or could not interact with them. 28(14.7%) could interact with all of the lecturers, 115(60.2%) interacted with some of them, 36(18.8%) interacted with few of them, while 12(6.2%) could not interact with any of them (Table2).

Ninety two, 92(48.1%) of the participant preferred to study alone,66(34.6%) of them preferred to study with friend, while 33(17.3%) preferred to study in small group(Table2).

Table2: Frequency Distribution of the communication Factors of medical students at the Univeristy of Gedarif participating in the study,2016 (n=191):

characteristic	Variable	n	%
The student has difficulties in understanding English:	- Yes	10	5.2
	- Sometimes	78	40.8
	- No	103	54
The student is interested to study Medicine:	- Yes	157	82.2
	- No	34	17.8
The student regretting to study Medicine:	- Yes	31	16.2
	- No	160	83.8
The class size:	- Reasonable size	132	69.1
	- Large size	59	30.9
Interaction with Lecturers:	- All of them	28	14.7
	- Some of them	115	60.2
	- Few of them	36	18.8
	- None of them	12	6.2
The preferred study style:	- Study alone	92	48.2
	- With friend	66	34.6
	- In small groups	33	17.3

4.1.3-The Frequency Distribution of Learning Facilities Factors:

Those included factors such as availability of vacancy in the library and availability of electronic library as well as motivation by the family and lecturers. When **The preferred study style:**

was asked could you get a place in the library, 23(12%) answered they got a place all the time, 109(57.1%) sometime got a place, 27(14.1%) occasionally got a place and 32(16.8) never get a place in the library (Table3). However when they were asked whether they satisfied by electronic facilities or not, 41(21.5%) they were satisfied and 150(78.5%) they were not satisfied (Table3). 114(75.4%) of the students had their own electronic facility, while 47(24.6%) they had not it. When they asked about the type of electronic facility they had, 56(42.7%) answered they bossed smart phone only, 23(17.6%) bossed laptop only, while 52 (39.7%) bossed both smart phone and laptop (Table3).

One hundred and fifty The preferred study style:

they were motivated and encouraged by their families, 34(17.8%) they sometimes motivated by their families, while only 7(3.7) they do not have any encouragement or motivation by their families (Table3). However when students asked about the motivation and encouragement by their lecturers, 46(24.1%) answered yes, 123(64.4%) answered sometimes, while 22(11.5%) answered no (Table3).

The last CGPA scored by students, 50(26.2%) scored less than 2.5 and 141(73.8%) scored 3.5 and above (Table3).

Table3: Table2: Frequency Distribution of the Learning Facilities Factors of medical students at the Univeristy of Gedarif participating in the study,2016 (n=191):

No.	Variable	n	%
Student gets place in the library:	- Yes, all the time	23	12
	- Sometimes	109	57.1
	- Occasionally	27	14.1
	- No	32	16.8
Electronic library:	- Satisfactory	41	21.5
	- Unsatisfactory	150	78.5
Personal electronic facilities	- Yes	144	75.4
	- No	47	24.6
Type of electronic facilities	- Phone	56	42.7
	- Laptop	23	17.6
	- Both of them	52	39.7
Motivation and encouragement by the family:	- Yes	150	78.8
	- Sometimes	34	17.8
	- No	07	3.7
Motivation and encouragement by lecturers:	- Yes	46	24.1
	- Sometimes	123	64.4
	- No	22	11.5
Student CGPA	- <2.5	50	26.2
	- 3.5 and above	141	73.8

4.1.4- The Association Between The Last CGPA and The Factors Affecting Academic Performance:

Factors affecting the academic performance were classified into three main categories. The sociodemographic factors such as the gender of students, type of entrance certificate, student academic level, father educational level, mother educational level and who the household of the family. The communication factors such as the level of the student in English language, class size, interaction between the students their lecturers and student study style. The learning facilities factors such as availability of place for the student in the library, satisfactory of the electronic library and motivation by both families and lecturers. All these factors were cross tabulated with the last CGPA achieved by the students and P value and 95% CI were obtained.

