بسم الله الرحمن الرحيم

NAPATA COLLEGE
SCHOOL OF MEDICINE
DEPARTMENT OF COMMUNITY MEDICINE

Ventricular Septal Defect patients counseling at Ribat University Hospital in regards to their doctor's between May 2021 and December 2021

A research submitted for partial fulfillment for the award of the degree of (MBBS) in school of medicine in Napata College

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قال تعالى:

قَالُواْ سُبْحَٰنَكَ لَا عِلْمَ لَنَآ إِلَّا مَا عَلَّمْتَنَآۖ إِنَّكَ أَنتَ ٱلْعَلِيمُ ٱلْحَكِيمُ

(البقرة - 32)

Dedication:

We would like to dedicate this work to our friends, our families, and loved ones. It is through their genuine love, care appreciation and support that we find ourselves graduating medical school, and especially for our doctors , for their education and belief and their extra interest in us. It is an honor like no other. And for that we would like to say, Thank you.

Acknowledgements:

We would like to thank Dr. Hassan Osman, our supervisor, for his support and care. We are forever thankful for the administration of Ribat University Hospital for their unwavering support and agreeing to allow us to conduct the research in their property. The administration of Napata College are to be thanked, not only for their support and care for the duration of this project, but also for their education of us throughout these years.

List of Abbreviation(s)

AV = AtrioVentricular
CDC = Center for Disease Control
CHD = Congenital Heart Defect
IE = Infective Endocarditis
TAVR = Transcatheter Aortic Valve Replacement.
VSD = Ventricular Septal Defect
WHO = World Health Organization
US = United States

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Abstract:

Introduction: The World Health Organization (WHO) defines counselling as ‘a well-focused process, limited in time and specific, which uses the interaction to help people deal with their problems and respond in a proper way to specific difficulties in order to develop new coping strategies. A doctor-patient relationship formed when a doctor attends to a patient’s medical needs and this relation built on trust, respect, communication and a common understanding of both doctor and patients’ (1). As a patient, being counseled in a good manner enables you to obtain sufficient information about your health problem, symptoms and available treatment, then how to deal properly and cope with the disease. Many patients suffer because they do not know enough about their disease so they deal with it wrongly, which leads them to a worse condition. Effective physician-patient communication has been shown to positively influence health outcomes by increasing patient satisfaction so a physician must appreciate that the patient is not just a group of symptoms, damaged organ and alerted emotions but he is human being. The United States’ (henceforth only referred to as US) Center for Disease Control (CDC) defines VSD as ‘a birth defect of the heart in which there is a hole in the wall (septum) that separates the two lower chambers (ventricles) of the heart.’ (2). Symptoms of VSD include, as per Mayo Clinic’s website ‘poor eating, failure to thrive; fast breathing or breathlessness; easy tiring…… Sometimes a VSD isn't detected until a person reaches adulthood. Symptoms and signs can include shortness of breath or a heart murmur’ (3). Research Methodology: This is a descriptive hospital-based cross-sectional study that took place in RUH. Our results showed that patients of the younger age group (18-23) were more knowledgeable regarding VSD than their comparatively elder counterparts (24+). There was a significant correlation between the patients’ socioeconomic level and their knowledge of their illness (those found to be of a ‘higher’ socioeconomic status possessed more knowledge of how VSD manifests itself as opposed to those deemed to be of a ‘lower’ socioeconomic status), the same was found to be true in regards to the patients’ educational level (those with higher levels of education were found to be better knowledgeable of their illness). Most (72%) were between the ages of 18 and 23, and were diagnosed between birth and 5 years of age (64%). None of our participants were diagnosed with VSD post the age of 15. 82% of our participants held a secondary education degree. 14% held post-secondary degrees, while 4% had only primary education 67% were found to have an income of under 100,000 SDG per month. 27% had a monthly income between 100,001 and 300,000 SDG per month, while only 6% of our participants had an income of over 300,000 SDG a month. In so far as the patients views in regards to their doctor’s ‘rudeness’ towards them, only 7% considered their doctor to be very rude ‘8-10’, while 27% considered their doctor to be kind ‘1-3’. The remainder 66% were rather neutral, assessing their doctors at between 4 and 7 on the ‘rudeness’ scale. 85% answered ‘yes’ when asked if their doctors explained their illness to them. Most of those (78%) were very satisfied with their doctors’ explanation, 3% were very dissatisfied with it and 10% were neutral on the topic. 100% of our participants answered ‘Yes’ when asked if their doctors explained the function(s) of their medication. 100% were very satisfied with the aforementioned explanation. 26% of our participants had only been with one

doctor, 74% had seen at least 2 doctors in their lifetime. Despite this, only 7% of them had changed doctors due to them not liking the way their doctors treated them. The findings were consistent with data pertaining to the education of parents of children with VSD. Conclusion: In conclusion, our research showed that patients were not very knowledgeable in regards to their illness. It also showed that not enough medical doctors sufficiently teach their patients of their illness. Recommendations:

i) The use of echocardiography screening in newborns in areas with high levels of reported VSD.
ii) The exploitation of virtual communication technologies to aid in the education process regarding VSDs.
iii) The invitation of experts on the topic in public platforms and allowing them to discuss their topic of knowledge so as to see to it that more trustworthy information is available to the public.
iv) Teaching of communication skills courses in medical schools and insistence upon the student showing the ability to convey information to patients in a manner understandable to them.
v) Positive work towards increasing the ratio of doctors to patients so as to see to it that the doctors are provided better time per patient.
vi) The introduction of motivational payment plans for doctors so that younger individuals find themselves motivated to join medicine.

The conduction of research in Sudan regarding VSD, counselling, and VSD counselling.

ملخص البحث:

مقدمة: تعرف منظمة الصحة العالمية الاستشارة على أنها `` عملية مركزة جيدًا ، ومحدودة في الوقت المحدد ، تستخدم التفاعل لمساعدة الأشخاص على التعامل مع مشاكلهم والاستجابة بطريقة مناسبة لصعوبات محددة من أجل تطوير مهارات جديدة. استراتيجيات المواجهة. تتكون العلاقة بين الطبيب والمريض عندما يلبي الطبيب الاحتياجات الطبية للمريض وهذه العلاقة مبنية على الثقة والاحترام والتواصل والفهم المشترك لكل من الطبيب والمرضى (1). بصفتك مريضًا ، فإن الحصول على المشورة بطريقة جيدة يمكّنك من الحصول على معلومات كافية حول مشكلتك الصحية والأعراض والعلاج المتاح ، ثم كيفية التعامل بشكل صحيح والتعامل مع المرض. يعاني الكثير من المرضى من عدم معرفتهم الكافية بمرضهم ، لذا فهم يتعاملون معه بشكل خاطئ ، مما يؤدي بهم إلى تدهور حالتهم. لقد ثبت أن التواصل الفعال بين الطبيب والمريض يؤثر بشكل إيجابي على النتائج الصحية من خلال زيادة رضا المريض ، لذلك يجب على الطبيب أن يدرك أن المريض ليس مجرد مجموعة من الأعراض والعضو المتضرر والعواطف المنبهة ولكنه إنسان. يُعرِّف مركز الولايات المتحدة للسيطرة على الأمراض) (CDC) يشار إليه من الآن فصاعدًا باسم الولايات المتحدة فقط) عيب الحاجز البطيني على أنه `` عيب خلقي في القلب حيث يوجد ثقب في الجدار (الحاجز) الذي يفصل بين الغرفتين السفليتين (البطينين) من القلب. '(2). تشمل أعراض عيب الحاجز البطيني ، وفقًا لموقع Mayo Clinic على الويب ، "سوء الأكل ، والفشل في النمو ؛ التنفس السريع أو ضيق التنفس. من السهل التعب ..... في بعض الأحيان لا يتم اكتشاف VSD(عيب الحاجز البطيني) حتى يصل الشخص إلى سن الرشد. يمكن أن تشمل الأعراض والعلامات ضيق في التنفس أو نفخة قلبية .(3) منهج البحث: هذه دراسة مقطعية وصفية مستعرضة أجريت في مستشفى .RUH أظهرت نتائجنا أن المرضى من الفئة العمرية الأصغر (18-23) كانوا أكثر دراية فيما يتعلق بـ VSD (عيب الحاجز البطيني) من نظرائهم الأكبر سناً نسبيًا (24+). كان هناك ارتباط كبير بين المستوى الاجتماعي والاقتصادي للمرضى ومعرفتهم بمرضهم (أولئك الذين وُجدوا في وضع اجتماعي اقتصادي `` أعلى " يمتلكون معرفة أكثر بكيفية ظهور VSD عن أنفسهم على عكس أولئك الذين يعتبرون من المستوى الاجتماعي والاقتصادي `` الأدنى ". الحالة) ، تم العثور على نفس الشيء ليكون صحيحًا فيما يتعلق بالمستوى التعليمي للمرضى (أولئك الذين لديهم مستويات تعليمية أعلى كانوا أكثر دراية بمرضهم). كان معظم (72٪) بين سن 18 و 23 ، وتم تشخيصهم بين الولادة و 5 سنوات (64٪). لم يتم تشخيص أي من المشاركين لدينا مع VSD بعد سن 15. حصل 82 ٪ من المشاركين لدينا على درجة التعليم الثانوي. 14٪ يحملون شهادات ما بعد الثانوية ، بينما 4٪ حصلوا على تعليم ابتدائي فقط ، ووجد أن 67٪ لديهم دخل أقل من 100،000 جنيه سوداني شهريًا. 27٪ كان لديهم دخل شهري يتراوح بين 100،001 و 300،000 جنيه سوداني شهريًا ، بينما كان دخل 6٪ فقط من المشاركين لدينا يزيد عن 300،000 جنيه سوداني شهريًا. وبقدر ما يرى المرضى فيما يتعلق بوقاحة أطبائهم تجاههم ، اعتبر 7٪ فقط أن طبيبهم فظ جدًا "8-10" ، بينما اعتبر 27٪ أن طبيبهم لطيف "1-3". أما البقية ، 66٪ ، فكانوا محايدين إلى حد ما ، حيث قيموا أطبائهم بين 4 و 7 على مقياس "الوقاحة". أجاب 85٪ "نعم" عند سؤالهم عما إذا كان أطبائهم قد أوضحوا لهم مرضهم. كان معظم هؤلاء (78٪) راضين جدًا عن تفسير أطبائهم ، وكان 3٪ غير راضين جدًا عنه ، وكان 10٪ محايدين بشأن هذا الموضوع. أجاب 100٪ من المشاركين بـ "نعم" عند سؤالهم عما إذا كان أطبائهم قد أوضحوا وظيفة (وظائف) أدويتهم. 100٪ كانوا راضين جدًا عن الشرح المذكور أعلاه. 26٪ من المشاركين كانوا مع طبيب واحد فقط ، و 74٪ رأوا طبيبين على الأقل في حياتهم. وعلى الرغم من ذلك ، فإن 7٪ منهم فقط قد غيروا الأطباء بسبب عدم إعجابهم بالطريقة التي عاملهم بها أطبائهم. كانت النتائج متوافقة مع البيانات المتعلقة بتعليم أولياء أمور الأطفال المصابين بـ .VSD.الخلاصة: في الختام ، أظهر بحثنا أن المرضى لم يكونوا على دراية جيدة بمرضهم. كما أظهر عدم وجود عدد كافٍ من الأطباء لتعليم مرضاهم مرضهم بشكل كافٍ. التوصيات: 1) استخدام فحص تخطيط صدى القلب عند الأطفال حديثي الولادة في المناطق ذات المستويات العالية من VSD المبلغ عنها. 2) استغلال تقنيات الاتصال الافتراضية للمساعدة في عملية التعليم فيما يتعلق (3 .VSDsدعوة الخبراء حول الموضوع في المنصات العامة والسماح لهم بمناقشة موضوع المعرفة الخاص بهم للتأكد من توفر المزيد من المعلومات الموثوقة للجمهور. 4) تدريس دورات مهارات الاتصال في كليات الطب والإصرار على إظهار الطالب قدرته على نقل المعلومات إلى المرضى بطريقة مفهومة لهم. 5) العمل الإيجابي على زيادة نسبة الأطباء إلى المرضى بحيث يتم توفير وقت أفضل للأطباء لكل مريض. 6ا) إدخال خطط دفع تحفيزية للأطباء حتى يجد الأفراد الأصغر سنا أنفسهم متحمسين للانضمام إلى الطب. إجراء البحوث في السودان بخصوص VSD ، والاستشارة ، والاستشارات VSD.