4.1.4.1- The Association Between The Last CGPA and The Sociodemographic Factors: The Association Between The Last CGPA and The Gender of Student

The male students with CGPA less than 2.5 were 16(29.1%) ,while males with CGPA of 3.5and above were 39(70.9%). The female students with last CGPA less than 2.5 were 34(25%), while the female students with last CGPA of 3.5and above were 102(75%).

Association between the Last CGPA and the gender of the students was found to be insignificant at p value of 0.588 and 95% CI of 1.231(0.612-2.477)(Table 4).

Table 4: The Association Between The Last CGPA and Gender of medical students at the Univeristy of Gedarif participating in the study,2016 (n=191):

Gender of Student	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Male	16 (29.1%)	39 (70.9%)	0.588	1.231 (0.612-2.477)
Female	34 (25%)	102 (75%)		

4.1.5.- The Association Between The Last CGPA and the Students' Academic Level

The students participating in the study was students of semester 4,5,6 and semester 8. Students with CGPA of less than 2.5 were 16(23.9%),12(23.5%),09(27.3%)and 13(32.5%) respectively, while the students of last CGPA of 3.5and above were 51(76.1%),39(76.5%)24(83.6%) and 27(67.5%) respectively. Association between the last CGPA and the student academic level was found to be insignificant at p value of 0.749(Table 5).

Table 5: The Association Between Student Last CGPA and Student's Academic Level of medical students at the Univeristy of Gedarif participating in the study,2016 (n=191):

Student academic level	Student Last CGPA		P value	95% CI
	<2.5	≥3.5		
Semester 4	16 (23.9%)	51 (76.1%)	0.749	0.779(0.283-2.143)
Semester 5	12 (23.5%)	39 (76.5%)		
Semester 6	09 (27.3%)	24(83.6%)		
Semester 8	13 (32.5%)	27 (67.5%)		

4.1.6.- The Association Between The Last CGPA and Student's Type of Admission:

The students participating in the study were of governmental admission, state, private and other admission. Student with CGPA of less than 2.5 were 16(15.7%),10(21.3%),17(56.7%)and 07(58.3%) respectively, while the students of last CGPA of 3.5and above were 86(84.3%),37(78.7%), 13(43.3%) and 05(41.7) respectively. Association between the last CGPA and student's type of admission found to be significant at p value of 0.001(Table 6).

Table6:The Association Between The Last CGPA and Student's Type of Admission of medical students at the Univeristy of Gedarif participating in the study,2016 (n=191):

Student type of admission	Student Last CGPA		P value	95% CI
	<2.5	≥3.5		
Governmental	16 (15.7%)	86(84.3%)	0.001	0.133(0.0037-0.471)
State	10 (21.3%)	37 (78.7%)		
Private	17 (56.7%)	13(43.3%)		
Other	07 (58.3%)	05 (41.7%)		

4.1.7.- The Association Between The Last CGPA and The Nationality of Student:

The Sudanese students with CGPA of less than 2.5 were 44(24.4%)while of 3.5and above were 136(75.6%). Other nationalities with CGPA of less than 2.5 were 06(54.5%) while of 3.5 and above were 05(45.5%). Association between the last CGPA and nationality of student was found to be significant at p value of 0.038 and 95% CI of 0.448(0.247-815)(Table 7).

Table 7: The Association Between The Last CGPA and the Nationality of the Student of medical students at the Univeristy of Gedarif participating in the study,2016 (n=191):

Nationality of student	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Sudanese	44 (24.4%)	136 (75.6%)	0.038	0.448 (0.247-0.815)
Other	06 (54.5%)	05 (45.5%)		

4.1.8.- The Association Between The Last CGPA and The Residency of Student

The students either their home town were Gedarif town or coming from outsideGedarif town. Of last CGPA less than 2.5 were 31(27.0%) and 19(25.0%) respectively, while of 3.5and above were 84(73.0%) and 57(75.0%) respectively. Association between the last CGPA and the residency of student was found to be insignificant at p value of 0.763 and 95% CI of 1.107(0.571-2.148)(Table 8).