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Chapter I: Introduction

1.1 Introduction/Background:

The World Health Organization (WHO) defines counselling as ‘a well-focused process, limited in time and specific, which uses the interaction to help people deal with their problems and respond in a proper way to specific difficulties in order to develop new coping strategies. A doctor-patient relationship formed when a doctor attends to a patient’s medical needs and this relation built on trust, respect, communication and a common understanding of both doctor and patients’ (1). As a patient, being counseled in a good manner enables you to obtain sufficient information about your health problem, symptoms and available treatment, then how to deal properly and cope with the disease. Many patients suffer because they do not know enough about their disease so they deal with it wrongly, which leads them to a worse condition. Effective physician-patient communication has been shown to positively influence health outcomes by increasing patient satisfaction so a physician must appreciate that the patient is not just a group of symptoms, damaged organ and alerted emotions but he is human being. The United States’ (henceforth only referred to as US) Center for Disease Control (CDC) defines VSD as ‘a birth defect of the heart in which there is a hole in the wall (septum) that separates the two lower chambers (ventricles) of the heart.’ (2).
Symptoms of VSD include, as per Mayo Clinic’s website ‘poor eating, failure to thrive; fast breathing or breathlessness; easy tiring…… Sometimes a VSD isn't detected until a person reaches adulthood. Symptoms and signs can include shortness of breath or a heart murmur’ (3)

1.2 Problem Statement

VSD is one of the most serious illnesses to have ever exist. It carries a high morbidity rate and is a burden on both the family and the patient., requires high levels of knowledge to manage in an acceptable manner. , ergo, we thought it appropriate that these 2 are looked into so that we know where we, as a nation, stand. Data from a US-based study indicated that the ‘most common CHD [Congenital Heart Defect] were muscular ventricular septal Defect [and] perimembranous ventricular septal defect’. If this is indicative of anything, it indicates that VSDs are of the upmost importance and are rather common as a CHD.

1.3 Research Question

Are VSD patients properly counselled regarding their doctors and illness?

1.4 Research Hypothesis

We hypothesize that patients of a ‘lower’ socioeconomic status, as well as those of a younger age will be found to be less knowledgeable about their illness , patient how have lower education level will have boor counseling

1.5 Justification/rationale

VSD is an illness that requires high levels of knowledge to manage in an acceptable manner. Ergo, it is of the upmost importance that patients are aware of the illness, its management plan and how the illness is expected to affect their lives. This is why it is of the upmost importance that we are aware of the VSD patient's communication and have a good counseling with there's doctors to improve there knowledge and achieve a good patient-doctor relationship .

1.6 Objectives

1.6.1 General

- To assess the relationship between good counseling by Ventricular Septal Defect (VSD) patients aged 18-30 years-old at Ribat University Hospital
- How good communication ends up to good counseling and enhance doctor-patient relationship.

1.6.2 Specific

>To assess the satisfaction level and good prognosis of disease
>to assess the communication skill between there doctors

Chapter (II): Literature Review

"A physician shall uphold the standards of professionalism, be honest in all professional interactions, and strive to report physicians deficient in character or competence, or engaging in fraud or deception, to appropriate entities" (4)

Authors of a Chinese study defined patient satisfaction as 'a measure of the extent to which a patient is content with the healthcare they received from their healthcare provider' (5). For an illness accounting for ~40% of all reported cardiac malformations of a congenital nature (6), it is important that counselling is properly done.

2.1 Patient Satisfaction

Data is indicative of 'personal' care of patients seeming to result in improved overall patient satisfaction (7). Despite the topic being unrelated, we believe the data is of use, as per a 2002 paper 'written exercise prescriptions could further improve the effect of these interventions.' (8). This could be used as specialists could physically write out (or print) their instructions for parents and the patient in a language that would make sense to them as opposed to overwhelming them with information in clinic visits or leaving them to scour the internet where information may be flawed.

2.2 How Venterical Septic form?

So far, it seems as if the septum is composed of a mixture of mesenchymal and muscular components (9). The AV and conotruncal endocardial cushions fuse, this fusion results in the bringing forth of the mesenchymal element (6). In so far as the muscular component is concerned, there is no agreed upon theory, despite one theory seeming rather likely, as per a 2011 paper 'Some researchers postulate that the muscular septum forms from coalescence of the part of the ventricular wall that is interposed between the enlarging free walls of the developing right and left ventricles, therefore, as the ventricular cavities become deeper the septum grows passively inwards' (6,10). Another theory that holds merit is the one that states that the muscular component originates from the primitive interventicular septum, which is believed to move towards the AV canal cushions (6).

2.3 Epidemiology

It is extremely difficult to accurately pinpoint the epidemiology of the illness as its pathophysiology is complicated and many patients are asymptomatic, many VSDs close with time, this also results in variance of reported cases around the globe (6). Data from color doppler echocardiography screening conducted in 1995 reported an ~5% prevalence rate of VSD amongst newborns (11).
Despite this, there is reason to believe that there is a higher prevalence rate as reports that relied on echocardiography reported higher incidences of VSD compared to those that relied primarily on clinical examination (12,13).

2.4 Cause of VSD

So far, we are unable to pinpoint a definitive cause of VSD.

2.5 Associated Illnesses

There is reason to believe that there exists an association between VSD and a number of congenital malformations; this list includes (in no particular order):

i) Tetralogy of Fallot,
ii) Transposition of the great arteries,
iii) Congenitally corrected transposition,
iv) Aortic Coarctation,
v) Aortic interruption
vi) Univentricular atrioventricular connection (6)

Furthermore, a number of genetic syndromes seem to be associated with VSD (such as Trisomy 21, Trisomy 13 and Trisomy 18) (14).

2.6 Complications of VSD

A well-established complication/manifestation (reported as early as 1933) of VSD is Aortic Regurgitation (AR), which occurs due to prolapse of the aortic valve (15). This phenomenon is also known as Laubry-Pezzi syndrome (15).
A 2018 Singapore-based paper reported a significantly increased risk of Infective Endocarditis (IE) in VSD patients (16).
Despite a number of complications associated with VSD manifesting themselves here, it is important that VSD itself can be a complication, for example, of myocardial infarction (MI) (17) (this is usually managed by first ensuring hemodynamic stability, followed by surgery some time later (18).

2.7 Management of VSD

Not all patients are fit for surgery, however, in some of them, surgery is found to be counterproductive. These patients are considered for Transcatheter Aortic Valve Replacement (TAVR) (19). More recently, almost all VSD patients are considered for TAVR as recent reports seem rather promising (20). As per an article published in NEJM 'In patients with severe aortic stenosis who were at low surgical risk, TAVR with a self-expanding supraannular bioprosthesis was noninferior to surgery with respect to the composite end point of death or disabling stroke at 24 months.' (21).
As per a 2007 paper regarding the management of VSD in infants 'Primary repair of infants with Coarctation and VSD using a one-stage approach through separate incisions affords excellent clinical results.'(22).

2.8 Issues That Face Adults

Despite the existence of a VSD, if it is small enough, and is not associated with pulmonary hypertension, a patient may be able to tolerate exercise normally, even into adulthood (23). The same seems to be manifest in so far as pregnancy is concerned

(i.e. women are at no higher risk if they suffer from a small VSD without pulmonary hypertension) (24)

2.9 Methods of counselling

Ever since 2019, the world has been overwhelmed with COVID-19, an illness which resulted in a number of disturbances to our way of life (25). One of the ways technology has aided us to adapting to the change forced upon us by COVID-19 is by the providing virtual means of communication, such as WeChat. Researchers in China looked into the effects of using WeChat to aid them in perioperative education of parents of children 'who underwent transthoracic device closure of ventricular septal defects (VSDs).' (26). They reported the following: 'Perioperative health education for parents of children who undergo transthoracic device closure of VSDs through the WeChat platform can effectively enhance parents' knowledge of care, improve parent satisfaction, which is an effective method to ensure convenient operation and reduce loss to follow-up.' (26).
As per a 2020 paper, 'after fetal diagnosis of CHD [, parents] need uninterrupted counseling of adequate duration and quality in a separate counseling room. Providing additional written information or links to adequate web sources after initial counseling seems necessary. High risk CHD needs more attention for counseling. There is a trend towards more counseling success if provided by cardiologists' (27)

Chapter (III): Research Methodology

3.1 Type / design of Study:

This is a descriptive hospital-based cross-sectional study

3.2 Study area\setting:

Ribat University Hospital. Burri, Khartoum, Khartoum, Sudan

3.3 Study Duration:

November 2021 – December 2021

3.4 Study Population:

Patients presenting to the cardiology clinic at RUH

3.4.1 Inclusion criteria: patient with VSD , in the morning and age between 18-30

3.4.2 Exclusion criteria : patient they don't have VSD, and has hypertension or diabetes

3.5 Sampling Methods / Techniques:

Sampling method:

Questionnaires. Researcher-administered, were taken by the researchers

Technique: Random systemic sampling in Ribat University Hospital

We would go to the ward, and with approximately 20 patients arriving per clinic, the hospital admission list would be taken and our group would pick one and skip three, and for every ward we would decide on a new number to skip from.

Sample size:

The calculation formula of Taro Yamane is presented as follows.

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

Where:

n= sample size required

N = total population

e= Degree of Precision (0.04)

n = 100

Study variables:

Dependent:

- Satisfaction of VSD patients with their doctors

Independent:

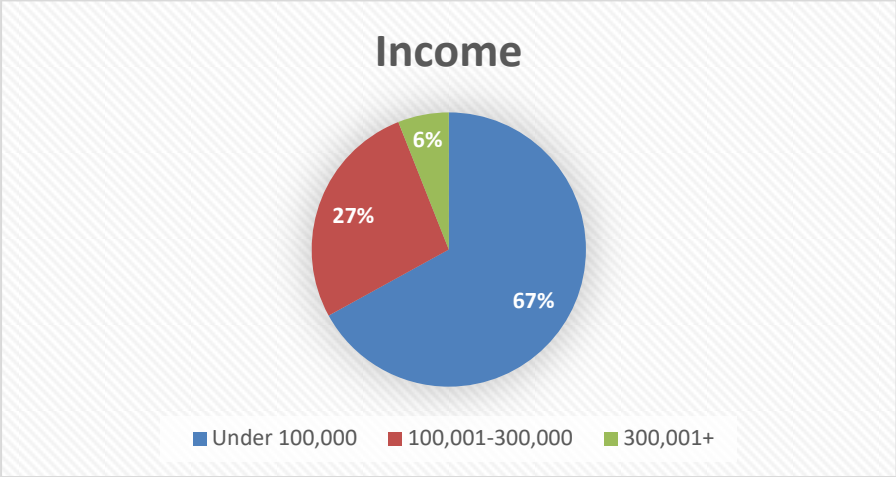
- Age
- Gender
- Age at diagnosis

Chapter (IV): Results

Our results showed that patients of the younger age group (18-23) were more knowledgeable regarding VSD than their comparatively elder counterparts (24+). There was a significant correlation between the patients' socioeconomic level and their knowledge of their illness (those found to be of a 'higher' socioeconomic status possessed more knowledge of how VSD manifests itself as opposed to those deemed to be of a 'lower' socioeconomic status), the same was found to be true in regards to the patients' educational level (those with higher levels of education were found to be better knowledgeable of their illness).

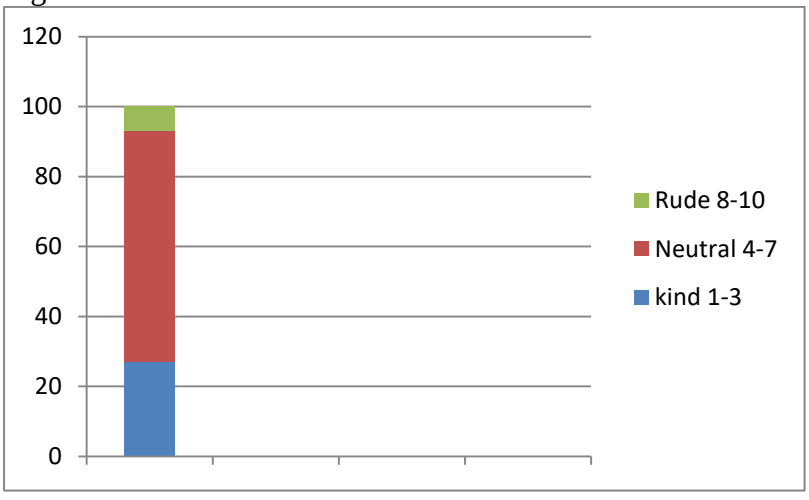
-67% were found to have an income of under 100,000 SDG per month. 27% had a monthly income between 100,001 and 300,000 SDG per month, while only 6% of our participants had an income of over 300,000 SDG a month

Figure 4.1



In so far as the patients views in regards to their doctor's 'rudeness' towards them, only 7% considered their doctor to be very rude '8-10', while 27% considered their doctor to be kind '1-3'. The remainder 66% were rather neutral, assessing their doctors at between 4 and 7 on the 'rudeness' scale

Figure 4.2



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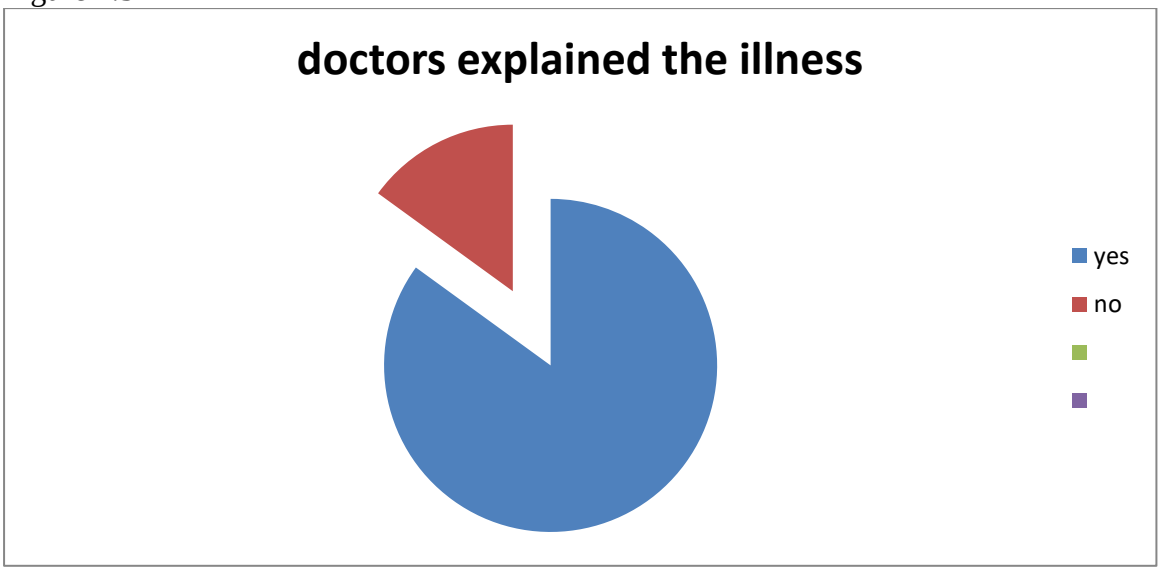
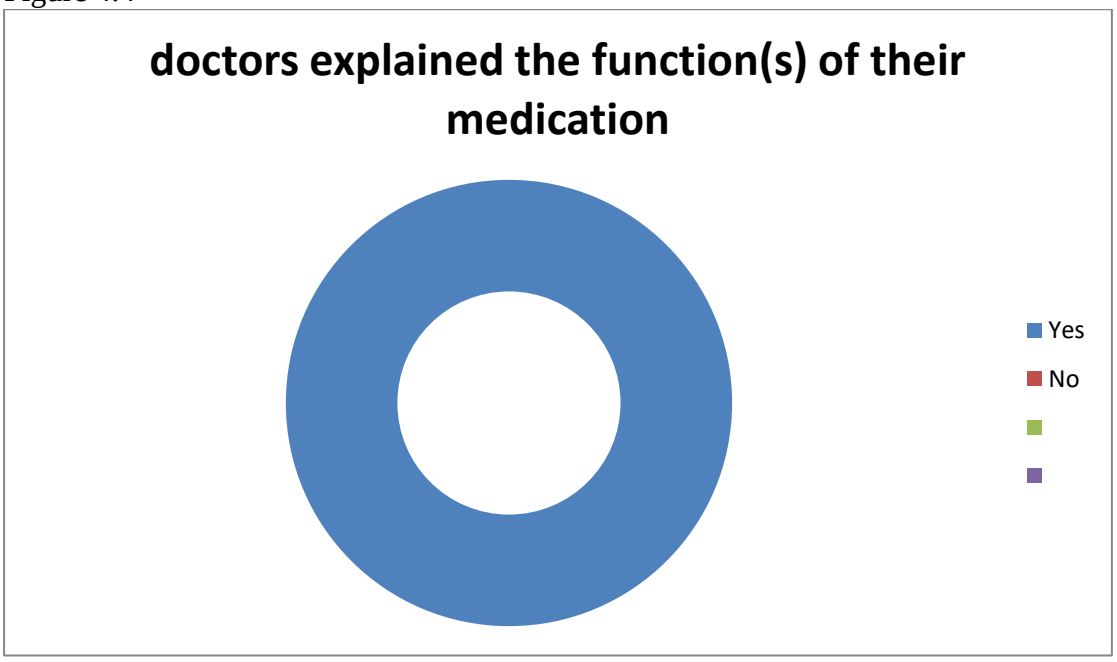
85% answered ‘yes’ when asked if their doctors explained their illness to them. Most of those (78%) were very satisfied with their doctors’ explanation, 4% were very dissatisfied with it and 10% were neutral on the topic.