➤ **Table 8: The Association Between The Last CGPA and The Residency of Student**

Residency of student	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Gedarif town	31 (27.0%)	84 (73.0%)	0.763	1.107 (0.571-2.148)
Outside Gedarif town	19 (25.0%)	57 (75.0%)		

4.1.9.- The Association Between The Last CGPA and The Type of Entrance Certificate

The student either admitted to the faculty with Sudanese secondary schools certificate or with other certificate coming from Saudi Arabia or other Arabic and Africans countries. Students with CGPA of less than 2.5 were 40(22.9%) and 10(62.5%) respectively, while of 3.5 and above were 135(77.1%) and 06(37.5%) respectively. Association between the last CGPA and the type of entrance certificate was found to be significant at p value of 0.0.002 and 95% CI of 2.057(1.087-3.892)(Table9).

Table9:The Association Between The Last CGPA and The Type of Entrance Certificate

Type of entrance certificate	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Sudanese certificate	40 (22.9%)	135(77.1%)	0.002	2.057 (1.087-3.892)
Other	10(62.5%)	06 (37.5%)		

4.1.10- The Association Between The Last CGPA and Household of The Student's Family

Students' household either their fathers or others such as uncle, grandfathers , brothers or mothers. Students with last CGPA of less than 2.5 were 40(23.8%) and 10(43.5%) respectively, while of 3.5 and above were 128(76.2%) and 13(56.5%) respectively. Association between the last CGPA and the household of the student's family was found to be significant at p value of 0.0.044 and 95% CI of 0.0.548(0.320-0.939)(Table10).

However when the students asked whether their households staying with their families or staying aboard from them. 35(22.9%) of CGPA less than 2.5 answered they staying with their families, while 15(39.5%) answered they were not staying with their families. 118(77.1%) of 3.5 and above answered they were staying with their families ,while 23(60.5%) answered they were staying away from the families. Association between the last CGPA and whether household of the student's family

staying with his family or not. It was found to be significant at p value of 0.037 and 95% CI of 0.580(0.335-0.946)(Table11).

Table10:The Association Between The Last CGPA and Household of The Student's Family

House hold of the family	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Father	40 (23.8%)	128 (76.2%)	0.044	0.548 (0.320-0.939)
Other	10 (43.5%)	13 (56.5%)		

Table 11:The Association Between The Last CGPA and Availability of The Household:

Availability of household family	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Stay with family	35 (22.9%)	118 (77.1%)	0.037	0.580 (0.335-0.946)
Not stay with family	15 (39.5%)	23 (60.5%)		

4.1.11- The Association Between The Last CGPA and the Household Educational Level

The educational levels of the household of students' families were classified into illiterate, primary school, secondary school and high educational levels. Of student of CGPA less than 2.5; (00.0%) were illiterates, 07(28.0%) primary school level,16(27.3%) secondary school graduate and 27(27.3%) achieved high graduates levels. Of students of 3.5and above only 2(100.0%) were illiterates,18(72.0%) primary school level, 49(75.4%) secondary school level and 72(72.7%) achieved high graduates levels Association between the last CGPA and the household educational levels was found to be insignificant at p value of 0.826(Table12).

Table 12:The Association Between The Last CGPA and Household Educational Level

household educational level	Student Last CGPA		P value	95% CI
	<2.5	≥3.5		
Illiterate	0 (00.0%)	2 (100%)	0.826	1.037-(0.390-2.760)
Primary school	07 (28.0%)	18 (72.0%)		
Secondary school	16 (24.6%)	49 (75.4%)		
Higher education	27 (27.3%)	72 (72.7%)		

4.1.12- The Association Between The Last CGPA and The Mother Educational Level

The educational levels of the mother of student were classified into illiterate, primary school, secondary school and high educational levels. Students of the CGPA less than 7(43.8%) were illiterates, 13(26.5%) primary school level,12(16.4%) secondary school graduate and 18(34%) achieved high graduates levels. Students of 3.5and above only 9(56.2) were illiterates,36(73.5%) primary school level, 61(83.6%) secondary school level and 35(66.0%). Association between the last CGPA and the mother educational levels was found to be insignificant at p value of 0.05(Table13).