Figure 4.3



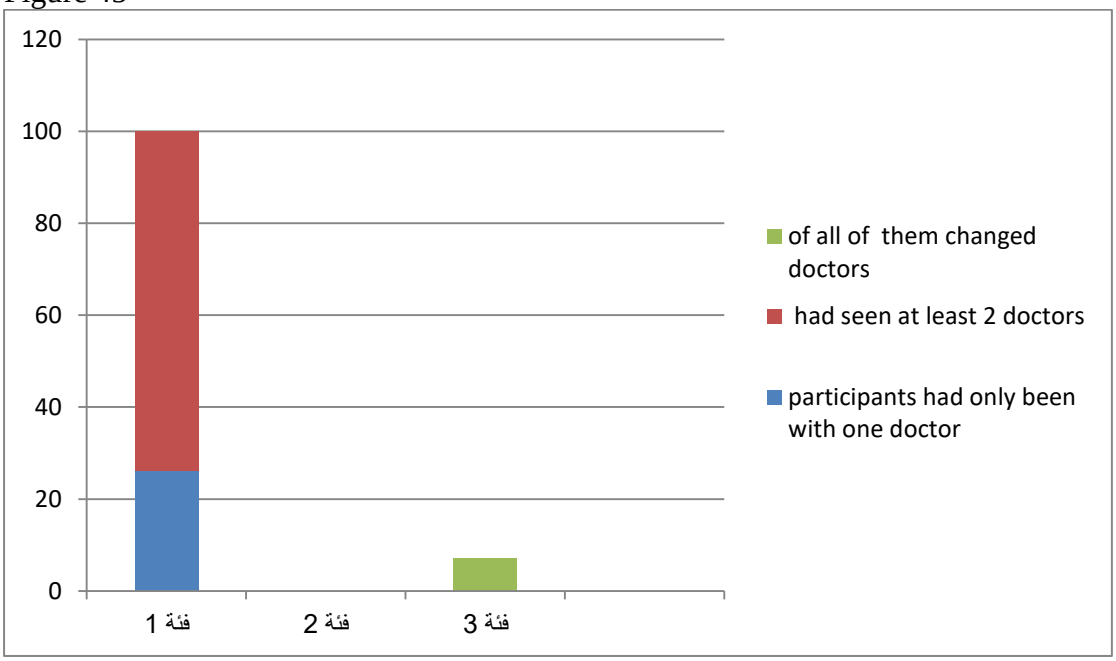
100% of our participants answered ‘Yes’ when asked if their doctors explained the function(s) of their medication. 100% were very satisfied with the aforementioned explanation.

Figure 4.4



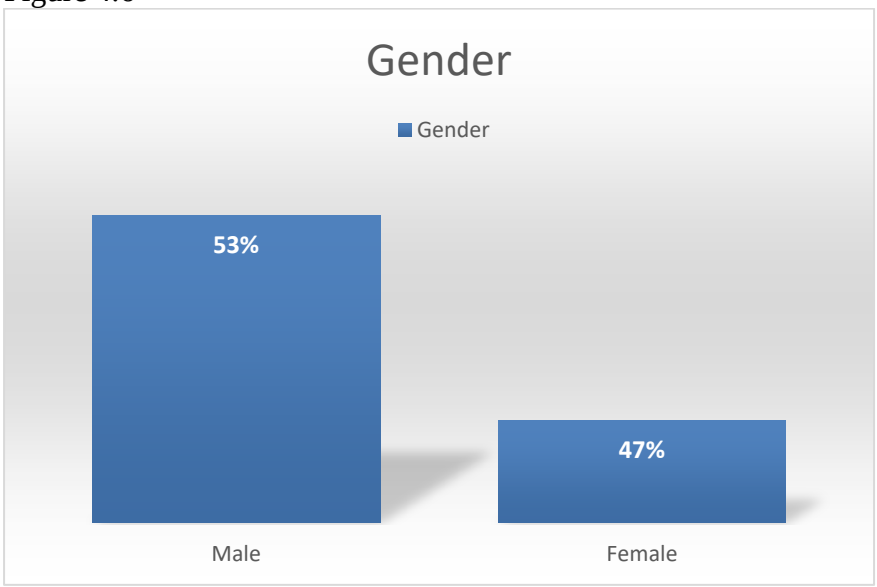
26% of our participants had only been with one doctor, 74% had seen at least 2 doctors in their lifetime. Despite this, only 7% of them had changed doctors due to them not liking the way their doctors treated them.

Figure 45



-53 of our 100 participants were male, while the remainder 47 were female.

Figure 4.6



-Most (72%) were between the ages of 18 and 23, and were diagnosed between birth and 5 years of age (64%). None of our participants were diagnosed with VSD post the age of 15.

Figure 4.7

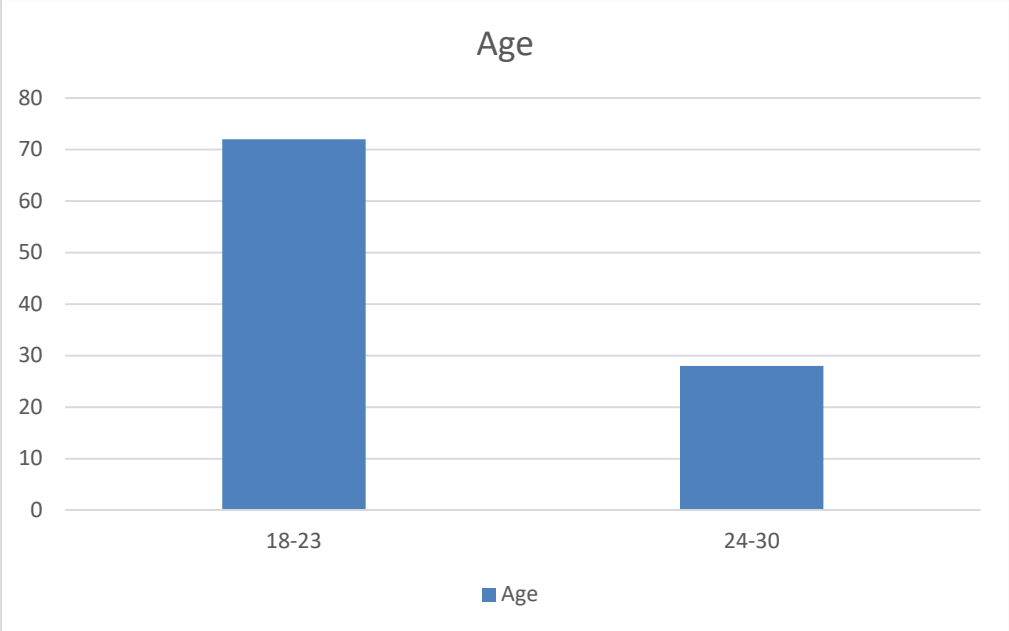
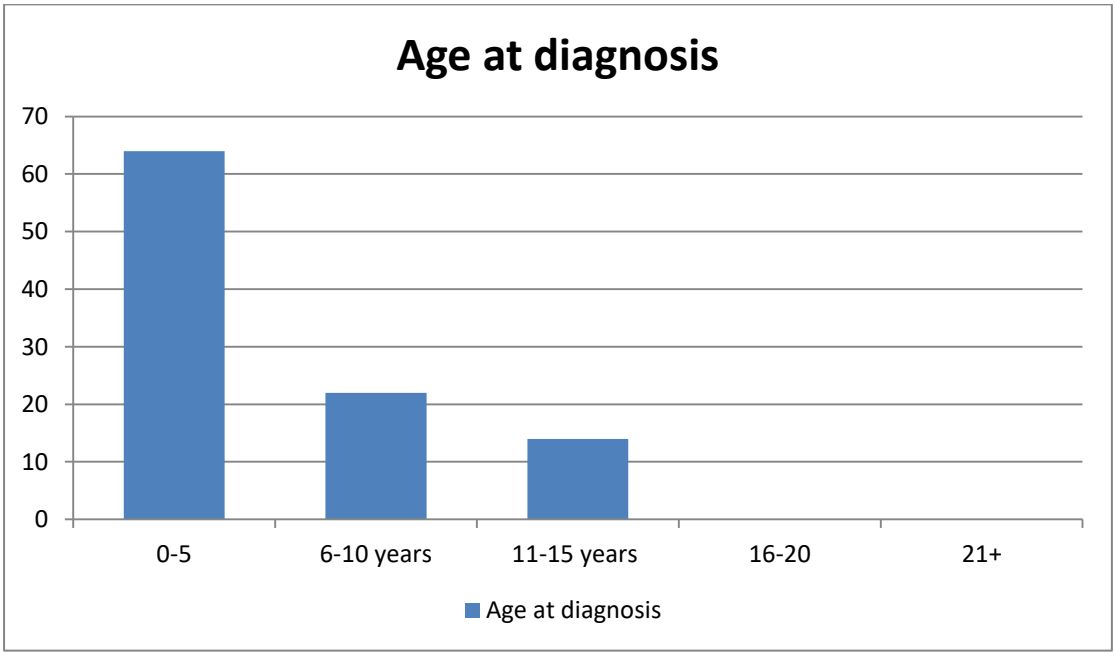
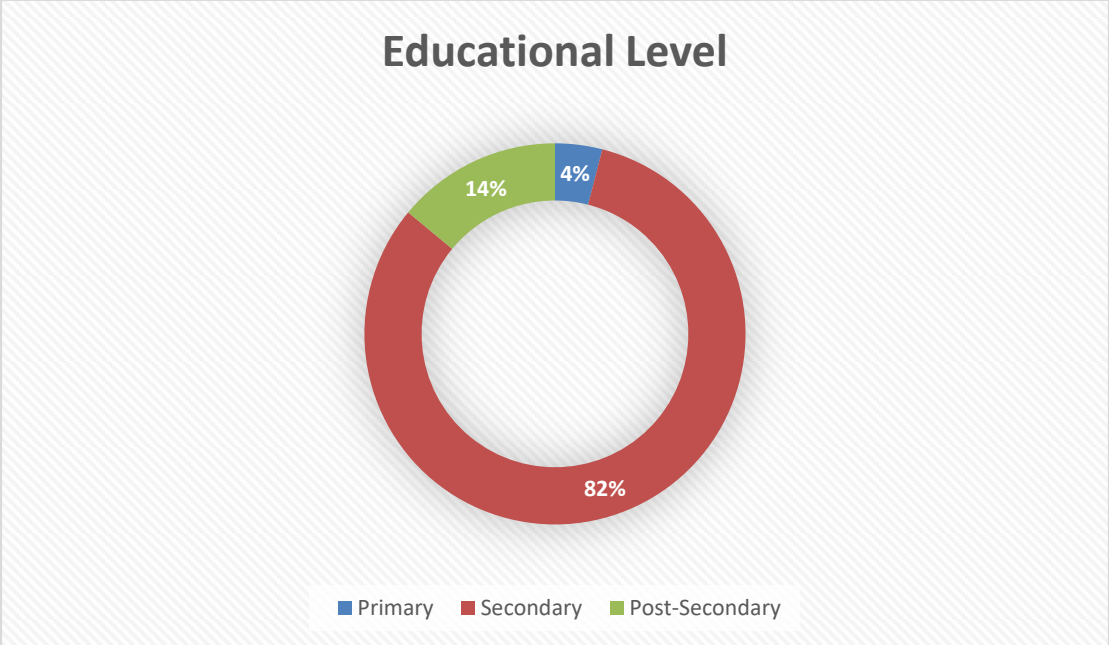