Table13:The Association Between The Last CGPA the Mother Educational Level:

Mother educational level	Student Last CGPA		P value	95% CI
	<2.5	≥3.5		
Illiterate	7 (43.8%)	9 (56.2%)	0.5	0.702(0.300-1.646)
Primary school	13 (26.5%)	36 (73.5%)		
Secondary school	12 (16.4%)	61 (83.6%)		
Higher education	18 (34%)	35 (66%)		

4.1.13- The Association Between The Last CGPA and Communication Factors

The communication factors such as the student levels in English language as a media of study, personal interest in study medicine and class size.

4.1.13.1- The Association Between The Last CGPA & Student has Difficulties in Understanding English:

When students asked whether they found difficulties in understanding English, student with Last CGPA of less than 2.5; 06(6%) answered yes,17(21.8%) answered sometimes, while 27(26.2%) answered no. Students with last CGPA of 3.5 and above; 4(40%) responded yes, 61(78.2%) responded sometimes while 76(73.8%) responded no. Association between the last CGPA and the student found difficulties in understanding English was found to be significant at p value of 0.036(Table14).

Table 14: The Association Between The Last CGPA & Student has Difficulties in Understanding English:

Difficulties understanding English	Student CGPA		P value	95%
	<2.5	≥3.5		
Yes	6 (6%)	4 (40%)	0.036	4.222(1.106-16-112)
Sometimes	17 (21.8%)	61 (78.2%)		
No	27 (26.2%)	76 (73.8%)		

4.1.14- The Association Between The Last CGPA and The Student's Interest to Study Medicine:

The students scoring less than 2.5 as last CGPA; 36(22.9%) study medicine were their first choice, while 14(39.5%) they were not interested to study medicine. Of student scoring 3.5 and above; 121(77.1%) interested to study medicine, while 20(60.5%) were not. Association between the last CGPA and the interest of student to study medicine was found to be significant at p value of 0.028 and 95CI of 0.557(0.340-0.812)(Table15).

Table 15: The Association Between The Last CGPA & The Student's Interest to Study Medicine:

Interest of student	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Yes	36(22.9%)	121 (77.1%)	0.028	0.557(0.340-0.812)
No	14 (39.5%)	20 (60.5%)		

4.1.15- The Association Between Last CGPA and Student Regretting to Study Medicine:

After the students started to study medicine some of them were regretting. 13(41.9%) of last CGPA of less than 2.5 answered yes they regretted and 37(23.1%) they were not. While of last CGPA of 3.5 and above 18(58.1%) they regretted, and 123(76.9%) they were not. Association between the last CGPA and the whether the student was regretted to study medicine was found to be significant at p value of 0.029 and 95CI of 1.813(1.098-2.994)(Table16).

Table 16: The Association Between The Last CGPA & Student Regretting to Study Medicine:

Regretting to study medicine	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Yes	13(41.9%)	18 (58.1%)	0.029	1.813(1.098-2.994)
No	37(23.1%)	123(76.9%)		

4.1.16- The Association Between The Last CGPA & the Idea of Student about The Class Size:

When the class size was tested as predictor factor, 29(22.0%) of students of the last CGPA of less than 2.5 thought the class size was reasonable, while 21(35.6%) of them thought it was large size. 103(78.7%) of the students of last CGPA of 3.5 and above thought the class size was reasonable and 38(64.4%) they thought it was large size. Association between the last CGPA and the class size was found to be significant at p value of 0.048 and 95CI of 0.617(0.386-0.988)(Table 17).

Table 17: The Association Between The Last CGPA and The Idea of Student about Class Size:

The class size	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Reasonable size	29(22.0%)	103(78.0%)	0.048	0.617(0.386-0.988)
Large size	21(35.6%)	38(64.4%)		

4.1.17- The Association Between The Last CGPA and The interaction Between Student & Their Lecturers:

When the interaction was tested as a predictor for academic performance; 04(14.3%) all of student with CGPA of less than 2.5 interacted with the lecturer, 31(27.0%) with some of them, 08(22.2%) with few of them and 07(58.3%) with none of them. While students performance of CGPA of 3.5 and above, 24(85.7%) interacted with all of them, 84(73.0%) with some of them, 28(77.8%) with few of them and 05(41.7%) with none of them. Association between the last CGPA and the interaction between the students and their lecturers was found to be significant at p value of 0.032.(Table18).

Table 18: The Association Between The Last CGPA and The Interaction Between Student & Their Lecturers:

teacher educational level	Student Last CGPA		P value	95% CI
	<2.5	≥3.5		
All of them	04 (14.3%)	24 (85.7%)	0.032	0.2040.(051-0.821)
Some of them	31 (27.0%)	84 (73.0%)		
Few of them	08 (22.2%)	28 (77.8%)		
Non of them	07 (58.3%)	05 (41.7%)		

4.1.18- The Association Between The Last CGPA & Student's Preferable Study Style:

Some of the students preferred to study alone, some with a friend and some with small group. 23(25.0%), 20(30.3%) and 07(21.2%) respectively their CGPA was less than 2.5., while 69(75.0%), 46(69.7%) and 26(78.8%) respectively their CGPA was 3.5 and above. Association between the last CGPA and the preferable student's study style was found to be insignificant at p value of 0.586(Table19).

Table 19: The Association Between The Last CGPA and The Student's preferable study style:

Student's study style	Student CGPA		P value	95%
	<2.5	≥3.5		
Study alone	23(25.0%)	69 (75.0%)	0.586	1.615(0.602-4.329)
With a friend	20(30.3%)	46(69.7%)		
In small group	07 (21.2%)	26 (78.8)		

4.1.19- The Association Between The Last CGPA and Learning Facilities Factors:

Learning facilities were also examined as predictors for academic performance, such as whether the student was satisfied by electronic library and has his own electronic facility.

4.1.19.1- The Association Between The Last CGPA and Student got a place in The library:

When the students asked about whether they get a place in the library, some of students answered yes, some of them answered some time got place, some of them answered occasionally and some not get a place at all. 03(13.0%) answered they got place all the time, 26(23.9%) they got places some times , 08(29.6%) occasionally got places while 13(40.6%) not get places at all of the students their CGPA was less than 2.5. Twenty of the students of 20(87.0%) answered they got places all the time, 83(76.1%) got places some times, 19(70.4%) occasionally got places and 19(59.4%) not get places all the time of the students their CGPA was 3.5 and above. Association between the last CGPA and student got place in the library was found to be insignificant at p value of 0.113(Table20). However when they interviewed about whether they were satisfied by the electronic library or unsatisfied .11(26.8%) and 39(26.0%) respectively their CGPA was less than 2.5. 30(73.2%) and 111(74.0%) respectively their CGPA was 3.5 and above. Association between the last CGPA and student's satisfactory of electronic library was found to be insignificant at p value of 0.915 and 95CI of 1.044(0.478-2.279)(Table21).

Table20: The Association Between The Last CGPA and Student Got Place in The Library:

Student got a place in the library	Student Last CGPA		P value	95% CI
	<2.5	≥3.5		
Yes get all the time	03 (13.0%)	20 (87.0%)	0.381	0.615(0.208-1.824)
Get some time	26 (23.9%)	83 (76.1%)		
Get occasionally	08 (29.6%)	19 (70.4%)		
Not get at all	13 (40.6%)	19(59.4%)		

Table21 :The Association Between The Last CGPA and Student Satisfaction of Electronic Library:

Electronic library	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Satisfactory	11(26.8%)	30(73.2%)	0.915	1.044(0.478-2.279)
Unsatisfactory	39(26.0%)	111(74.0%)		

4.1.20- The Association Between The Last CGPA and Personal electronic facility:

When the students asked whether they had electronic facility or not, 38(26.47%) of the students with CGPA of less than 2.5 answered yes they had, while 12(25.5%) they said they did not have electronic facility. 106(73.6%) of the Students with CGPA of 3.5 and above answered yes they had, while 35(74.5%) they said they did not have. Association between the last CGPA and the personal electronic facility was found to be insignificant at p value of 0.908 and 95CI of 1.046(0.492-2.220) (Table22).

Table22:The Association Between The Last CGPA and Personal Electronic Facility:

Personal electronic facility	Student last CGPA		P Value	95%
	<2.5	≥3.5		
Available	38(26.4%)	106(73.6%)	0.908	1.046(0.492-2.220)
Not available	12(25.5%)	35(74.5%)		

4.1.21- The Association Between The Last CGPA and The type of Personal Electronic Facility:

However when the students asked what type of electronic facility they had; 23(25.0%) of students with CGPA of less than 2.5 had smart phone, 20(30.3%) of them had laptop, while 07(21.2%) had both smart phone and laptop. The students with CGPA of 3.5 and above; 69(75.0%) had smart phone, 46(69.7%) had laptop, while 26(78.8%) had both smart phone and laptop. Association between the last CGPA and the type of personal electronic facility was found to be insignificant at p value of 0.940 and 95CI Of 1.040(0.378-2.865)(Table23).

Table 23:The Association Between The Last CGPA and The Type of Personal Electronic Facility:

Student's personal Electronic facility	Student CGPA		P value	95%
	<2.5	≥3.5		
Smart phone	23(25.0%)	69 (75.0%)	0.940	1.040(0.378-2.865)
Laptop	20(30.3%)	46(69.7%)		
Both of them	07 (21.2%)	26 (78.8%)		

4.1.22 - The Association Between The Last CGPA and Student Motivation by His/ Her Family:

The students answered choice about the motivation by their families was yes motivated, sometimes motivated, not motivated. Student of CGPA of less than 2.5 their answers were 40(26.7%), 08(23.5%) and 02(28.6%) respectively. Students of CGPA of 3.5and above their answers were 110(73.3%), 26(76.5%) and 05(71.4%) respectively. Association between the last CGPA and the family motivation was found to be insignificant at p value of 0.778 and95CI of 0.769(0.124-4.754) (Table24).

Table24:The Association Between The Last CGPA and Student Motivation by His Family:

Family motivation	Student CGPA		P value	95%
	<2.5	≥3.5		
Yes	40(26.7%)	110 (73.3%)	0.778	0.769(0.124-4.754)
Some times	08(23.5%)	26(76.5%)		
No	02(28.6%)	05(71.4)		

4.1.23- The Association Between The Last CGPA and Student motivation by His/ Her Lecturers:

The students answered choice about the motivation by their lecturers was yes motivated, sometimes motivated, not motivated. Students of CGPA of less than 2.5 their answers were 09(20.0%),30(24.4%)and 11(47.8%)respectively. Students of CGPA of 3.5and above their answers were 36(80.0%), 93(75.6%) and 12(52.2%) respectively.Association between the last CGPA and the lecturers family motivation was found to be significant at p value of0.024 and 95CI of 0.352(0.141-0.879) (Table25).

Table 25: The association between Last CGPA and student motivated by His/Her lecturers:

Lecturers motivation	Student CGPA		P value	95%
	<2.5	≥3.5		
Yes	09(20.0%)	36 (80.0%)	0.024	0.352(0.141-0.879)
Some times	30(24.4%)	93(75.6%)		
No	11(47.8%)	12(52.2%)		

4.1.24 - Development of the logistic Regression:

When the model developed for the control of the confounders we remained with the type of students of admission , nationality of the student, type of entrance certificate, availability of the family sponsor with family. Also the difficulties of understanding English, the class size and the motivation of the student by their lectures. All these factor were tested significant after controlling of the confounders.

Table 2 The significant factors after controlling the confounders

Variables of the model	Student Last CGPA		P value	95% CI
	<2.5	≥3.5		
Student type of admission			0.001	0.133(0.037-0.471)
Governmental	16 (15.7%)	86(84.3%)		
State	10 (21.3%)	37 (78.7%)		
Private	17 (56.7%)	13(43.3%)		
Other	07 (58.3%)	05 (41.7%)		
Nationality of student			0.038	0.448 (0.247-0.815)
Sudanese	44 (24.4%)	136 (75.6%)		
Other	06 (54.5%)	05 (45.5%)		
Type of entrance certificate			0.002	2.057 (1.087-3.892)
Sudanese certificate	40 (22.9%)	135(77.1%)		
Other	10(62.5%)	06 (37.5%)		
Difficulties in understanding			0.036	

English				
Yes	6 (6%)	4 (40%)		
Sometimes	17 (21.8%)	61 (78.2%)		4.222(1.106-16-112)
No	27 (26.2%)	76 (73.8)		
The class size				
Reasonable size	29(22.0%)	103(78.0%)	0.048	0.617(0.386-0.988)
Large size	21(35.6%)	38(64.4%)		
Lecturers motivation				
Yes	09(20.0%)	36 (80.0%)	0.024	
Some times	30(24.4%)	93(75.6%)		0.352(0.141-0.879)
No	11(47.8%)	12(52.2%)		
Availability of household family				
Stay with family	35 (22.9%)	118 (77.1%)	0.037	0.580 (0.335-0.946)
Not stay with family	15 (39.5%)	23 (60.5%)		

Chapter five

Discussion

5- Chapter

5.1- Discussion:

5.1.1-Socio-demographic data:

This study was showing no significant differences between males and females student. This study disagreed with Malaysian study done by Muneer,2015 showing significant difference between males and females in response to stress which affects negatively in academic performance if exceeding the normal levels, females are more affected. However our findings were consistent with a study done in Indian which showing that no difference, but females are over expressive of stress(Muneer G. Babar,2015) (Acharya, 2003). Study done in Ankara University was in keeping with our findings that there was no significant differences between male and female in academic performance(EsinEdem H,2013).

Our study was showing that the Sudanese students are performing better than others When compared the data from the previous studies, Woolf, 2011. Of Meta analysis of 22 reports showing that the white student in United Kingdom performing better than other non white ethnic groups, Asian, Africans and Caribbean's .. Selection of the students is depending on country of origin, all our international students are either from Somalia or Palestine. Home sickness and language barriers play important factors, especially for the Somalia students who find difficulties in communications in Arabic language and sometimes evening in English language (Lana AlShawwa, 2015).

Study conducted at Ankara University (Esin Edem H,2013) revealed high father academic levels affect positively in academic performance of their kids , however our study showed no significant association between the parents education level and the academic performance of the students. It might be explained by the economical pressure on the families which made the parents desire was to satisfy their student basic needs rather than meticulous follow up.

5.1.2- Communication factors

Large class size and type of curriculum which well demarcated divided into preclinical phase and clinical phase have negative effects on academic performance. It is consistent with the current study results that large class size affects the communication and interactions between the lecturers and students (Muneer20115, Polychronopaulau2009, 2/9). According to the Study done in Ankara university there was no significant association between the communication between the students and their advisors attendance and guidance. This factor was significant in our study may be because of large number of students in relation to the staff number(Esin Erdem H,2013).However there was significant association between the academic performance and time managements skills, both academic and social programs(Esin Edem H,2013).

5.1.3- Learning facilities factors:

Personal interest, which represent the intrinsic motivation, is crucial for success and good academic performance. The current study findings were in keeping with previous studies(Kim&Etal2016)(Pagnin,2013). those Gedarif student who were not interested to study medicine from the beginning reflects that it was their families' will . Those students who lost their interest after starting their study saying that because of poor financial benefits, long years of studies and graduates doctors started to lose their respect among the public.

Our study, however regarding the extrinsic motivation by the family there was no significant differences between the high academic performance and low academic performance indicating that all the families motivated their sons and daughters at the same levels. However there is a significant differences between the students concerning the teachers motivations indicating that the students may shy from their lecturers . lectures should pay attention to these kind of students and give them the suitable support.

5.1.4- Limitations of the study:

- 1- Students were different academic level
- 2- The study was done in single institute

Chapter six

Conclusion & recommendations

6-Chapter

6.1-Conclusion and recommendation:

6.1.1- Conclusion:

A Number of factors seems to affect the academic performance of medical students negatively which assessed in this study by last CGPA that the student was achieved. Those factors included the socio demographic factors, communication factors and learning facilities factors. The socio demographic factors that negatively affecting the performance were the type of student intake such as students admitted outside the country. The Sudanese students were performing better than others as well as students admitted with Sudanese secondary school were performing better than ones who sat for other certificate such as Saudi Arabia. Students' families ran by their fathers and the availability of those households with the families had an important role in the performance of those students. The communication factors that affecting the students' performance negatively were student found difficulties in understanding English, the study media, disinterested in study medicine from the beginning or he was regretting to study medicine after he started to do so. Also from the negative predictors factors were difficulty of interaction between the students and his lectures as well as some of the students thought that the class was too large for them to follow their lecturers.

On the other hand the socio demographic factors which were found to be insignificant included gender of the student, academic level of the student whether in semester 4,5,6 or 8. These besides the residency of the student whether was from or outside Gedarif town as well as the household of the family and mother of students educational levels. The only communication factor that found to be insignificant were students' study style whether preferred to study alone, with friend or in small group. None of the learning facilities factors tested to be significant predictor variable for study. Those factors include whether student got a place in the library or not, did students thicken the electronic facilities available in faculty was satisfactory or not and did student have his own electronic facility. If he had what type of this facility, smart phone, laptop or

both of them. Student motivation by his family was found to be insignificant predictor variable, however the motivation by the lectures was found to be significant predictor variable.

6.1.2- Recommendations:

Career choice motivation is one of the attributes that should not be overlooked into the selections of medical students.

Lecturers should pay attention to the shy students and motivate and encourage them.

Academic counseling should be a rule in all medical and health institutes to increase the interaction between the staff members students to predict students' social and learning difficulties and to interfere at the optimum time.

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**Factors affecting the academic performance among the medical Students, University
of
Gedarif, Sudan
The questionnaire**

A) The sociodemographic data:

1. Name of the student:-----

Batch No-----.

2. Type of intake:

A) Regular governmental

B) State intake

C) Private intake

D) Other----specify

\3. Gender of the student

A) Male

B) Female

4. Age of the student-----

5. Nationality:

A) Sudanese

B) Other , specify

6. Resedency:

A) Gedarif town

B) Outside the town

7. Type of the entrance certificate

A) Sudanese certificate

B) Other, specify

8. Income of the family in Sudanese pounds-----

9. The number of the family members-----

9. Who is the household of the family?

A) Father

B) Other (specify)

- A) All of them B) Some of them
- C) Few of them D) None of them

8. Do you prefer to study alone or with other?

- A) Alone B) With a friend C) In small group

C) learning facilities:

1. Are you interested to study medicine from the beginning

A) Yes B) No

2. If yes, After that are you regretting?

A) Yes B) No

5. If yes, please tell the reason(

3. Can you get a place in the library

A) Yes, all the time B) Some times

C) Occasionally D) No

4. What do you think about the electronic library

A) Satisfactory B) Unsatisfactory

5. Do you have any personal electronic facility?

A) Yes B) No

6. If yes (specify)

7. Are you motivated or encourage by the family?

A) Yes B) to some extent C) No

8. Are you motivated or encourage by the lecturers

A) Yes B) to some extent C) No