Age
80
70
60
50
40
30
20
10
0
18-23
24-30
Age

Figure 4.8


Age at diagnosis
70
60
50
40
30
20
10
0
0-5
6-10 years
11-15 years
16-20
21+
Age at diagnosis

82% of our participants held a secondary education degree. 14% held post-secondary degrees, while 4% had only primary education.

Figure 4.9



Chapter (V): Discussion

This is expected to be a short chapter as there was no literature covering the topic in our same exact manner. However, the findings were consistent with our hypothesis which was re-assuring.

The findings were consistent with data pertaining to the education of parents of children with VSD.

‘

Chapter (VI): Conclusions & Recommendations

Conclusion:

In conclusion,

1- Those how have 'higher' socioeconomic status possessed more knowledge and younger age group (18-23) were more knowledgeable regarding VSD
2- Those with higher levels of education were found to be better knowledgeable of their illness and have good counseling
3- Most patients are satisfied with their doctor relationship and satisfied about explaining their medication

Recommendations:

vii) The use of echocardiography screening in newborns in areas with high levels of reported VSD.
viii) The exploitation of virtual communication technologies to aid in the education process regarding VSDs.
ix) The invitation of experts on the topic in public platforms and allowing them to discuss their topic of knowledge so as to see to it that more trustworthy information is available to the public.
x) Teaching of communication skills courses in medical schools and insistence upon the student showing the ability to convey information to patients in a manner understandable to them.
xi) Positive work towards increasing the ratio of doctors to patients so as to see to it that the doctors are provided better time per patient.
xii) The introduction of motivational payment plans for doctors so that younger individuals find themselves motivated to join medicine.
xiii) The conduction of research in Sudan regarding VSD, counselling, and VSD counselling.

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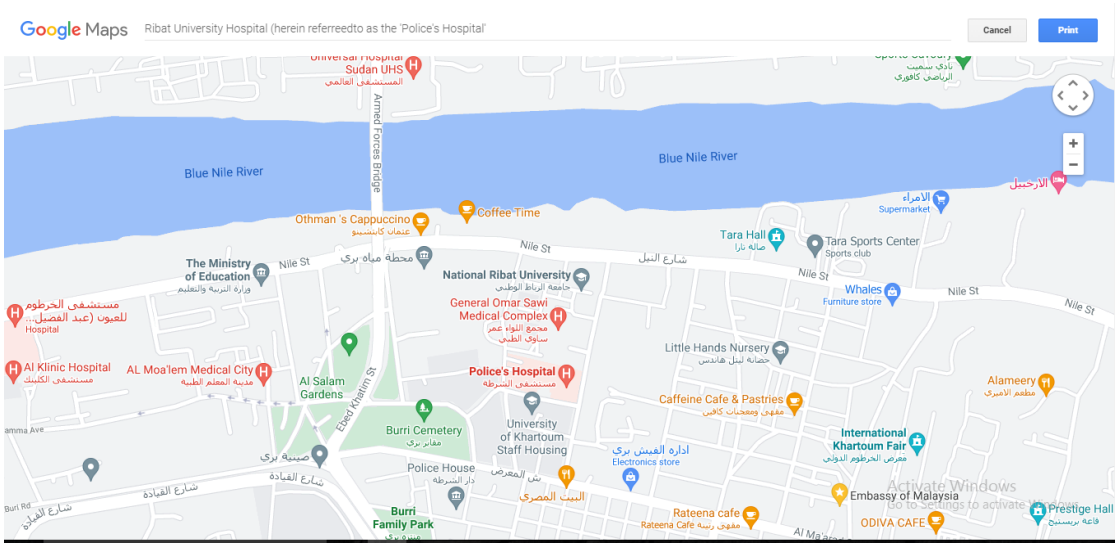
Annexes:

Maps: Location of Ribat University Hospital (RUH), Burri, Khartoum, Khartoum, Sudan



Questionnaire: