PEPTIC ULCERATION AT MUHIMBILI MEDICAL CENTRE

DAR ES SALAAM

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DECLARATION

The author, Paskal August Kwai declares that to the best of his knowledge such work has not been submitted for any degree in any other University.

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SUMMARY (ABSTRACT)

Sixty peptic ulcer patients diagnosed either endoscopically or by barium meal or by both and 60 controls matched for age and sex but without abdominal problem were studied between May 17th and November 22nd 1982. The sources of the patients were the gastroenterology clinic and proximal endoscopy sessions and that for the controls were the medical wards. The study was both descriptive and analytical.

Medical characteristics and psychosocial factor were studied. The information was collected by questionaire and analysed by TRS 80 computer and electronic calculating machine.

In the analytical study the following were the results. The prevalence of peptic ulcer was positively correlated with education, social class, working extra-hours because of benefit derived from it, and death of one of the parents before 16 years. There was however a negative correlation with income, number of friends, contact with confident friends, number of reliable people to turn to in times of difficulty and active religious association. The above were statistically significant at a level of $p < 0.05$. Contrary to popular belief blood group and urbanization did not have any significant correlation.

The descriptive study gave the following results. Most of the patients had duodenal ulcer, duodenal ulcer:gastric ulcer ratio was 12.75:1. There was a presponderance of males over females in

a ratio of approximately 3:1. The mean age was 36 years (35.79 years) with a range of 15 to 72 years.

65.52% of the patients had definite stressful events within six months before the onset of the disease and 31% had positive family history of a similar problem. 61.4% of patients presented with burning abdominal pain followed by 15.79% who only had abdominal discomfort. Most of the pain was felt in the epigastrium followed by umbilical and right hypochondrium (56.9%, 17.25% and 12.07% respectively). Hunger worsened the pain in 80%, in 43% a big meal worsened the pain but a moderate amount of food relieved it, in 4% any amount of food relieved the pain, in 17% food had no effect and in 36% food made the pain worse. Radiation of the pain was inconclusive. 89% had gradual mode of onset and 98% had periodicity. Duration of the pain had a mean of 6.22 years with a range of one week to 30 years. In approximately 50% in each case of malaena or haematemesis there was a positive history.

Vomiting did not occur in 37.93%, had no relationship with pain in 12.07%, relieved pain in 44.83% and aggravated it in 5.17%. 45% of the patients had epigastric tenderness, no tenderness in 36% and the rest forming the remaining percentage. Only 29% had a positive history of ingestion of asprin.

Patients had three follow ups at the gastrointestinal clinic at an interval of three weeks each. The patients were treated

with anti-acid magnesium trisilicate, antispasmodic sedative combination (belladona with phenobarbitone) one tablet of each when they felt pain. They were also advised to avoid alcohol and smoking and to take frequent milk and frequent moderate quantities of none iritant foods. 84% of patients (43 out of 58) who turned up during the first follow up showed subjective satisfactory relief and 93% for those who turned up at all the three follow ups on the third follow up. Satisfactory relief here means some relief to definite relief.

It is recommended that dyspepsia clinic be established in peripheral hospitals and to start with Dar es Salaam and manage patients along the above lines and this will help to enable patients get proper follow up and lessen the time wasted in moving from hospital to the other. A further study is indicated to make an index of score based on the above findings to determine a score that will be used to diagnose peptic ulcer in the majority of our hospitals where we don't have personel and equipment for either barium meals or proximal endoscopies. It is further suggested that since this study touches ~~on the~~ crudely on the management of peptic ulcer, a subject whose known and unknown knowledge is very vast, and further studies are indicated on this. It might prove cheaper to treat patients with definite active duodenal ulcer with cimetidine than the conventional methods being used now if you consider that

the patients will be able to return to his job earlier. But this needs to be studied to arrive at any conclusion.

PART I

INTRODUCTION

1.1. The Significance of Peptic Ulcer.

Peptic ulceration is a disease that has been known for over one and a half century, being first described in 1817 (8). Peptic ulcer has been considered a rare disease in Africans until a few years when a number of authors who looked into this problem came out with different views (3, 4, 5, 6, 34, 35, 46, 50). Kark in 1961 in a study of peptic ulcer in Durban (30) found an incidence of 11.3 per 1000 admissions among the white, 10 per 1000 among the Indians and 0.28 per 1000 among the Africans. This again illustrates the fact that peptic ulceration is rarer in Africans than in the other races studied above.

Other studies have been drawing attention to the increasing importance of peptic ulcer. Grech 1965 (24) in a study done at Muhimbili Hospital, Dar es Salaam, Tanzania remarked that dyspepsia was a common complaint in Africans and it seems if anything it was increasing. He reviewed 733 barium meals carried out during the period 1960 - 1963. 37.5% of these showed radiological abnormality and this figure was almost

similar to a similar study done in 1957 at Glasgow Dempster which gave a figure of 35.5%. In this study by Grech 70.6% of the abnormals were peptic ulcer and that one at Glasgow Dempster the corresponding figure was 78.5%. One can see how closely these figures compare. In 1969 Mhoneli (34) reported 81 cases of duodenal ulcer from Muhimbili Hospital out of 2500 patients admitted in his unit between 1966 and 1967 and therefore this gives an incidence of 32.4 per 1000 admissions during this period. Yet a third study from Muhimbili and most recent is that of Dolmans, Mbaga and Mwakyusa in 1979 (16). They evaluated the first 140 endoscopies (proximal) done at the Gastrointestinal Unit between September 1978 and May 1979. They found that 9.9% of the lesions were duodenal ulcers and 3.6% benign gastric ulcers and these figures can be projected to 99 and 36 per 1000 respectively. The indication for the proximal endoscopies included oesophageal causes such as dysphagia. Possibly if the indication had been clinical diagnosis of peptic ulcer the yield would have been higher. The above studies show that proven peptic ulcer (radiologically or endoscopically) is not a rarity at Muhimbili, Dar es Salaam and that one study shows that it compares to one place (Glasgow Dempster) in Western Europe. Because of peptic ulcer in 1974/75 Britain lost

£4,400,000 of the national economy (5). Can a country like Tanzania afford this?

Another study from Tanzania comes from Corachan 1976 (10) who reviewed 462 radiological studies of upper gastrointestinal tract done between June 1973 and November 1974 at Mwanza. Of these 121 (26%) showed radiological lessions. Duodenal ulcers were 59 which formed 12.7% of all examinations or 48.8 of all radiological lesions. Gastric ulcers were 10 which formed 2.2% of all examinations or 8.3% of all radiological lesions.

Whittaker 1966 (49) at Kenyata National Hospital, Nairobi, Kenya, reviewed radiological examinations of the upper alimentary tract between January 1961 and June 1965 and these were 1,319 barium meals. Duodenal ulcer and deformed duodenal cap formed 24% out of all examinations and gastric ulcer formed 1.8% of all lesions.

Duodenal ulcer is a disease of relatively high morbidity, but of low mortality (5). The symptoms are often severe enough to necessitate absence from work, particularly where hard manual labour is concerned. Consequently the disease has a major effect on the economy. Thus in 1974/75 in Britain the number of working days lost amongst persons with duodenal ulcer was 4.0 million

for men and 0.2 million for women making a total of 4.2 million working days equivalent to £4,400,000 cost to national economy (5). It is obvious that £4,400,000 is a lot of money even for a developed country like Britain. This problem is not peculiar to Britain alone, as it has been shown above, figures from Muhimbili Hospital, Dar es Salaam compared to those of Glasgow Dempster (24).

3 The gravity of this problem can again be seen or appreciated if one looks at figures of patients attended for peptic ulcer like symptoms and what kind of patients get access to Muhimbili Hospital. For example in less than a year, that is to say between September 1978 and May 1979, 140 proximal endoscopies were done at Muhimbili's Gastroenterology Unit and the top on the list of indication for these was epigastric pain (16). It is obvious that Muhimbili being the only centre with endoscopic facilities the demand for it is high. Since the gastroenterologists are consultants in these field, those who underwent the 140 proximal endoscopy must have been a result of very intensive screening. Therefore it is no wonder that the majority were treated symptomatically and consequently the 140 proximal endoscopies reflect a large number of patients referred to Muhimbili. Again this is the feeling I got during my short stay and working together by the gastroenterologists

before beginning this study. Like the above studies this reflects the gravity of this problem. One should not forget those handled by the radiology department and those handled at the Aga Khan Hospital which also has barium meal study facilities and consultancy services.

In Dar es Salaam there are a number of peripheral hospitals and many dispensaries. The patients that get access to Muhimbili Hospital are very few. These are patients referred from the above. These are the ones that have attended various dispensaries, hospitals and traditional healers. Patients have the habit of moving from one medical attendant to another within the same hospital or dispensary and from one hospital or dispensary to another and from one traditional healer to another. Thus these patients take a long time before one medical attendant get acquinted to their problem, and may take several years before being referred for further investigations. One can imagine how many man hours are lost by these patients during this period of moving from dispensary to another and how much money the nation is losing. This is one area where the study is going to address itself by recommending a way of handling these patients.

1.2. Clinical aspects.

Although the cause of duodenal ulcer is not known, a simple concept is to consider it in the result of a periodic imbalance between "attacking" and "defending" forces in the proximal duodenum (5). The aggressive components consist of gastric acid, pepsin and possibly bile (3,5). The defending forces are believed to consist of the layer of mucous which covers the gastro-intestinal mucosa and the innate resistance of the duodenal mucosa itself (the mucosal barrier). These two opposing forces are usually thought to be in balance. In duodenal ulcer disease the balance can be affected by several factors such as environment, heredity and drugs (5, 17). In the West peptic ulcer incidence is falling (5, 8, 46). The changing pattern has suggested some ulcer producing factor was prevalent in the early part of this century and is now slowly disappearing. The nature of this hypothetical factor remains unknown; but one of the possibilities suggested was increasing urbanization of the population seen in the early part of this century (5, 46).

1.2.1. Hereditry.

Defence mechanisms are poorly understood and therefore little is known about the differences in defence capacity to acid and pepsin secretion amongst patients with and without a family history of duodenal ulcer. Another approach has been to study levels of pepsinogen in blood and urine. Pepsinogen is secreted into the gastric lumen by peptic cells, but some is secreted into the blood and then excreted in urine. The urine and blood levels therefore provide an indirect index of the secretory potential of the stomach. High levels of serum pepsinogen appear to be associated with a significantly increased risk of duodenal ulceration. Also the pattern of excretion of urinary pepsinogen is genetically determined, some individuals excreting four types (phenotypes B) while others excrete five (phenotype A). The frequency of finding pepsinogen phenotype A is increased in patients with duodenal ulcer (5). An association has been reported between HLA and duodenal ulcer (18). There is also a familial aggregation being three times more common in first degree relatives than controls (25), and duodenal ulcer is more common among monozygons twins than dizygons (5, 22). Duodenal ulcer patients can be divided into two groups according to the rate of gastric emptying. Ojiambo (1965) studying 60 patients at Kenyata National Hospital, Nairobi, Kenya (35) found that 66.7% were group O,

16% group A, 8% group B and 5% group AB and 4.3% not grouped. These figures are similar to those found by Grech 1965 (24) at Muhimbili. Other authors have pointed out association of blood group O and peptic ulcer (5, 25, 43, 48).

1.3. Personal habits.

1.3.1. Diet.

In a given community there are people with increased susceptibility to duodenal ulceration. The absence or presence of protective factors in the diet may determine whether or not they develop actual ulceration (28, 29, 47). The most likely environmental factor which would account for variations in the incidence of duodenal ulcer throughout the world is diet (5). Nhonoli (1969) and Corachan (1976) found higher prevalences in Wahaya and Wachagga tribes in Tanzania, whose staple food is cooked bananas (plantain) (10, 34). It has been suggested that the increasing refinement of food, with its progressive higher carbohydrate content which usually accompanies urbanization is usually associated with higher prevalence of duodenal ulcer. However, lack of fibre in the diet does not appear to be a factor, bran is not a good buffer and on the contrary stimulates acid secretion (5).

1.3.2. Coffee drinking, cola type drinks and milk

In an extensive study done in America it was noted that (5,37) drinking coffee and cola type drinks during college period was associated with greater risk of subsequently developing ulcer. On the other hand tea had no effect and milk appeared to reduce the risk. Some other authors (8, 20, 46) have found the relationship between coffee drinking and peptic ulceration not strong.

1.3.3. Alcohol.

The facts concerning alcohol are still contradictory. For example Ojiambo (1965) found an association with alcohol (35). Alcohol has always been suspected, but there is no evidence that it is associated with a higher incidence of duodenal ulcer and the association is mainly based on the supposed frequency of ulcer disease in patients with alcoholic hepatic cirrhosis and an association with acute gastrointestinal haemmorrhage (1, 5, 8, 24).

1.3.4. Smoking.

Smoking has been associated with peptic ulceration, the relationship being stronger for gastric than duodenal ulcer (8, 9, 13, 20, 36, 43). Abstinence from smoking has been found as one of the factors associated with ulcer healing. Grech

1965 (24) at Muhimbili found no association between smoking and duodenal ulceration.

1.3.5. Asprin.

Asprin has been found to have a positive correlation with gastric ulcer (5, 11, 17, 35).

1.4. The Psyche

The relationship between the psyche and upper gastro-intestinal tract is well known (5, 7, 22, 35, 38, 46). One hundred and forty five years ago William Beamont gave a now classical account of the gastric mucosa and gastric secretion of his patient, Alexis St. Martin who had a gastric fistula following a gunshot wound. Emotion was found to affect gastric secretion, motility and blood flow. In recent years gastric secretion has been shown to alter under the influence of emotion and hyponosis and by bio-feedback (5). The very close linkage between brain and gastro-intestinal tract via the vagus nerve makes it inevitable that the psyche must have an influence on the gastrointestinal physiology (27). The theory of a psychosomatic basis for the development of duodenal ulcer postulates that ulcer patients suffer from a long period of psychic stress which make them ulcer prone either by increasing the attacking factors

or by reducing the mucosal defenses (5, 19). The final event is often associated with changes in responsibility, security or ~~in~~ independence. However, as such emotional stress effects a large number of people of whom only a minority develop an ulcer, it is pressumed that other factor are involved. Therefore whilst accepting that the mind plays a significant part in the development of duodenal ulcer its quantitative importance still remains unknown.

The hypothesis of ulcer personality is still controversial. Type A personality that is driving, intense, ambitions, unrelaxed individuals has been acused, but no consistent data has emerged in support of this for example Thomas, Greig, and Piper, refuted any link between personality and chronic gastric ulceration (8, 36, 45). The basic abnormality is thought to arise in the potential patient who has a child like dependancy that is found to be in conflict with the realities of life. This can be seen in the seemingly independent and successful person as well as those who are apparently ineffective and introspective. Such hypotheses are difficult to investigate, but one study of young soldiers predicted with a high degree of accuracy the likelihood of their developing an ulcer on psychological testing alone (5, 32). Berkman and Syme (7) looking at four sources of social relationships (marriage, contact with close friends/relatives, church membership and formal/informal

group associations) found that in each instance people with social ties and relationship had lower mortality rates than people without such ties. Each of the four sources was found to predict mortality independently of the other three, the more intimate ties of marriage and contact with friends and relatives were stronger predictors than were the ties of church and group membership. Sawrey and Sawrey 1966, Stein, Winokur, Eistein, Taylor and Sly, (1960) (39, 42) demonstrated in rats that the vulnerability to ulcer increases when a stress is faced by an animal alone rather than in a group. Corachan 1976 (10) in his study at Mwanza incriminates stress as factor in ulcer formation and believes that even in traditional African culture anxiety is present. Such factors as ancestors, ghosts and spirits participate in the daily explanation of source of pain, disease or trouble. Climate is responsible for the vicissitudes of crop production.

Ojiambo 1966 (35) in Nairobi illustrates this with a patient he had. Nhonoli 1969 (34) at Muhimbili in Dar es Salaam found that all the social classes were affected but he didn't give any figures for this. Stahel, Gyr and Heitz 1981 (40) in a controlled study done in Liberia found that this belonged to the high social economic class including teachers, supervisors and drivers. Grech 1965 (24) at

Muhimbili, Dar es Salaam found a high incidence among city dwellers, but no social stratum was exempted. It was found in the sophisticated and recently promoted executives and apparently carefree farm workers who never left their village. A particularly high incidence occurred among prison wardens, police and "askaris".

1.5. Age.

Nhonoli 1969 (34) at Dar es Salaam found that 77% were in the age group 20 - 29 years with a mean of 29 years. Grech 1965 (24) also at Dar es Salaam found a maximum age incidence of 26 - 30 years. Ojiambo 1965 (35) in Nairobi found a range of 3 months to 70 years with a peak incidence of 36 years.

1.6. Gastric to duodenal ulcer ratio

At Muhimbili, Dar es Salaam, Grech 1965 (24) found a ratio of 1:13. Nhonoli 1969 (34) had a ratio of 1:5. Dolmans, Mbaga and Mwakyusa and Mwanukuzi 1979 (15) found a ratio of 18:1 by radiology and 4.5:1 by endoscopy (here duodenal cap deformities are included in the group of duodenal ulcers), again in 1979 (16) they found a ratio of 1:5. Corachan 1976 at Mwanza (10) found a ratio of 1:6. Whittaker at Kenyata National Hospital Nairobi 1966 (49) found a ratio of 1:12. Kark 1961 at Durban, South Africa (30) found a ratio of 3.4:1 in Whites, 3.5:1 in Africans

and 4.6:1 in Indians.

1.7. Male:Female ratio.

At Dar es Salaam, Muhimbili Grech 1965 (24) found a ratio of Male:Female 9:5 for gastric ulcers, and 13:1 for duodenal ulcer and overall male:female ratio of 10:1. Nhonoli 1965 (34) found a ratio of 4.8:1. Corachan at Mwanza 1976 (10) found for the duodenal ulcers male:female ratio of 3.5:1 and gastric ulcers 1.5:1. Kark at Durban 1969 (30) found the following ratio for duodenal ulcers male:female 3.6:1 for Whites, 6.8:1 for Africans and 7:1 for Indians. And for gastric ulcers he found only one woman in Africans, 1.8:1 in whites and 11.9:1 in Indians.

1.8. Symptomatology and signs.

Nhonoli at Muhimbili, Dar es Salaam 1965 (34) in his 81 patients of duodenal ulcer found that all complained of abdominal pain above the umbilical line. 86% had epigastric pain and 15% pain in the right hypochondrium. A small number had pain in both areas. A further proportion felt pain just above the umbilicus. Still fewer felt it in the left hypochondrium or one or other of the lumbar region. In 52% there was a definite relationship between the occurrence of pain and the taking of food. In 52% there was periodicity of attacks with relatively free periods between attacks. In 35% there was nausea, vomiting or both.

In 10% pain radiated to the back, and in a similar percentage heartburn and haematemesis. The duration of symptoms varied from three months to 25 years. There was epigastric tenderness in 79% alone or in combination with epigastric tenderness. In 14% there was upper umbilical. Seven per cent had right hypochondral pain alone or in combination with either of the other two sides.

1.9. Purpose and objectives of the study.

It has been shown that peptic ulcer is a disease that needs the attention of medical personnel. Its incidence in Muhimbili Hospital Dar es Salaam, Tanzania has been found to be comperable to that of a place in Western Europe (24) where for example in Great Britain it is responsible for loss of £4,400,000 (5) to the national economy. From this, one can conclude that it is likely also that this disease is costing Tanzania a substantial a amount of loss to the national economy.

Much is known about the disease from other countries. But it has been found out that there is a great variation in the course of duodenal ulcer disease, what applies to patients in Central Europe doesn't necessarily apply to patients in Scotland or Scandinavia (2, 21, 43, 46). Therefore what applies elsewhere does not necessarily apply to Tanzania. A few studies about peptic ulceration have been done in Tanzania but none has been

done specifically to look at its aetiological and clinical features. Furthermore there hasn't been a single case control study.

The purpose of this study is to investigate the psychosocial and medical characteristics of peptic ulceration at Muhimbili Medical Centre.

The objectives therefore are to:-

(a) Find out the clinical presentation of peptic ulcer at Muhimbili Medical Centre, Dar es Salaam.

(b) Find out statistically significant psychosocial factors that are diagnostically useful.

(c) Recommend a simple (workable) protocol of handling peptic ulcer patients in Dar es Salaam.

PART II

PATIENTS, MATERIALS AND METHODS

The study was both analytical (case controlled study) and descriptive. Questionnaires were filled by the author which were analysed. Also the registers for proximal endoscopies in the Gastroenterology Unit and barium meals in the Radiology department were analysed. There were 60 patients and 60 controls.

2.1. Patients and Controls

2.1.1. Patients.

Patients were obtained from Gastroenterology Clinic run once per week and from the proximal endoscopy sessions run twice per week. The Gastroenterology Clinic serves the patients referred to it from the general medical outpatients because of gastroenterology problems and follow up of those with chronic gastro-enterological diseases such as peptic ulcers. The proximal endoscopy sessions examined patients with upper gastro-intestinal problems. These are patients screened from the Gastroenterology Clinic and referrals from the other wards from all over the hospital. The indications vary from acute haematemesis, epigastric pain, clinical peptic ulcer to dysphagia.

The period was between May 17th and November 22nd 1982. The patients who attended gastrointestinal clinic during this period as new cases or follow ups who had proven peptic ulcer by gastroscopy or barium meal were entered in the study. The author attended all proximal endoscopy sessions during this period and patients who were found to have duodenal ulcers (included here are deformities of the duodenal cap) and gastric ulcers were entered in the study. All these patients were followed up at the gastroenterology clinic by the author during this period.

2.1.2. Controls.

Controls were selected from patients admitted in the general medical wards. There is a male and a female admitting ward everyday. The admitting wards were taken for selecting the controls. Systematic sampling was carried out beginning with the first admitted. The control was matched for age and sex as the patient, was therefore given the same study registration number as the patient. The controls and patients were differentiated from each other by coding the patient as one and the control as two. The controls also had to be fully conscious and mentally well (to enable them answer the questions in the questionnaire correctly). An abdominal or any gastro-intestinal tract problem was a contra-indication for any one to be a control.

2.2. The Questionaires.

Questionaires were used. The first questionaire (Apendix I) was a detailed one and the second one was adopted for analysis and for use in computer (Appendix 2).

The first questionaire was a detailed one which combined both close and open ended questions. This had six sections namely; personal data, medical history, physical examination, investigations, treatment and disposal and the sixth is follow up. It was designed to investigate psycho-social and medical characteristics. There were thirteen psycho-social factors to investigate that is education, social economic status, occupation, circumstances of early childhood, conflict between independence and dependance, marriage, rural/urban life, social economic cultural change, social ties, ability to control environment, alcohol, smoking and lastly any other stress. The factors were labelled "a" to "m" and there were 71 questions framed in both Swahili and English.

Questions to explore each of the 13 factors were scattered throughout the 71 questions without following chronological order for the purpose of avoiding asking the subject many questions concerning the same factor consecutively. Also some questions exploring the same variable/factor were rephrased to check the consistency of the answers. For example there were questions

1.a., 2.a., 3.a., 4.a., 5.a., 6.b., 7.c., 8.c., 9.a., and 10a. Factor "a" stands for education, "b" for social economic status and "c" for occupation. From the above it follows that questions 1 - 5 dealt with education 6 with social economic status, 7 to 8 with occupation and again 9 to 10 with education. The above shows how questions dealing with each factor are scattered throughout the 71 questions on psychosocial factors, (see appendix 1 on Psychosocial history section). The questions on psycho-social history are clearly phrased in both Swahili and English so that each question would be asked in the same way to each subject. This is because psycho-social factors are difficult to investigate and you may get different answers to the same question asked differently. The detailed questionaire is appended (appendix I). These questionaires were filled by the author for both the patients and the controls. Only the relevant sections were filled for the controls for example the medical history for peptic ulcer was not relevant for the controls. The signs and symptoms that were recorded were those which the patient presented with when he/she was first seen by the Gastroenterologist at Muhimbili for those patients picked from the Gastroenterology clinic. For those patients picked from the endoscopy sessions the signs and symptoms

were mostly those of that particular day. All patients were given magnesium trisilicate tablets, tablet belladona with phenoborbitone to be taken when necessary (PRN), advised to stop alcohol, smoking and to take milk and frequent moderate quantities of none irritant foods. Rest was advised during the acute phases. Follow up was done at three weeks interval for three consecutive times and progress recorded subjectively as "got worse", condition remained the"same", "some relief", "definite relief" or "cured".

A second questionaire was used, and this one was adapted for analysis and for use in computer. This is appended as Appendix 2. This consisted of 53 variables. It can be seen that this had far fewer variables and sections compared to questionaire 1. The variables that were found difficult to investigate or whose responses contradicted each other when the same question was asked differently at different intervals were dropped out in the second questionaire. For example it was very difficult to investigate the ability to predict and control environment or conflict between independency and dependency. As already stated this questionaire had 53 questions, all of them close ended and the first 28 questions were mainly on psychosocial history and these were filled for both the patients and controls. These constituted the analytical part of the

study. The remaining 25 questions were filled for the patients and constituted the descriptive study.

The first 28 questions which constituted the analytical study investigated sex, age, education, occupation, social economic class, social ties, alcohol, blood group, smoking, height, weight and some stressful factors. The remaining 25 questions forming the descriptive study investigated the medical characteristics of peptic ulcer of patients and their subjective feeling on the three follow ups. Change from rural to urban and vice versa was also investigated.

The data for this form was extracted from questionaire 1 (Appendix 1). Most of the data was processed by computer IBM 80 and by using electronic calculator. There were 60 patients and 60 controls. Chi-squared and consequently statistical significance were calculated for most of the 28 variables in the analytical study. Those subjects who fell under "not concerned" in questionaire 2 (Appendix 2) were not included in the calculation of chi-squared.

PART III

RESULTS

The study is in two parts. One part is analytical and the other one is descriptive. The analytical study results are presented first.

3.1. Analytical study results

These are presented in three sections. The first one shows the details of the results and their tables. Section two and three are summaries. Section two summarized those variables that have statistically significant differences in the prevalence of peptic ulcer between the patients and the controls; and section three shows those variables whose differences are not statistically significant.

3.1.1. Details of results together with their tables.

(a) Abreviations used below in this section:

x^2 = chi-squared.

D.O.F. = Degree of Freedom.

p = p value for statistical significance; <0.05 will be taken as statistically significant.

(b) Where the column shows a total of less than 60 it is because the responses to these variables were found missing during analysis of the data because either the author forgot to ask the question or forgot to enter the response in the questionaire.

TABLE I

EDUCATIONAL LEVELS OF THE 60 PEPTIC ULCER PATIENTS AND THEIR 60 CONTROLS

EDUCATION	NO. OF PATIENTS	PERCENTAGE	NO. OF CONTROL	PERCENTAG
No Education	12	20	28	46.67
Adult Education	3	5	7	11.67
Primary Education	23	38.33	16	26.66
Secondary and University	22	36.67	9	15.0
TOTAL	60	100	60	100

$x^2 = 15.72$

D.O.F. = 3

$0.010 > p > 0.001$

(This is statistically significant)

TABLE 2

INCOME PER MONTH OF 60 PEPTIC ULCER PATIENTS AND THEIR 59 CONTROLS AND THAT OF THEIR SPOUSE IF MARRIED.

N.B. Another table for this is presented below where the variables are grouped for calculation.

INCOME (SHS.	NO. OF PATIENTS	PERCENTAGE	NO. OF CONTROLS	PERCENTAGE
0 - 600	5	8.33	14	23.73
601 - 1000	9	15.00	14	23.73
1001 - 2000	14	23.33	8	13.56
2001 - 3000	6	10.00	2	3.39
3001 - 4000	2	3.3	2	3.39
4001 - 7000	3	5.0	1	1.7
More than 7000	3	5.0	1	1.7
Not Concerned	18	30.00	17	28.82
TOTAL	60	100.00	59	100.00

Variables grouped for x^2 calculation.

INCOME (SHS./MONTH)	NUMBER OF PATIENTS	NUMBER OF CONTROLS
0 - 1000	14	28
1001 - 2000	14	8
Above 2000	16	8
TOTAL	44	44

N.B. The number of patients and controls falling under "not concerned" are excluded.

x^2 = 8.96 D.O.F. = 2

0.010 p 0.025 (Statistically significance result).

TABLE 3

POSSESSION OF DEPENDANTS FOR THE 60 PEPTIC ULCER PATIENTS AND 60 CONTROLS

DEPENDANTS	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Has Dependants	28	46.67	26	43.33
Has no Dependants	32	53.33	34	56.67
TOTAL	60	100.00	60	100.00

x^2 = 0.14 D.O.F. = 1

$0.500 < p < 0.750$ (Not statistically significant result)

TABLE 4

TYPES OF DEPENDANTS POSSESSED BY THE PATIENTS AND CONTROLS

N.B. (a) 28 patients have dependants and 32 not.

(b) 26 controls have dependants and 34 not.

(c) The 28 number of patients and 26 controls when divided over different types of controls become too small for any accurate statistical significance calculation.

TYPE OF DEPENDANTS	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Wife/husband and children	12	20	12	20
Wife/husband, children and parents	5	8.33	4	6.67
Wife/husband, children, parents brothers & sisters	6	10	5	8.33
Others	5	8.33	5	8.33
Have no dependants	32	53.34	34	56.67
TOTAL	60	100.00	60	100.00

TABLE 5

OCCUPATIONS OF THE 60 PATIENTS OF PEPTIC ULCER AND 60 CONTROLS

N.B. Another table is presented below where the variables are grouped for significant test calculation.

OCCUPATION	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Employee	26	43.33	19	31.67
Bussinessmen	11	18.33	10	16.67
Peasant	7	11.67	11	18.33
Student	8	13.33	10	16.67
Housewife only	2	3.33	4	6.67
Not engaged in anything specific	4	6.67	2	3.33
Others e.g. prisoner etc.	2	3.33	4	6.67
TOTAL	60	100.00	60	100.00

Variables grouped for statistical significant calculation

OCCUPATION	NUMBER OF PATIENTS	NUMBER OF CONTROLS
Bussinessman	11	10
Peasant	26	19
Employee	7	11
Housewives only, not engaged in anything specific and others e.g. prisoners	16	20
TOTAL	60	60

D.O.F. = 3

x^2 = 2.44

$0.250 < p < 0.500$ (Not statistically significant)

TABLE 6

SOCIAL CLASS

Social Class I: Higher professionals/politicians of higher offices, high level managerial staff, big bussinessmen. Examples of people included here are architects, engineers, district commisioners etc.

Social Class II: Lower proffessionals - teachers, small bussinessmen, politicians of lower offices.

Social Class III: Skilled and clerical workers e.g. Clerks, foremen etc.

Social Class IV: Semi-skilled workers e.g. machine operators.

Social Class V: Unskilled workers e.g. domestic servants, labourers, casual workers, peasants.

SOCIAL CLASSES OF THE 60 PEPTIC ULCER PATIENTS AND 60 CONTROLS

N.B. Other two tables below are grouped for statistical testing calculations.

SOCIAL CLASS	NO. OF PATIENT	PERCENTAGE	NO. OF CONTROLS	PERCENTAGE
I	5	8.33	1	1.67
II	1	6.67	2	3.33
III	15	25.	8	13.33
IV	11	18.33	9	15.00
V	11	21.67	24	36.67
Not Concerned	17	25	16	30.00
TOTAL	60	100.00	60	100.00

Variables grouped for statistical significant testing

(Those "not concerned" excluded).

SOCIAL CLASS	NUMBER OF PATIENTS	NUMBER OF CONTROLS
I & II	6	3
III & IV	26	17
V	11	24
TOTAL	43	44

D.O.F. = 2 x^2 = 7.72

0.001 p 0.01 (Statistically significant result)

SOCIAL CLASS	NUMBER OF PATIENTS	NUMBER OF CONTROLS
I, II, III, IV	32	20
V	11	24
TOTAL	43	44

D.O.F. = 1 x^2 = 7.59

$0.001 < p < 0.010$ (Statistically significant result)

TABLE 7

JOB SATISFACTION FOR THE 60 PATIENTS AND 58 CONTROLS

SATISFACTION	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Fully	29	48.34	34	58.62
Partially	8	13.33	4	6.9
Not satisfied	6	10	2	3.45
Not Concerned	17	28.33	18	31.03
TOTAL	60	100	58	100

Groupings done for statistical significance testing (excluding those falling under not concerned) calculation.

SATISFACTION	NUMBER OF PATIENTS	NUMBER OF CONTROLS
Fully and partially satisfied	37	38
Not satisfied	6	2
TOTAL	43	40

n. = 1 . x^2 = 2.01

0.100 p 0.250 (Not significant)

SATISFACTION	NUMBER OF PATIENTS	NUMBER OF CONTROLS
Full Satisfied	29	34
Partially satisfied or not satisfied	14	6
TOTAL	43	40

D.O.F. = 1 x^2 = 3.42 $0.050 < p < 0.100$ (Not significant)

TABLE 8

TABLE TO SHOW NUMBER OF PATIENTS WITH PEPTIC ULCER AND CONTROLS WORKING OR NOT WORKING EXTRA HOURS.

N.B. 1. Total number of patients 60 and controls 60.

2. Those falling under "not concerned" are not included in the calculation of x^2

WORKING EXTRA HOURS	NO. OF PATIENTS	PERCENTAGE	NO. OF CONTROLS	PERCENTAGE
Yes	36	60	29	48.83
No	17	28.33	22	36.67
Not Concerned	7	11.69	9	15
TOTAL	60	100	60	100

x^2 = 1.35

D.O.F. = 1

$0.100 < p < 0.250$ (not significant).

TABLE 9

REASONS FOR WORKING MORE HOURS (EXTRA-HOURS) FOR THE 60 PATIENTS AND 60 CONTROLS.

1. Overtime payment.
2. Too much work but no overtime payment.
3. It's the patients or controls personal job, therefore the more he works the better.
4. Not Concerned.

REASON	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
1	9	15	10	11.6
2	21	35	9	15
3	6	10	10	16.7
4	24	40	31	51.7
TOTAL	60	100	60	100

Grouping for x^2 calculation

REASON	NUMBER OF PATIENTS	NUMBER OF CONTROLS
1 & 3	15	20
2	21	9
TOTAL	36	29

$x^2 = 4.69$ D.O.F. = 1

$0.025 < p < 0.050$ (Statistically significant result)

(Those under "not concerned excluded)

TABLE 10

PROBLEM IN RUNNING BUSSINESS IN THE 59 PEPTIC ULCER PATIENTS AND 60 CONTROLS

PROBLEM	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Yes	1	1.69	1	1.7
No	10	16.95	9	15.0
Has no bussiness	48	81.36	50	83.3
TOTAL	59	100.00	60	100.0

x^2 was not calculated because most of the patients had no bussinesses and for those with bussinesses (who were 11 for patients and 10 for controls) only one in each case had a problem.

TABLE 11

PROBLEMS ENCOUNTERED DURING EDUCATIONAL PERIOD IN THE 60 PEPTIC ULCER PATIENTS AND 60 CONTROLS

PROBLEM	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Yes	6	10	1	1.67
No.	39	65	24	40
No education or only adult education	15	25	35	58.33
TOTAL	60	100	60	100

Grouping for x^2 calculation.

PROBLEM	NUMBER OF PATIENTS	NUMBER OF CONTROLS
Yes	6	1
No	39	24
TOTAL	45	25

Those with no education are not included in the calculation of x^2.

$x^2 = 1.10$ D.O.F. = 1

$0.25 < p < 0.500$ (Not significant)

TABLE 12

DEATH OF ANY ONE'S PARENT BEFORE 16 YEARS OF ANY OF THE 59 PATIENTS AND 60 CONTROLS.

DEATH OF PARENT	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Yes	10	15.25	3	5.17
No	49	84.7	55	94.83
TOTAL	59	100	58	100

x^2 = 1. D.O.F. = 1

$0.025 < p < 0.05$ (Statistically significant result)

TABLE 13

TABLE TO SHOW WHETHER THE 60 PATIENTS AND THEIR 59 CONTROLS WERE DOING THE JOB OR TRAINING THEY WERE ASPIRING SINCE CHILDHOOD.

	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Yes	11	18.3	6	10.2
No	26	43.3	18	30.5
Not Concerned	23	38.3	35	59.3
TOTAL	60	100	59	100

x^2 (those falling under not concerned not included in the calculation) = 0.24 D.O.F. = 1 $0.500 < p < 0.750$

(Not statistically significant)

TABLE 14

MARITAL STATUS OF THE 60 PATIENTS AND 59 CONTROLS

MARITAL STATUS	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Married	33	55	31	52.53
Single	24	40	23	38.98
Divorced or widowed	3	5	5	8.48
TOTAL	60	100	59	100

$x^2 = 4.88$ D.O.F. = 2

$0.050 < p < 0.100$ (Not statistically significant)

TABLE 15

PRESENCE OR ABSENCE OF MARITAL PROBLEMS IN THE 33 MARRIED PATIENTS AND 31 CONTROLS

PROBLEM	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
No	31	93.99	27	87.1
Small	0	0	4	12.9
Big	2	60.06	0	0
TOTAL	33	100	31	100

$x^2 = 0.87$ D.O.F. 0.

$0.250 < p < 0.500$ (Not statistically significant).

TABLE 16

CONTACT WITH AT LEAST ONE OF THEIR BEST FRIENDS AT LEAST ONCE PER WEEK FOR THE 59 PATIENTS AND 60 CONTROLS

CONTACT	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Yes	32	54.24	54	90
No	27	45.76	6	10
TOTAL	59	100	60	100

D.O.F. = 1 x^2 = 14.13

$p < 0.001$ (Statistically significant)

TABLE 17

RELATIVE NUMBER OF FRIENDS OF 59 PATIENTS AND 60 CONTROLS

FRINDS	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Few	27	45.76	10	16.67
Average Number	18	30.51	14	23.33
Many	14	23.73	36	60
TOTAL	59	100	60	100

D.O.F. = 2 $x^2 = 18.03$ $p < 0.001$ (statistically significant).

TABLE 18

NUMBER OF RELIABLE PEOPLE TO TURN TO IN TIMES OF DIFFICULT

59 PATIENTS AND 60 CONTROLS

NUMBER	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PARCENTAGE
One or two	45	76.27	37	61.7
Several	13	22.03	23	38.3
None	1	1.69	0	0.6
TOTAL	59	100	60	100

D.O.F. = 2 $x^2 = 8.38$ $0.010 < P < 0.025$ (Statistically significant)

TABLE 19

ACTIVE RELIGIOUS ASSOCIATION OF THE 59 PEPTIC ULCER PATIENTS

AND 60 CONTROLS

RELIGIOUS ASSOCIATION	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Yes	27	48.8	40	66.7
No	32	54.2	20	33.3
TOTAL	59	100	60	100

D.O.F. = 1 $x^2 = 5.29$

$0.010 < p < 0.025$ (Statistically significant result)

TABLE 20

ALCOHOLIC HABITS OF THE 60 PATIENTS AND 60 CONTROLS

ALCOHOL	NO. OF PATIENTS	PERCENTAGE	NO. OF CONTROLS	PERCENTAGE
Drinks	9	15	17	28.3
Was drinking	20	23.3	8	13.3
Has never touched alcohol	31	51.7	35	58.3
TOTAL	60	100	60	100

Variables grouped for x^2 calculation

ALCOHOL	NUMBER OF PATIENTS	NUMBER OF CONTROLS
Drinks and was drinking	29	25
Has never drunk	31	35
TOTAL	60	60

D.O.F. = 1 $\qquad x^2 = 0.54$

$0.250 < p < 0.500$ (Not statistically significant result)

TABLE 21

SMOKING HABITS OF THE 60 PATIENTS AND 60 CONTROLS

SMOKING	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF PATIENTS	PERCENTAGE
Smokes	4	6.7	8	13.3
Was Smoking	21	35	14	23.3
Has never smoked	35	58.3	38	63.4
TOTAL	60	100	60	100

Variables grouped for x^2 calculation.

SMOKING	NUMBER OF PATIENTS	NUMBER OF CONTROLS
Smoking and was smoking	25	22
Never smoked	35	38
TOTAL	60	60

D.O.F. = 1 x^2 = 0.3

$0.075 < p < 0.900$ (Result not statistically significant)

TABLE 22

BLOOD GROUPS OF THE 60 PATIENTS AND 60 CONTROLS

BLOOD GROUP	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
A	15	25	16	26.67
B	6	10	7	11.67
AB	2	3.33	4	6.66
O	34	56.67	33	55
Not determined	3	5	0	0
TOTAL	60	100	60	100

Table used for x^2 calculation

BLOOD GROUPS	NUMBER OF PATIENTS	NUMBER OF CONTROLS
A	15	16
B	6	7
AB	2	4
O	34	33
TOTAL	57	60

D.O.F. = 3 $\quad x^2 = 1.104$

$0.750 < p < 0.900$ (the result is not statistically significant)

TABLE 23

MEAN HEIGHTS AND WEIGHTS (INCLUDING STANDARD DEVIATION) FOR THE 60 PEPTIC ULCER PATIENTS AND 60 CONTROLS

Mean, standard deviation and range	PATIENTS	CONTROLS
Height (Mean)	163.68 cm.	162.44 cm.
Height (Standard deviation)	7.74 cm.	17.6 cm.
Weight (mean	55.64 Kg.	54.10 kg.
Weight (standard deviation)	9.05 Kg.	11.58 Kgs.

(a) There are no significant differences in mean height or mean weight between patients and controls.

(b) The mean weight in relation to mean height for both groups (patients and controls) was within the "Desirable weights of Adults according to height and frame" (12, 41).

TABLE 24

RESIDENCE: WHETHER URBAN OR RURAL FOR 59 PEPTIC ULCER PATIENTS AND 58 CONTROLS

PLACE	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF CONTROLS	PERCENTAGE
Urban	43	72.88	46	79.31
Rural	16	27.12	12	20.69
TOTAL	59	100.00	58	100.00

D.O.F. = 1 $x^2 = 2.1$ $0.100 < p < 0.250$ (Not a statistically significant result)

N.B. (a) The patients should have resided there at least for six months before the onset of the disease and the controls at least six months before being interviewed by the authour.

(b) The data is derived directly from questionaire one question 59 (appendix 1).

3.1.2. Variables showing statistically significant differences between the patients and the controls.

(i) Education: there is association between more education and higher prevalence of peptic ulcer.

(ii) Income: higher income has a less association with peptic ulcer disease.

(iii) Social class: Higher social economic class has relatively higher chances of developing peptic ulcer.

(iv) Working extra hours because of too much work but not because of overtime payment or because of benefit derived from it because it is someone's personal job: This was associated with a risk of higher prevalence of peptic ulcer.

(v) Death of one of the parents before 16 years: This is associated with a higher prevalence of peptic ulcer.

(vi) Contact with at least one of the best friends at least once per week: This is associated with a less prevalence of peptic ulcer.

(vii) Friends: The more friends one has the less likely to develop peptic ulcer.

(viii) Number of reliable people (confidances) to turn to in times of difficulties: The more of these one has, the less likely to develop peptic ulcers.

(ix) Active religious association: Active religious association is related to low prevalence of peptic ulcer.

3.1.3. Variables showing no statistically significant differences between prevalence of peptic ulcer in patients and controls

The variables listed below fall under this category.

(i) State of having or not having dependants.

(ii) Type of dependants.

(iii) Occupation.

(iv) Job: Statisfaction or no satisfaction.

(v) Working or not working extra hours. This should not be confused with (iv) in 3.1.1. where this variable shows the reason of working extra hours.

(vi) Problems during education.

(vii) Whether doing or training for the job aspired for since childhood.

(viii) Marital status.

(ix) Marital problems.

(x) Alcohol.

(xi) Smoking

(xii) Blood grouping

(xiii) Residence: whether urban or rural.

3.2. Descriptive study results.

Only 58 proven peptic ulcer patients were entered into this part of the study for analysis. The tables were obtained using a TRS 80 computer. Where the total number of patients for a certain variable is less than 58 the author either accidentally forgot to ask the particular question or forgot to record it.

The results are given in two sections. Section one gives the details of the results in Frequency Tables form and section two gives a summary of results.

3.2.1. Details of results in Frequency table form.

TABLE 25

TABLE TO SHOW PATIENTS WHOSE PEPTIC ULCER STARTED OR DIDN'T STARTED WITHIN SIX MONTHS OF CHANGING FROM RURAL TO URBAN IN 57 PEPTIC ULCER PATIENTS.

	NUMBER OF PATIENTS	PERCENTAGE
Started within six months	1	1.75
Didn't start within six months	56	98.25
TOTAL	57	100.00

Patients whose disease started or didn't start within six months of changing from urban to rural.

	NUMBER OF PATIENTS	PERCENTAGE
Started within six months	0	0
Didn't start within six months	57	100
TOTAL	57	100

TABLE 26

DEFINITE STRESSFUL EVENT WITHIN SIX MONTHS PRIOR TO THE ONSET OF PEPTIC ULCER IN 58 PATIENTS

STRESSFUL EVENT	NUMBER OF PATIENTS	PERCENTAGE
Yes	20	34.48
No	28	65.52
TOTAL	58	100.00

TABLE 27

FAMILY HISTORY OF A SIMILAR PROBLEM IN 58 PEPTIC ULCER PATIENTS

FAMILY HISTORY	NUMBER OF PATIENTS	PERCENTAGE
Yes	18	31.03
No	40	68.97
TOTAL	58	100.00

TABLE 28

TYPE OF ABDOMINAL PAIN IN 57 PATIENTS WITH PEPTIC ULCER

TYPE OF PAIN	NUMBER OF PATIENTS	PERCENTAGE
Abdominal disconfort	9	15.79
Burning type of pain	35	61.40
Cripping type of pain	7	12.28
Cutting type of pain	4	7.02
Other	2	3.51
TOTAL	57	100.00

TABLE 29

DURATION OF PAIN IN YEARS IN 56 PATIENTS WITH PEPTIC ULCER

YEARS	NUMBER OF PATIENTS	PERCENTAGE
0 - 4	26	46.42
5 - 8	17	30.36
9 - 12	7	12.50
13 - 16	1	1.78
17 - 20	3	5.36
21 - 24	1	1.79
25+	1	1.79
TOTAL	56	100.00

N.B. (a) 25+ the patient here had pain of duration of 30 years.
(b) Mean duration of pain 6.22 years with standard deviation of 5.5 years.
(c) Range of one week to 30 years.

TABLE 30

LOCATION OF PAIN IN 58 PEPTIC ULCER PATIENTS

LOCATION	NUMBER OF PATIENTS	PERCENTAGE
Epigastrium	33	56.9
Right hypochondrium	7	12.07
Left hypochondrium	4	6.9
Umbilical	10	17.24
Right iliac fossa	0	0
Left iliac fossa	0	0
Hypogastrium	1	1.72
Diffuse	8	5.17
Others	0	0
TOTAL	58	100.00

TABLE 31

RADIATION OF PAIN IN 51 PEPTIC ULCER PATIENTS

RADIATION	NUMBER OF PATIENTS	PERCENTAGE
To the chest	10	19.61
To the whole abdomen	14	27.45
To the back	5	9.80
Doesn't radiate	14	27.45
Other	8	15.69
TOTAL	51	100.00

TABLE 32

PERIODICITY OF SYMPTOMS IN 57 PEPTIC ULCER PATIENTS

PERIODICITY	NUMBER OF PATIENTS	PERCENTAGE
Present	56	98.25
Absent	1	1.75
TOTAL	57	100.00

TABLE 33

MODE OF ONSET OF PEPTIC ULCER DISEASE IN 57 PATIENTS

MODE OF ONSET	NUMBER OF PATIENTS	PERCENTAGE
Gradual	51	89.48
Sudden	6	10.52
Others: e.g. haematemesis first	0	0
TOTAL	57	100.00

TABLE 34

PRESENCE OF HEARTBURN IN 56 ULCER PATIENTS

PRESENCE	NUMBER OF PATIENTS	PERCENTAGE
Yes	46	82.14
No	10	17.86
TOTAL	56	100.00

TABLE 35

EFFECT OF HUNGER ON THE PAIN IN 56 PEPTIC ULCER PATIENTS

EFFECT	NUMBER OF PATIENTS	PERCENTAGE
Worsens it	45	80.36
Has no effect	10	17.86
Relieves it	1	1.78
TOTAL	56	100.00

TABLE 36

EFFECT OF FOOD ON THE PAIN IN 58 PEPTIC ULCER PATIENTS

EFFECT	NUMBER OF PATIENTS	PERCENTAGE
Worse with full stomach	0	0
Worse with half full stomach	0	0
Worse with any amount of food	21	36.21
Food has no effect	10	17.24
Relieved by half full stomach	0	0
Relieved by full stomach	0	0
Relieved with any amount of food	2	3.45
Relieved by half full stomach but made worse by full stomach	25	43.10
TOTAL	58	100.00

TABLE 37

VOMITING IN 58 PATIENTS WITH PEPTIC ULCER

VOMITING	NUMBER OF PATIENTS	PERCENTAGE
No history of vomiting	22	37.93
Relieves pain	26	44.83
Aggravates pain	3	5.17
Has no relationship to pain	7	12.07
TOTAL	58	100.00

TABLE 38

HISTORY OF HAEMATEMESIS IN 58 PEPTIC ULCER PATIENTS

HAEMATEMESIS	NUMBER OF PATIENTS	PERCENTAGE
Present	28	48.28
Absent	30	51.72
TOTAL	58	100.00

TABLE 39

HISTORY OF ULCEROGENIC DRUGS AT LEAST WITHIN SIX MONTHS BEFORE ONSET OF SYMPTOMS OF DISEASE AND NOT LESS THAN TWO TABS PER WEEK IN 58 PEPTIC ULCER PATIENTS

HISTORY	NUMBER OF PATIENTS	PERCENTAGE
Present	17	29.31
Absent	41	70.69
TOTAL	58	100.00

TABLE 40

HISTORY OF MALAENA IN 58 PEPTIC ULCER PATIENTS

HISTORY	NUMBER OF PATIENTS	PERCENTAGE
Present	29	50
Absent	29	50
TOTAL	58	100

TABLE 41

LOCATION OF ABDOMINAL TENDERNESS IN 58 PEPTIC ULCER PATIENTS

ABDOMINAL TENDERNESS	NUMBER OF PATIENTS	PERCENTAGE
Epigastric	26	44.83
None	21	36.21
Right hypochondrium	3	5.17
Left hypochondrium	2	3.45
Umbilical	3	5.17
Diffuse	2	3.45
Other	1	1.72
TOTAL	58	100.00

TABLE 42

MODE OF DIAGNOSIS OF 58 PEPTIC ULCER PATIENTS

MEANS	NUMBER OF PATIENTS	PERCENTAGE
Barium meal	28	48.28
Endoscopy	28	48.28
Both Endoscopy and barium meal	2	3.44
TOTAL	58	100.00

TABLE 43

TYPE OF ULCER IN 58 PEPTIC ULCER PATIENTS

TYPE OF ULCER	NUMBER OF PATIENTS	PERCENTAGE
Duodenal cap	45	81.82
Duodenal loop	3	5.45
Gastric	4	7.27
Duodenal and cap	2	3.64
Other combination of the above	1	1.82
TOTAL	55	100.00

TABLE 44

FOLLOW UPS

Out of the 58 patients - 43, 37 and 28 turned up for 1st, 2nd and 3rd follow ups respectively.

Subjective feeling on three follow ups of the peptic ulcer patients

SUBJECTIVE FEELING	FIRST FOLLOW UP		SECOND FOLLOW UP		THIRD FOLLOW UP	
	NO. OF PATIENTS	%	NO. OF PATIENTS	%	NO. OF PATIENTS	%
Got worse	2	4.65	1	2.70	0	0
Same	5	11.63	3	8.11	2	7.14
Some relief	15	34.88	9	24.33	5	17.86
Definite relief	21	48.84	24	64.86	21	75.00
Cured	0	0	0	0	0	0
TOTAL	43	100.00	37	100.00	28	100.00

TABLE 45

AGE DISTRIBUTION OF 57 PATIENTS WITH PEPTIC ULCER

AGE (YEARS)	NUMBER OF PATIENTS	PERCENTAGE
10 - 20	3	5.17
21 - 30	23	39.66
31 - 40	15	25.86
41 - 50	8	13.79
51 - 60	7	12.07
60+	2	3.45
TOTAL	58	100.00

The mean age is 39.75 years with a standard deviation of 13.46 and a range of 15 to 72 years.

The Peak incidence is in the age group 21 - 40 years (62.52%).

3.2.2. Summary of results (descriptive part).

i) Rural/Urban change:

There wasn't any migration from rural to urban or vice-versa within a period of six months prior to the onset of disease except in only one patients who moved from rural to urban.

ii) Definite stressful event within six months prior to the onset of the disease.

65.52% of the patients had definite stressful event while 1.75% hadn't.

iii) Family history:

There was a family history of a similar problem in 31% and no history in 69%

iv) Type of pain.

The commonest type of pain was burning constituting 61.4% followed by abdominal discomfort 15.79% and lastly gripping 12.28% and the rest constituted the remaining percentage.

v) Duration of the pain

The mean duration was 6.22 years with a standard deviation of 5.5 years and a range of one week to 30 years.

vi) Location of pain

Most of the pain was felt in the epigastrium (56.9%) followed by umbilical 17.25%, R. hypochondrium 12.07% and the rest the remaining percentage.

vii) Radiation of the pain.

Most of the pain radiated to the whole abdomen (27%) and an equal amount didn't radiate at all (27%) followed by radiation to the chest 20% and the rest forming the remaining percentage.

viii) Periodicity:

Nearly all had periodicity except only about 2%.

ix) Mode of onset:

89% of the patients had gradual mode of onset and 11% had sudden onset.

x) History of heart burn:

82% had history of heart burn and 18% didn't have.

xi) Effect of hunger on pain.

In most of the patients hunger worsened the pain (80%), in 18% it had no effect, and relieved it in 2%.

xii) Effect of food on pain.

In most of the patients a big meal worsened the pain but a moderate amount of food relieved it, and this happened in 43%, in 36% the pain was made worse by any amount of food, food had no effect in 17% and in 4% any amount of food relieved the pain.

xiii) Vomiting

Vomiting relieved pain in most of the patients 44.83%, didn't occur at all in 37.93%, had no relationship with pain in 12.07% and aggravated pain in 5.17%.

xiv) History of haematemesis

48% had history of haematemesis and 52% didn't have.

xv) History of ulceragenic drugs at least within six months before symptoms of disease and not less than two tabs per week.

29% had a positive history while 71% had a negative history.while.

xvi) History of malaena.

50%had positive history and 50% negative history.

xvii) Abdominal tenderness

Most of the patients had epigastric abdominal tenderness (45%) no tenderness in 36% and the rest forming the remaining percentage.

xviii) Mode of diagnosis.

48% was made by proximal endoscopy, 48% by barium meal and 4% by both. These findings happened just by chance.

xix) Type of the ulcer.

Most of the ulcers were duodenal and mostly of the capforming 82%. Gastric ulcer formed 7%. It should be noted that cap deformities were classified as duodenal ulcer. The duodenal to gastric ulcer ratio was 12.75.1.

(xx) Follow ups

Out of 58 patients analysed 43 turned up for first follow up and 84% of these had some relief to definite relief. Thirty seven turned up for 2nd follow up and 28 for 3rd follow up and the percentage of some relief to definite relief were 89% and 93% respectively.

xxi) Male:Female sex ratio:

Of the 58 peptic ulcer patients, 42 were males forming a ratio of 1:2.625 (1.3).

xxii) Results of analysis obtained from register for proximal endoscopies in the Gastroenterology Unit and barium meals in the Radiology Department.

The register for proximal endoscopies was analysed. There were 369 proximal endoscopies done between January and December 1982. 205 indications (55.56%) were due to clinical peptic ulcer or epigastric pain. Peptic ulcers were 73 forming 19.78% of all lesions, of these 63 were duodenal ulcer (bulb deformity included here) (17.07%) and 10 were gastric ulcer (2.71%). Therefore the ratio of duodenal ulcer to gastric ulcer was 6.3:1.

The January - December 1982 register for barium meals showed that 556 barium examinations were done, the indications for these were not given. There were 97 peptic ulcers forming 17.45%. Of these 84 were duodenal ulcers forming 15.11% and 13 gastric ulcers forming 2.34%. The ratio for duodenal ulcer: gastric ulcer was therefore 6.46:1.

PART IV

DISCUSSION

There are high and low incidence peptic ulcer areas in Africa (46). High incidence areas include the West Coast, the Nile Congo watershed, Northern Tanzania and in Ethiopia. Within these high incidence areas there are pockets of low incidence, for example in Eastern Nigeria. Low incidence areas include Uganda, Zaire, Zambia and Malawi (5, 46). In other parts of the world also there is abundant evidence to show many geographical variations. For example in Britain the disease is less frequent in Southern England than in Scotland. In India the disease is more common in the south than in the north and affects young people and predominantly men (5). Therefore certain factors must be at work in these areas.

A number of factors have been associated with peptic ulcer. Smoking has been associated with peptic ulceration, the relationship being stronger for gastric than duodenal ulcer. Abstinance from smoking has been found out as one of the factors associated with ulcer healing (8, 9, 13, 20, 39, 43). It is unclear how smoking contributes to the genesis of peptic ulceration. Smoking may impair acid neutralization by pancreatic bicarbonate secretion,

and may therefore adversely influence the healing of peptic ulcer. Grech 1965 (24) found no relationship between smoking and peptic ulcer (only 19% of those with peptic ulcer smoked). In the present study 6.7% of patients were smoking when they were first seen and 35% used to smoke but had stopped making a total of 41.7%. A corresponding figure for the controls was 36.6%. There was no statistically significant difference between the patients and the controls. Therefore in this case smoking can be dismissed as a social habit that is important in the aetiology of peptic ulcer (see table 21). But this study cannot discount the fact that smoking adversely prolongs healing by impairing neutralization of acid by pancereatic stimulation. All the patients after being seen during this study were told to abstain from smoking.

A number of studies have pointed to a high frequency of peptic ulcer among alcoholics (23, 26, 35). While alcohol could act directly on the gut to cause ulceration, the effect could as well be indirect. Alcohol addiction is itself commonly accompanied by emotional disorder that could provide a psychogenic stimulus to peptic ulceration. For example Hagnell and Wretmark 1957 (26) hold that in their investigations peptic ulcer preceded alcoholism as often as it follows it. Other authors have discounted this as aetiological factor (5, 8, 31). Grech 1965 (24) also dismisses alcohol as a cause of peptic ulcer. Therefore the facts concerning

alcohol are still contradictory.

In the present study 38.3% of peptic ulcer patients were either alcohol drinkers or had been drinkers and a corresponding figure for controls was 41.6% (28.3% drinker and 13.3% had been drinkers); and the difference was not statistically significant (see table 20). Therefore this dismisses the possibility of alcohol drinking at Dar es Salaam as one of the possible aetiological factors. This point is supported by the other findings in literature which are contradictory.

Others studies have incriminated certain factors that point towards hereditry as a causal factor. Lewis and Aderoju 1978 found that 20% recorded a history of ulcer in one or the other of their parents (31). In the present study there was a family history in 31% (table 27). Also the frequency of finding pepsinogen phenotype A secretion in urine is increased in patients with duodenal ulcer (5). An association has been reported between HLA and duodenal ulcer (18), duodenal ulcer is more among monozygons twins than dizygons (5, 25), and lastly there is a familial aggragation - peptic ulcer being three times common in first degree relatives than controls (25). Blood group O has also been associated with peptic ulcer (5, 24, 25, 35, 43, 48). Most of these studies were just descriptive. For example Ojiambo (35) at Kenyata

National Hospital, Nairobi, Kenya found that 66.7% of his patients were group O and Grech at Muhimbili Hospital, Dar es Salaam (24) found that 68% of his patients were group O and concluded that blood group O could be a factor in favour of developing peptic ulcer. In the present study the distribution for the blood groups were as follows: 56.67% for O, 25% for A, 10% for B, 3.33% for AB and 5% not determined. Therefore blood group O had the highest number (table 22). Gohler (1973) (21) in a study in Bethsda Hospital Agou Togo found the following distribution: 44% for O , 28% for B, 23% for A and 5% for AB. Again blood group O had the highest number. If one was to make conclusions from these tables without looking at controls one would also incriminate blood group O as being an aetiological factor in peptic ulceration. Gohler's control group showed the following distribution (the patients distribution is put in brackets):- Group O - 45.5% (44%), 20.8% (28%) for B, 20% (23%) for A and 6% (5%) for AB. Therefore one can see that there is no statistical significant difference. In this study (see table 22) the following distribution were found for the controls (the patients distribution is put in brackets) 55% (56.67%) for group O, 26.67%(25%) for group A, 11.67% (10%) for group B, 6.6% (3.3%) for AB and 0% (5%) not determined. The results were not statistically significant, p 0.750 (the 3 patients forming 5% whose blood group were not known were not included in the calculation

of p). These two studies are against most of previous studies. They also show the value of analytical studies once descriptive studies have been done. Therefore there is no significant association between blood group O and peptic ulceration.

Stress acting in various forms has been incriminated as a causative factor in the causation of peptic ulcer (33). The relationship between the psyche and upper gastro-intestinal tract is well known (5, 7, 22, 35, 37, 38, 46). Stress leads to chronic emotional state and this predisposes to ulcer formation by stimulation via the vagal pathway. Patients have been found to have exacerbations during summary dismissal or compulsory retirement exercise of the civil service. This was reminiscent of the significant increase in admissions in London for perforated ulcer during the air attacks in 1940 - 41 (31). Stress itself cannot explain why certain people subjected to the same stress would react differently:- others reacting to it and others not. Therefore chronic anxiety is as likely to have an internal source in personality as an external source. Personality can be conceived as a presdisposing factor and anxiety due to external source as a precipitating one (3). Personality is compounded of a web of inherited qualities and experience. The particular experience afforded by different cultures and by individual families is thus a variable in the structure of personalities and disorders to they

might be predisposed (3). Some authors have demonstrated in rats that ulcer increases when a stress is faced by an animal itself (39, 42). Berkman and Syme (1979) (7) looking at four sources of social relationships (marriage, contact with close friends/ relatives, church membership and formal/informal groups associations) found that each of this was found to predict mortality independently. In the present study the following sources of social contact were found to have a statistically significant association with peptic ulceration: The more of each of these the less prevalence of peptic ulcer, and these are contact with at least one of their best friends at least once per week, number of friends, number of reliable people to turn to in times of difficulties and active religions associations (tables 16, 17, 18, 19). This is in agreement with the study of Berkman and Syme (1979) (7). This is because the more social contacts one has the more sources of advice during times of stress and thus less anxiety. Marital status did not have any statistical significant difference between patients and controls.

Stress was also a major factor in the aetiology of ulcer patients in 55% of patients in a study done at Ibadan Nigeria. Usually some recognizable stress factor (financial, domestic or at work) was apparent. Fifty percent of the patients also admitted being prone to worry and anxiety. Other recognized stresses were overwork and

fatigue which were found to be conditions which predisposed to exacertations of symptoms (31). In the present study a number of stress factors were investigated. These in addition to those discussed above were working or not working extra hours and their reasons, having or not having dependants, type of dependants (e.g. children, parents, relatives etc.), job satisfaction or no satisfaction, whether one was doing or training for the job he had been aspiring for since childhood, problems during education, death of one of the parents before 16 years and marital problems. Amongst the above stressful factors only working extra-hours because of too much work that could not be finished during normal working hours (not being ones personal job or for which no overtime payment was available) and death of one of the parents before sixteen years was associated with a statistically significant higher prevalence of peptic ulcers (tables 8, 9, 3, 5, 7, 9 and 15). The above illustrate that definately stressful factors have got an association with prevalence of peptic ulcer. Also in the descriptive study 65.5% of the patients had definite stressful event six months prior to the onset of disease (table 26).

Education, occupation and income have some correlation. The more educated a person is, the more likely to have an occupation of high responsibility. This will inevitably go with a higher income

and thus a higher socio-economic class. This is not always the case, since there are many people with higher incomes who have never been to school. It is no wonder therefore that in this study higher education and higher socio-economic class were found to have a statistically significant association with higher prevalence of duodenal ulcer while higher income was found to have statistically significant association with low prevalence of peptic (tables 1, 2, and 3). This could be explained by the fact that higher education and higher social economic class are associated with higher responsibility and thus more stress. Taking the current inflation those with low income are not able to cope with current expensive standard of living while their counterparts with higher income are better able to cope with this and thus have less stress. These findings are identical to those pertaining to America and Europe when peptic ulcer first appeared (3, 43). The wave of peptic ulcer first appeared in young men of higher social classes and that recession also has appeared among them first. Also statistics in Britain show that in the cohorts born before about 1870 the upper classes had the highest rates and latter the lower classes were affected (43, 44). In another case control study in Liberia, Stahel, Gyr and Heitz 1981 (40) found that peptic ulcer patients belonged to the high social economic class. The findings of other studies have been differing, high prevalence being found in the low social classes and in other all social economic classes being affected (3, 24, 31, 48).

Grech 1965 (24) at Muhimbili Dar es Salaam found that no social class was exempted. These difference between this study and that of Grech could be explained by the differences in the political and social economic life of that particular time and now. This could also explain the differences found by various authors above and also the change that has been occuring in Britain as stated above (43).

The type of occupation did not differ significantly between peptic ulcer patients and controls (table 5). The explanation for this could be that it is difficult to know how much of stress is one experiencing by knowing if he is for example an employee, bussinessman or a student. An employee can vary from a principal Secretary to a street sweeper, similarly a student can vary from a son of a Minister to an orphan staying with a step mother wheras a bussinessman could vary from one doing petty bussiness to an owner of manufacturing companies.

Peptic ulcer in Britain is on the decline and cannot be regarded simply as a disease of civilization, in the sense that it is caused mainly by the strains common to industrial societies. These strains might be expected to increase or at least to continue as the society (British) grows more complex, and as a greater proportion of the population is caught up in the urban modes of life. They cannot account for both the rise and the fall in the peptic ulcer syndrome among men.

At present the incidence of peptic ulcer is on the decline in Britain and Western Europe in general. The decline in peptic ulcer does not rule out the hypothesis that it is a disease of an early phase of urbanization. In the most recent times, that is a later phase of urbanization in Western or industrialized countries specific urban strains may have been outweighed by other consequences of industrialization. For instance in Britain gross poverty has been abolished and social security strengthened. Again taking Britain as an example, Britain is one of the most urbanized societies in the world and large section of recent generations may have learned to adapt to the demands of such as a society, so that these are less stressful and more rewarding than before (36).

In India it was noted that in large cities the characteristic of duodenal ulcer closely resemble those of the Western countries and that a certain number of duodenal ulcer patients would be seen in towns even when they were situated in parts of India where the incidence in the rural population was low. The same phenomenon seems to be occuring in and around Nairobi, Mombasa, Harare, Durban and Johannesburg. This seems a recent change (46). In the present study 72.88% were residing in urban areas and had resided there for six months before the onset of the disease, and the rest 27.12% were

residing in rural areas, looking at those figures one would be tempted to say that residing in urban areas is associated with high prevalence of peptic ulcer. But looking at the controls the corresponding figures were 79.31% and 20.69%. There was no statistically significant difference between the peptic ulcer patients and the controls. Therefore the lesson one learns from this is not to make firm conclusion from descriptive studies and thus urbanization is not important as an aetiological factor for peptic ulcer. In the case of Tanzanians, as a personal view the author feels that both the urban and the rural people are undergoing the same social, political and economical changes as their counterparts in town. The fact that there are more patients and controls from the urban areas is because Muhimbili Medical Centre is situated in the city of Dar es Salaam (table 24). Also there wasn't any migration from rural to urban or vice-versa within a period of six months except in only one patient who moved from rural to urban (table 25).

Lewis, and Aderoju (1978) (31) found that majority of his patients were of the average weight or thin and there was a small group 5% who were obese. Gohler (1973) (21) described his patients as those who had lost weight and thus complained of physical and sexual weakness. In duodenal ulcer usually there is no weight loss often the patient become plumpy (partly because of ingestion of milk to

relieve pain) but in gastric ulcer by the time a doctor is consulted especially a surgeon there has been some loss of weight (4). In the present study most of the ulcers were duodenal and the mean weight in relation to mean height was within the desirable weight for adults according to height and frame (table 23).

Age and sex are biologically determined, but they also simply imply a social and cultural configuration with their related stresses (3). For example in United Kingdom the male:female ratio has been falling while in black population south of Sahara in the high incidence region, it is 9:1 (range of 2.1:1 to 30:0). Therefore the changing age and sex pattern in Europe might reflect upheavals which have had uneven sexual and age related impact on generations. Thus the timing of the last world war, and the unemployment of the 1930's roughly fit fluctuation for the male groups likely to be affected; the cohorts with the highest peptic ulcer rates were also the chief victims of the First World War. The immediate effect of war are evident in the rise of perforation and deaths from peptic ulcer which followed air raids and strains of war. Perhaps in chronic condition such as peptic ulcer acute events might precipitate prolonged effects (3). The peak age incidence in the United Kingdom now is 45 to 55 years and in West Africa 34 years (46). Other studies in Africa (four of which were at Muhimbili Hospital, Dar es Salaam) and one in India have shown a peak age incidence of 20 - 40 years (6, 14, 24, 31, 34, 35, 48). In the

present study the peak incidence was 21 - 40 years with a mean age age of 36 years and a range of 15 - 72 years. The mean age group is more or less similar to those obtained from elsewhere in Africa; but different from those obtained from Europe. Two explanations that can be offered which will also apply to sex ratio differences is that Europe is already developed and the other areas quoted above are developing countries. Therefore the developing countries are going through a period similar to that which the developed countries were passing through when their figures were similar to these of the developed countries. Another point is the age structure and population structure in general. For example in all the developing countries the majority of people are young people. Here it should be noted in order to accurately compare these figures between a country and a country or a town and a town the age and sex distribution must be standardized.

What has been said above also apply to male:female ratio. Tovey 1975 in an article reviewing peptic ulcer South of Sahara found an average of 9:1 male:female ratio with a range of 2.1:1 to 30:0 (46). Lewis and Aderoju 1978 at Ibadan (31) found a ratio of 2.1:1, Gohler at Togo 1973 (21) found a ratio of 27:1. Other studies at Muhimbili Hospital Dar es Salaam gave a range of male:female ratio of 10:1 to 4.8:1. In the present study a

a ratio of 3:1 (to the nearest whole number) was found which compared to the studies cited above by showing a higher incidence/prevalence in males.

Most studies show presponderance of duodenal over gastric ulcer. In his review article (Progress Report) of Peptic ulcer South of Sahara, Tovey (1975) (46) in the United Kingdom in 1950, the ratio was between 3:1 to 4:1 Duodenal ulcer:Gastric ulcer and has fallen to the present figure of between 2:1 to 3:1 and the range for Africa South of Sahara is 4:1 to 156:1. At Muhimbili Dar es Salaam, Dolmans, Mbaga, Mwakyusa and Mwanukuzi 1979 (15) found a ratio of 18:1 by radiology and 4.5:1 by endoscopy. Also in another study 1979 (6) they found a ratio of 4.5:1. Nhonoli 1969 (34) had a ratio of 5:1 and Grech 1965 (24) a ratio of 13:1. In the present study the ratio obtained from reviewing the registers for proximal endoscopies and barium meals between January to December, 1982 showed ratios of 6.3:1 and 6.46:1 respectively. The ratio obtained in the 57 patients of this present study was 12.75:1. Corachan 1976 at Mwanza (10) found a ratio of 6:1. Therefore in conclusion the ratios that have been found at Muhimbili Dar es Salaam vary from 4.5 to 1 to 18:1 both reported by Dolmans, Mbaga and Mwakyusa and all these show that Duodenal ulcer is the presponderance of the two.

Lewis and Adoroju 1978 (31) in their study for the cause of duodenal ulcer at Ibadan found that about 60% of their patients took asprin or asprin containing tablets for fever, headache or or aches and pains. Usually two tablets were taken. In this study only 29.31% had a similar history for peptic ulcer. Therefore the conclusion here is not clear cut. Other studies have pointed out an association between asprin and gastric ulcer (5, 11, 17, 35). Therefore asprin as an aetiological factor for peptic ulcer needs further investigation.

Nhonoli at Muhimbili Dar es Salaam 1965 (34) found that 86% of his patients complained of epigastric pain and 15% pain in the right hypochondrium and the remaining percentage pain was in other areas. Gohler at Agou Togo found that most of his patients felt pain in the epigastrium and right hypochondrium but did not give the percentage. In the present study 56.9% felt pain in the epigastrium, 17.25% in the right hypochondrium and 12.07% was umbilical, the remaining percentage being distributed to other areas (table 30). 61.4% had burning type of pain, 15.79% just a discomfort and the remaining other types of pain (table 28), radiation of the pain was inconclusive (table 31). The mean duration of this pain was 6.22 years and a range of one week to 30 years (table 29). Gohler in Togo 1973 (21) found an average duration of 6 - 8 years and a range of one year to 25 years.

Nhonoli 1969 (34) found a range of 3 months to 25 years. The figures found in the present study more or less compare with those found in other studies. Nhonoli 1969 (34) found periodicity in 15% while in this study periodicity was present in 98% (table 32). The other symptoms investigated and their findings in this study are the following. Most patients had gradual mode of onset(89%), 82% had history of heartburn and in 80% hunger worsened the pain (tables 33, 34 and 35). In 43% the pain was relieved by half full stomach and made worse by full stomach, 3% relieved by any amount of food, making a total of 46% where food relieved the pain. In 17% food had no effect on pain and 36% food made the pain worse. Thus in 64% moderate amount of food either relieved pain or had no effect on pain and in 36% it made pain worse (table 36). History of haematemesis was inconclusive (48% had a positive history and 52% had a negative history) (table 38). A similar thing applied to history of malaena (table 40). 44.83% vomiting relieved pain, 37.93% did not have any history of vomiting, 12.07% vomiting had no relationship with food and 5.19% vomiting aggravated pain. In conclusion in 95% either the patients has no vomiting, or vomiting relieves pain or there is no relationship with pain and only in 5% vomiting worsens the pain (table 37). In simple terms abdominal tenderness could be distributed as follows: 45% epigastric,

20% anywhere on the abdomen to diffuse distribution but mostly right hypochondrium and umbilical, and 35% no tenderness (table 41).

Nhonoli 1969 (34) found nausea vomiting or both in 35%. This was lower than what was found in the present study which was 62.07% (44.83% + 5.17% + 12.07% in table 37). This could be due to the fact that Nhonoli's study (34) was a retrospective study and could have missed patients with vomiting. Heartburn and haematemesis were each complained of 10% in Nhonoli's study (34). Again these figures are lower than those found in the present study possibly for the same reasons. Nhonoli 1969 (34) found a higher figure for epigastric tenderness (79%) compared to 45% in the present study. Gohler (1973) at Agou Togo (21) clinically found few signs. There was often (he did not give a figure) a small area of localized tenderness in the epigastrium and right hypochondrium. Frequently (no figure given) there was skin scarification due to native treatment around the region of tenderness. His patients complained of severe epigastric pain and right hypochondral pain, loss of weight (comparison of weight in Gohlers study and in the present study has already been discussed above), physical and sexual weakness because of eating less due to pain. There wasn't relief of pain by food (Gohlers study and this study differ

here - in this study at least 46% moderate amount of food relieved pain. This could be a reason why no weight loss was found in this study). Other symptoms included sense of fullness, nausea, vomiting and constipation. Gohler concludes that the typical complaints together with general appearance of the patients and the absence of other conditions in these regions of the world such as cholecystitis, choleliathiasis made the diagnosis easy with a high degree of accuracy.

Treatment of peptic ulcer is either surgical or medical or both. Surgical treatment is indicated when medical treatment has failed. Medical treatment of paptic ulcer is the subject of intensive research now. H_2-receptor antagonists such as Cimetidine is commonly used at present. This study does not intend to go into details about what is known about medical treatment of peptic ulcer because is too vast and is one area where more research is to be recommended. Because of non-availability of other drugs patients who attended the gastro-enterology clinic were treated with anti-acid (here magnesium trisilicate was used), antisposmodic sedative combination (belladona with phenobarbitone) one tablet of each PRN (when they felt pain), advised to stop alcohol, smoking and to take milk and frequent moderate amount of non-irritant foods. Rest was advised during the acute phase. Follow up was made at three weeks interval.

43 patients out of 58 patients (74%) turned up for first follow up and 84% of these had some relief to definite relief subjectively. For the third follow up 28 turned up (48%) and of these 93% had some relief to definite relief. It is not known what happened to those who didn't turn up for follow up, it could be that their symptoms improved, especially for those who did not turn up during the first follow up; since there is no reason why they would not turn up to give the doctor at least one chance of reviewing the effect of his treatment.

PART V

CONCLUSIONS AND RECOMMENDATION

5.1. CONCLUSIONS

5.1.1. Duodenal ulcer is the commonest of the two peptic ulcers (duodenal and gastric). Males are affected three times more than female. The mean age was approximately 36 years.

5.1.2. Most of the patients had burning abdominal pain and abdominal discomfort mostly in the epigastrium, right hypochondrium or umbilical with inconclusive radiation and a mean duration of 6.22 years punctuated by symptom free periods. In 64% moderate amount of food either relieved pain or had no effect on the pain. In 95% of the patients there was either no vomiting or vomiting relieved the pain or vomiting had no relationship with pain and in only 5% vomiting worsened the pain. In 80% hunger worsened the pain and 82% had history of heartburn. History of malaena or haematemesis was found in only half of the patients. The onset of the disease was gradual. Abdominal tenderness was 45% epigastric, 36% no tenderness and the rest forming the remaining percentage.

. . .

5.1.3. Patients were treated with antispasmodic sedative combination, anti-acid when they felt pain, they were adviced to stop smoking, alcohol, take milk and frequent bland meals and of the 74% who turned up for first follow up 84% had a satisfactory subjective response and of the 48% who turned up for three follow ups 93% had satisfactory subjective response on the 3rd follow up.

. . .

5.1.4. Education, social-economic class, working extra hours because one had too much work (for which no overtime payment was available or the job which was not one's job which would mean the more he worked the more benefit he would get) and death of one's parent before 16 years, had a positive correlation with prevalence rate of peptic ulcer. Income, contact with at least one of the best friends at least once per week, number of friends, number of reliable people to turn to in times of difficulties and active religions association: had a negative correlation prevalence of peptic ulcer. The two above association were statistically significant. Contrary to the common belief there was no statistical significant association between blood group O, urbanization and peptic ulcer.

5.2. RECOMMENDATIONS

5.2.1. Very few hospitals are able to accurately diagnose peptic ulcer because this entails having facilities for doing and interpretting barium meals or proximal endoscopy. This study has shown a satisfactory percentage of those who attended clinic and follow up showed satisfactory response to therapy. Therefore these hospitals should establish clinics to be known as Dyspepsic Clinics. In Dar es Salaam the peripheral clinics and hospitals should have these. All patients with dyspepsia should be registered in any one of these. The regime of treatment used in this study should be used here. Patients should be followed up initially at three weeks interval. Those who do not improve after three consecutive follow ups separated by three weeks should be referred to a specialist centre. This will enable these patients to have a systematic way of follow up. Therefore this will dictate when patients should attend for follow up and reduce much of the time wasted in attending different hospitals/clinics. Those with complications should be referred immediately.

At the gastroenterology clinic those patients with dyspepsia/epigastric pain who are referred and found to have no lesions should be sent back to the Dyspeptic Clinics and those with active lesions retained.

Reasons should be found for those patients not turning up for follow up- do they get relieved or do they fall into the

the group of those who waste man-hours by moving from one hospital to another.

5.2.2. A further study is indicated to try to make an index score for each aspect of clinical presentation and psycho-social factors, each weight of the score being equated to the above findings. For example 86.21% (56.9%, 12.07% and 17.24%) presented with pain either epigastric or right hypochondrium or umbilical will cary more weighting than family history of a relative with a similar problem which formed only 31%. Having no friends ($p<0.001$) should carry more weighting than having no active religions association ($0.010<p<0.025$). With the above a score can be determined which can be used in peripheral hospitals for making diagnosis of peptic ulcer.

5.2.3. This study just touched on the management of definitely proven peptic ulcer (by endoscopy or barium meals). This area needs a further separate study. Wouldn't the use of newer drugs such as cimetidine despite its expensiveness prove more cheaper by making patients with active duodenal ulcer return to active work earlier and serve more money than the conventional drugs that are being used? To convince the government to buy these expensive drugs a study is indicated.

PART VI: APPENDICES

PEPTIC ULCERATION AT MUHIMBILI, DAR ES SALAAM

QUESTIONAIRE 1

(Appendix I)

Personal Data

1. Name ..... Study Reg. No. .....
2. Reg. (Hospital) No. .....
3. Inpatient[1] Outpatient[2] .....
4. Age in Years .....
5. Sex: Male[1] Female[2]
6. Date .....

Medical history

1. Present complaints and their duration .....
2. Any relative with a similar problems: Yes[1] No[2]

   Specify .....
3. Type of pain .....
4. Location of pain .....
5. Radiation of pain .....
6. Aggravating and alleviating factors and

   specifically for hunger .....

7. Periodicity: Yes[1] No[2] .....

8. Mode of onset .....

9. Heartburn: Yes[1] No[2] .....

10. Nausea: Yes[1] No[2] .....

11. Vomiting: Yes[1] No[2]

12. Effect of vomiting on pain .....

13. Effect of food in relation to pain (details)

.....

14. Haematemesis Yes[1] No[2] .....

15. Constipation Yes[1] No[2] .....

16. Melaena: Yes[1] No[2] .....

17. Backache: Yes[1] No[2]

18. (a) Drug ingestion that might cause ulceration (at least 6/12 before abdominal pain or other symptoms and at least not less than two tabs/week) Yes[1] No[2] .....

(b) Specify name of drug .....

(c) Reason for taking them .....

(d) Duration .....

Psycho-social history.

(Key to psycho-cocial factors a - m is attached at the end of this questionaire)

1.a. Umewahi kuhudhuria shule (Have you attended any school) Yes[1] No[2]

2.a. Ulifikia kiwango gani (what level did you attain)? Elimu ya Watu Wazima (Adult education)[1], Elimu ya Msingi (Primary school)[2], Elimu ya Sekondari (Kidato cha Nne - O level)[3], Kidato cha Sita/Chuo Kikuu (A level/University)[4], Hahusiki (Doesn't apply to him/here after "not concerned")[5]

3.a. Je ulikuwa unaifurahia elimu yako ya Msingi (Did you enjoy your primary School education) Ndiyo (Yes)[1] Hapana (No)[2] Hahusiki (Not concerned)[3]

4.a. Je ulikuwa unaifurahia elimu yako ya sekondari (Did you enjoy your secondary school education) Ndiyo (Yes)[1] No (Hapana)[2] Hahusiki (not concerned)[3]

5.a. Je ulikuwa unaifurahia elimu yako ya Chuo Kikuu (Did you enjoy your University education) Ndiyo (Yes)[1] Hapana (No)[2], Hahusiki (not concerned)[3]

6.b. Ni kazi gani zinazokuletea pato lako kwa sasa (What are you doing at present to get your income) - Nimeajiriwa (employee)[1], Biashara (Bussiness)[2], Mkulima (peasant - farmer)[3], Mkulima na Mfanyabiashara (Peasant and bussinessman)[4], Mwajiriwa na mkulima (Employee and peasant)[5], Mwajiriwa na Mfanyabiashara (Employee and bussinessman)[6], Nyingine - elezea (others - specify) .....

7.c. Je kwa sasa unafanya/kusomea kazi uliyokuwa ukiitamani toka utotoni (Are you doing the job or training for the job you were aspiring since your childhood) Ndiyo (Yes)[1] Hapana (No)[2] Nyingine/Others specify .....

8.c. Je unaridhika nayo (Are you satisfied) Naridhika (Satisfied)[1], Siridhiki (Not satisfied)[2] Elezea (Explain) .....

9.a.	Je kwa ujumla wakati wa elimu ya msingi ungefanya wastani wa nafasi uliyokuwa ukiishika darasani, je ungekuwa katika robo ya kwanza au ya pili au ya tatu au robo ya nne (Taking your primary school in general what position did you used to occupy) 1st 25% (25%)[1], 2nd 25% (50%)[2], 3rd 25% (75%)[3] 4th 25% (100%)[4], Hahusiki (Not concerned)[5]	....
10.a.	The same question for Secondary school education	.....
11.a.	Je ulikuwa na tatizo lolote lililokuwa linafanya elimu yako ya msingi iwe ngumu? Litaje. (Did you have any problems which made your primary school education difficult). Masomo yalikuwa yananiwia magumu (Academically it was difficult for me to coope)[1], Shida za kipesa - matumizi (Financial difficulties)[2], Nilikuwa naugua mara nyingi (Sickness)[3], Hahusiki (not concerned)[4]. Lingine elezea (others - specify)	.....
12.c.	Je unafanya kazi gani ya kitaalamu kwa sasa (What is your professional job) Mwalimu (Teacher)[1] Daktari (Doctor)[2], Mhandisi (Engineer)[3], Mwuuguzi (Nurse)[4], Mwandishi/Mpiga chapa (Secretary/Typist)[5] Mfanyabiashara (Bussinessman)[6], Nyingine - Elezea Others - explain	.....

13.c. Je unaridhika na kazi yako (Are you satisfied with your job) Kabisa (fully)[1], Kidogo (partially)[2] Hapana (No)[3] Elezea (Explain) .....

14.b. Taja watu wanaokutegemea (List your dependants) My wife/husband and children (Mke/Mme na watoto)[1] My wife/Husband, children and parents (Mke/Mme, watoto na wazazi wetu)[2], My wife/husband, children, parents, brothers and sisters (Mke/Mume, watoto, wazazi na ndugu zetu(3, Wazazi wangu/wetu tu (Only my/our parents)[4], Ndugu zangu/zetu tu (my/our brothers and sisters lnly)[5], Wazee na ndugu (Parents, brothers and sisters)[6], Hamna (None)[7]. Wengine (Others - specify) .....

15.b. Je unaweza kutimiza huo wajibu (Are you able to meet the above obligation). Kabisa (Fully)[1], Kidogo lakini kwa shida (Partially but with difficulty)[2], Hapana (No)[3].

16.b. Una maoni gani kuhusu hao wanaokutegemea? Je ni mzigo kwako kiasi gani. (How much are your dependants a burden to you?) Mzigo mkubwa (a big burden)[1], Mzigo kiasi (moderate burden)[2] Siyo mzigo (not a burden)[3] Jibu lingine elezea others - specify .....

17.b. Je unajisikiaje kuhusu kushindwa kwako kutimiza/kuwatimizia vizuri hao wanaokutegemea (How do you feel in not being able to support your dependants fully):- Uchungu sana (very guilty)[1] Uchungu kidogo (A bit guilty)[2], Sijali kabisa (don't mind at all)[3] Nyingine elezea (Others - specify) ....

18.c. Je kuna nyakati ambazo inakubidi kufanya kazi masaa ya ziada (Does it happen that sometimes you have to work extra hours) Ndiyo (Yes)[1] Hapana (No)[2] .....

19.c. Kwa nini (Why). Kwa sababu kuna kazi nyingi na tunahitajika (Because there is work and we are needed)[1] Kwa sababu kazi ni nyingi nashindwa kumaliza wakati wa masaa ya kawaida (Because my work is too much that I am not able to finish it)[2], Kwa sababu ni kazi yangu binafsi nami nataka pesa zaidi (Because it is my bussiness and I want to generate more money)[3]. Nyingine - elezea (Others specify ....

20.c.	Je unalipwa zaidi kwa ajili ya haya masaa ya ziada (Are you paid overtime for this?) Ndiyo (Yes)[1] Hapana (No)[2] Hahusiki (Not Concerned)[3].	.....
21.c.	Je uhusiano na walio chini yako ni wa namna gani? (How is the relationship with your subordinates) Mzuri (good)[1], Mkali kidogo mimi (A bit strict)[2], Mkali sana mimi (Very strict)[3], Sijui (I don't know)[4] Nyingine elezea (Others specify).....	.....
22.c.	Je uhusiano na wengi wa wakuu wako wa kazi ukoje? Unawaonaje wengi wa wakuu wako wa kazi (How is the relationship with most of your superiors. How do you find most of your superiors) - Mzuri (good)[1], Wengi ni wakali sana (Most are very strict)[2], Ni wakali kidogo (A bit strict)[3], Wana wivu na hawataki wenzao wapate mwanya wa kuendelea (jealous, want their subordinate to remain static)[4], Nyingine - elezea (Others - specify)	.....

23.c. Je umeshawahi kufikiri kubadili kazi unayofanya sasa na kwa nini (Have you ever though of changing your job and why). - Kazi ni nyingi mno (Too much work)[1] Mshahara hauridhishi (The salary is too low)[2] Sielewani na wakubwa wangu wa kazi (I don't get on well with my superiors)[3] - Sielewani na wafanyakazi walio chini yangu (I don't get on well with my juniors)[4] - Nilikuwa nimeahidiwa mshahara mkubwa zaidi (I was offered a better salary)[5] - Nilitaka kuanzisha biashara (I wanted to become a bussinessman)[6] - Biashara yangu ilikuwa haiendelei vizuri (My bussiness was not thriving well)[7] - Nilitaka kufanya biashara nyingine yenye faida zaidi (I wanted to change to a better bussiness financially)[8] - Hapana (No)[9] Jibu lingine elezea (Others explain) .....

24.c. Je biashara unafanya peke yako au unashirikiana na mwingine au wengine (Are you doing bussiness yourself or you have a partner or partners) - Peke yangu/mwenyewe (Alone)[1] , Mshiriki mmoja (One partner)[2] - Zaidi ya mshiriki mmoja (More than one partner)[3] - Hahusiki (Not concerned)[4]

25.c. Je kikazi unaelewana na uliyechangia naye (Are you in good terms with your partner)

Tunaelewana sana (Very good terms)[1] .....

Tunaelewana kidogo (Moderate terms)[2]

Hatuelewani (bad terms)[3]

Hahusiki (Not Concerned)[4]

26.c. Je kuna shida yoyote katika kuendesha biashara yako (Have you any problem in carrying out your bussiness?) - Shida kubwa (big problem)[1] .....

Shida kidogo (Small problem)[2] Hamna shida (No problems)[3] Hahusiki (Not concerned)[4]

Nyingine - elezea (Others - specify).....

27.c. Hii shida inakutatanisha kiasi gani (How much does this problem affect you) - Sana (Very much)[1]

Kidogo (Only a little)[2] Siijali (I take it lightly)[3] .....

Hahusiki (Not concerned)[4] Nyingine - elezea (Others specify) .....

.....

28.d. Je ulikuwa ukiishi pamoja na baba yako mpaka ukafikisha miaka mingapi (Up to what age did you stay with your father) 0 (not at all)[1] ..... Up to 2 years[2] 2+ years - 5 years[3] 5+ years - 10 years[4] 10+ years - 16 years[5] 16+ years[6]

30.d. Kwa nini ulikuwa ukai na mzazi/wazazi wako baada ya wakati huo (Why were you not staying with your parent/parents after this period). - Alikuwa amekufa (died)[1] ..... Walikuwa wamepeana talaka (divorced)[2] Walikuwa wameachana (They were not staying together/they had separated)[3] - Nilikuwa nakaa na nyanya (Was staying with grandmother)[4] Hahusiki (Not concerned)[5] - Nyingine - elezea (Others specify) .....

31.d. Kama ulikuwa ukai na mzazi/wazazi wako, ulikuwa unakaa na nani (If you were not staying with your parent/parents with whom were you staying) Nyanya (Grandmother)[1] - Nyanya na babu (Grandmother and grandfather)[2] Shangazi (Aunt)[3]

Mama wa kambo (Step mother)[4] - Baba wa kambo (Step father)[5] - Mama wa pili (Mother's sister)[6] Baba wa pili (Father's brother)[7] Mjomba (Uncle)[8] Hahusiki (Not concerned)[9] - Mwingine - eleza (Others - specify) .....

.....

32.d. Ulilelewaje (How were you brought up)

- Kwa mapendo/kuelekezwa (With love and being guided)[1] - Kwa ukali mkubwa (Very strictly)[2]
- Kwa ukali mdogo (Slightly strictly)[3] - Hahusiki (Not concerned)[4] - Nyingine - elezea (Others- specify) .....

33.d. Je mlezi wako alikuwa akikuleaje/alikuwa akikuonaje? (What was your figure parent attitude towards you)

- Alikuwa ananipenda sana (Loved me very much)[1]
- Alikuwa ananipenda kiasi (Loved me moderately)[2]
- Alikuwa hanipendi (Didn't love me)[3]
- Alikuwa ananichukia kidogo (He was hating me a bit)[4]
- Alikuwa ananichukia sana (He hated me a lot)[5]
- Hahusiki (Not concerned)[6]
- Nyingine - elezea (Others - specify) .....

34.d. Katika maisha yako ya utoto kuna jambo lolote lililotokea ambalo lilikuwa na uzito wa kufanya ulikumbuke mpaka leo (During your early childhood do you remember any incidence which made a strong impression on you) - Kifo cha baba (deat of father)[1] Kifo cha mama (death of mother)[2] ..... Kifo cha ndugu/Mdogo au mkubwa wa mtu au dada wa mtu (death of sibling)[3] - Kifo cha ndugu mwingine (death of another relative)[4] - Vita (War)[5] Nyumba yetu kuungua (Our house being razed down by fire)[6] Hamna (None)[7] - Nyingine - elezea (Others - specify) .....

35.d. Je utaelezaje au uliyaonaje maisha yako ya utoto (How would you describe your childhood)
Kipindi cha furaha sana (Very happy period)[1]
Kipindi cha shida (A difficulty period)[2]
Si kipindi cha furaha sana (Not a very hapy period)[3] .....
Kipindi cha shida sana (Very difficult period)[4]
Elezea kwa kifupi (Please explain briefly) .....
.....

36.e. Je unafurahia kuwa Mkuu wa familia (Do you enjoy being head of the family) - Ni mzigo mzito (It is a heavy burden)[1] - Ni mzigo kidogo (It is a slight burden)[2] - Siyo mzigo kabisa (It is not a burden at all)[3] - Hahusiki (Not concerned)[4] Nyingine - elezea (Others - specify) .....

37.f. Je umeoa/umeolewa (Are you married)
Ndiyo (Yes)[1] Hapana (No)[2]

38.e. Je unawaonaje watu wenye madaraka/vyeo vikubwa. (How do you view people with high responsibilities) - Nawaonea wivu kwani kama wanafanya kazi zao vizuri wanaheshimika na wanategemewa na wenzao pamoja na taifa (I envy them because if they discharge their responsibilities accordingly, other people and the nation depend on them)[1] - Nawasikitikia kwani kazi zao ni nzito sana kwa sababu wanategemewa sana na wenzao pamoja na taifa (I pity them because their duties are heavy and involve being depended upon by other and the nation)[2]

- Nawaonea wivu kwa sababu kuwa na madaraka/ kiongozi na kutegemewa na wenzako na taifa ni jambo la kujivunia na vile vile nawaonea huruma kwa sababu huo ni mzigo mzito (I envy them because having responsibility and being depended on by others and the nation it is something to be proud of, but also I pity them because it is not an easy task)[3] ....

- Nyingine elezea (Others - explain) .....

.....

39.f. Je mnaelewana vizuri na mke/mume wako. Je hamna tatizo lolote la kindoa? (Do you have any marital problems) - Hakuna (No problems)[1] - Matatizo madogo (Small problems)[2] - Matatizo makubwa (Big problems)[3] - Hahusiki (Not concerned)[4] ....

Mengine - elezea (Others explain) .....

.....

Kama kuna tatizo lieleze (Explain the problem)

.....

40.e. Je unafurahia kukaa na watoto wako nyumbani (Do you enjoy staying with children at home) - Hapana, watoto wadogo wanasumbua sana, wakati mwingine najisikia kama kutokuja nyumbani (No, children will not let you alone, sometimes I feel like not coming home)[1] .....

- Ndiyo kwa sababu ni watoto wangu, sina la ..... kufanya lakini wanasumbua sana mpaka wakati mwingine najisikia kama kutokuja nyumbani ili kuwakwepa (Yes because they are my children and there is nothing I can do but they will not let you alone and sometimes I feel like not coming home([2] - Ndiyo nafurahia (Yes I enjoy)[3].

Mengine - elezea (Others - explain) .....

.....

41.e. Je maisha ya ndoa unayaonaje. (How do you view married life). - Si mazuri kwani unanyanganywa uhuru na kupata mwenzio na watoto wa kukutegemea (Not good because your wife/husband and children deprive you your indipendence and then they depend ..... on you)[1] - Uzuri wake ni kuwa unapata watoto lakini ubaya wake ni kuwa unanyanganywa uhuru wako

na mke/mme na watoto inakubidi wakutegemee (It is good only because you get children but bad because you lose your freedom and your wife/husband and children depend on you)[2] - Ni maisha mazuri (It is good life)[3] - Nyingine - elezea (Others- explain) .....

42.e. Je ungefurahi kama ungepewa madaraka makubwa (Would you be happy if you were offered a job with big responsibility) - Hapana, kwa sababu nataka uhuru wangu na sitaki kazi ya kuongoza na kutegemewa (No, I don't like leadership. I would like to retain my freedom)[1] - Ndiyo, lakini tu kwa sababu nategemea pato langu liwe kubwa lakini sitafurahi sana kwa sababu nitanyang'anywa uhuru wangu na kuanza kutegemewa (Yes, because of the money that accompanies it, otherwise I would not enjoy it because I would lose my independence and be depended upon)[2] - Ningefurahia sana. Napenda kuongoza wenzangu (I would be very happy, I like being a leader)[3] - Lingine elezea (Others - explain .....
.....

43.j. Je kazini au shuleni au nyumbani unashauriwa na kulalamikiwa kuwa ungefanya hili au lile (Do you feel that other people at home or place of work are telling you what to do). Sana (Very much)[1] ..... - Kidogo (A little bit)[2] - Hapana (No)[3]

Nyingine - elezea (Others - explain).....

.....

44.j. Je shughuli na mambo yako kazini au shuleni unaweza kuyafanya yafanyike jinsi unavyopenda. Hii ina maana kuwa je unaweza kutawala shughuli na mambo yako mahali pa kazi yakawa yanakwenda jinsi unavyotaka? (Are you able to get things done the way you like, at your place of work or school. I mean are you able to control or manipulate and get things done the way you want at your place of work or school)? - Yote (All of them)[1] - Mengi yake (Most of them)[2] - Machache (few)[3] - None (Hapana)[4] - Jibu tofauti - elezea (Others explain).....

45,e. Je ni yapi mazuri - maisha ya shule ambayo kila kitu unapatiwa au maisha ya kujitegemea (Which is better school life where everything is taken care of or working/indipendent life) - Maisha ya shule (school life)[1] - Maisha ya kujitegemea (Working/indipendent life)[2] - Mengine elezea (Others explain) ....

46.j. Je mambo yako nyumbani unaweza kuyafanya yafanyike jinsi unavyotaka (Are you able to get things done the way you would like at home) - Yote (All of them)[1] - Mengi yake (Most of them)[2] - Machache yake (Few)[3] - Hapana (None)[4] - Jibu tofauti - elezea (Others - explain) ....

47.i. Je wewe unafuata dini yoyote (Do you belong to any religion) - Ndiyo (Yes)[1] Hapana (No)[2]

48.i. Je unaenda kusali au kuhudhuria mikusanyiko yoyote ile kwenye dhehebu lako mara ngapi kwa wiki (How many times do you go to pray or attend any religious gatherings of your religion) - None[1] - (1)[2] - (2-3)[3] - (4-5)[4] - (6-7)[5]. .....

49.i. Je unajiona kuwa una marafiki wengi zaidi kuliko watu wengine, wanaolingana na watu wengine au wachache zaidi kuliko watu wengine (Do you feel that you have:-) - Marafiki wengi zaidi kuliko watu wengine (More friends than most people)[1] Wanaolingana na watu wengine (About the same number of friends)[2] Wachache zaidi kuliko watu wengine (Fewer people than most people)[3]

50.i. Je unaweza ukapita muda gani bila kukutana na mmojawapo wa marafiki wako wakubwa (How long can you stay without meeting any of your intimate friends) - Chini ya siku moja (Less than one day)[1] - Siku moja (One day)[2] - Siku 2 - 4 (2 - 4 days)[3] - Siku 5 - 6 (5 - 6 days)[4] - Wiki 1 - 2 (1 - 2 weeks)[5] - Wiki 3 (3 weeks)[6] - Zaidi ya mwezi (more than a month)[7]

51.i. Kama una shida ya ki-binafsi, je unaye ndugu au rafiki/marafiki wa kuwaendea, wakakusikiliza na kukusaidia ipasavyo? (If you have a personal problem do you have a friend/friends or relatives whom you feel will listen and help you) - Mmoja au wawili (one or two)[1] - Kadhaa (several)[2] - Sina (I don't have)[3] Elezea (Comment) .....
.....

52.b. Je pato lako kwa mwezi ni iiasi gani (What is your average income per month).
(0 - 600/=)[1] (601 - 1000)[2] (1001 - 1500/=)[3]
(1501 - 2000/=)[4] (2001 - 3000/=)[5] (3001-4000/=)[6]
(4001 - 7000/=)[7] (More than 7000/=)[8]

53.b. Je ni kazi gani inayompatia mme/mke wako pato kwa hivi sasa (What is your husband/wife doing at present to get his/her income) - Ameajiriwa (employee)[1] - Mfanyabiashara (Bussiness)[2] Mkulima (Peasant)[3] - Mkulima na Mfanyabiashara (peasant & bussiness)[4] - Mwajiliwa na Mkulima (employee & farming)[5] - Mwajiliwa na Mfanyabiashara (employee & business)[6]
Nyingine - elezea (Others - specify) .....

&

54.b. Je pato la mwezi la mke/mme wako ni kiasi gani
What is the average montly income of your wife/
husband) (0 - 600/=)[1] (601 - 1000/=)[2]
(1001 - 2000/=)[3] (2001 - 3000/=)[5] (3001-4000/=)[6]
(4001 - 7000/=)[7] (More than 7000/=)[8] .....

55.g. Je umeishi Dar es Salaam kwa muda gani (How long
have you stayed in Dar es Salaam) - Chini ya
mwaka mmoja (Less than one year)[1] - Mwaka mmoja
mpaka mitatu (One year up to three years)[2] .....
- Zaidi ya miaka mitatu mpaka miaka mitano
(More than 3 years up to 5 years)[3] - Zaidi ya
miaka mitano (More than 5 years)[4]

56.c. Je baada ya shughuli zako za kawaida unafanya
nini (What do you do after your working hours).
- kucheza mpira (play football)[1] - Kuangalia
mpira (Watch football)[2] - Kuangalia au kucheza .....
mchezo mwingine wowote ule (play or watch any
other game)[3] - kwenda sinema (go to movie)[4]
Kwenda kutembea pwani/baharini (go to the
beach)[5] - kusoma vitabu na magazeti (read
novels and newspapers/magazines)[6]

	- kwenda kwenye vinywaji (go to have a drink)[7]	
	- Nyingine, elezea (Others - specify)	
	.....	
57.b.	Je pato lako au lenu la familia linatosha kwa shughuli muhimu? (Is the family income able to satisfy all the important financial needs)	.....
	- Kabisa (Completely)[1] Kidogo (Partially)[2]	
	- Hapana (No)[3].	
58.b.	Ni shughuli gani hasa hazitimiziki (Which areas are most affected) - Chakula (kwa ajili ya jamii) (Food for the family)[1] - Nguo (kwa ajili ya familia) (Clothing for the family)[2]	
	- Kutunza wazee nyumbani (Looking after old parents)[3] - Kulipia watoto gharama za shule (paying school expenses for the children)[4]	.....
	- Kulipa gharama za shule kwa ndugu na dada zetu (Paying school expenses for our brothers and sisters)[5] - Nyingine - elezea (Others - specify)	

59.g. Taja sehemu ambazo umewahi kukaa ukianzia toka ulipokuwa mdogo (In how many town/village have you stayed since you were born. Name them)

Village/Town	Period	Duration

Mostly urban[1] Mostly rural[2] Half-half[3] .....

60.g. From 59 above she/he has recently changed from rural to urban - Yes[1] No[2] .....

61.g. From 59 above she/he has recently changed from urban to rural. - Yes[1] No[2] .....

62.g. The disease started -

- after changing from rural to urban[1]
- after changing from urban to rural[2] .....
- None of the above[3]
- Others - specify .....

.....

63.g. Kwa ujumla katika sehemu ulizokaa ni wapi maisha yalikuwa rahisi - mjini au shamba? (In general where did you find life easier, urban or rural) - Mjini (Urban)[1] - Rural (Shamba)[2] Equally the same (Zote Sawa)[2]

Elezea (Comments) .....

64.h. Wakati ugonjwa wako ulipoanza kulikuwa na mabadiliko gani katika maisha yako au hapa nchini (What changes had you to cope with during the onset of your disease).

- kipindi cha mitihani (Examination period)[1]
- kuhama kutoka shamba kuja mjini (moved from rural to urban)[2] - Niliajiriwa kwa mara ya kwanza (1st employment)[3] - Nilipewa madaraka ya kiuongozi (was given administrative responsibilities)[4] - Nilipewa uhamisho (was transferred)[5] - Niliоa/kuolewa (Was married)[6] - Nilipata mtoto (my child was born)[7]
- Nilipata mimba (became pregnant)[8]
- Nyingine elezea (Others specify) .....

.....

65.k. Je unakunywa au ulikuwa unakunywa pombe na kiasi gani (How much alcohol do you drink or were you drinking) - Chupa mbili kwa wiki (two bottles per week)[1] - Chupa tatu mpaka tano kwa wiki (3 - 5 bottles per week)[2] - Chupa 6 - 10 kwa wiki (6 - 10 bottles per week)[3] - Chupa 11 - 15 kwa wiki (11 - 15 bottles per week)[4] - Chupa 16 - 21 kwa wiki (16 - 21 bottles per week)[5] - Zaidi ya chupa 21 kwa wiki (more than 21 bottles per week)[6] Hahusiki (Not concerned)[7] - Jibu tofauti (Others - specify) .....

.....

66.k. Uliacha lini pombe (When did you quit drinking)
- Miezi 0 - 3 iliyopita (0 - 3 months ago)[1]
- Miezi 4 - 6 iliyopita (4 - 6 months ago)[2]
- Miezi 6 - 12 iliyopita (6-12 months ago)[3]
- Zaidi ya miezi 12 iliyopita (More than 12 months ago)[4]
- Hahusiki (Not concerned)[5]

.....

67.1. Je unavuta au ulikuwa unavuta sigara (Do you smoke or were you smoking cigaretes)

- Less than 5 cigarretes per day[1]
- 6 - 10 cigarretes per day[2] .....
- 11 - 15 cigarretes per day[3] .....
- 15 - 20 cigarretes per day[4]
- More than 20 cigarretes per day[5]

68.1. - Uliacha lini kuvuta sigara (When did you stop smoking).

Miezi 0 - 3 iliyopita (0 - 3 months ago)[1]

Miezi 4 - 6 iliyopita (4 - 6 months ago)[2]

Miezi 6 - 12 iliyopita (6 - 12 months ago)[3] .....

Zaidi ya miezi 12 iliyopita (more than 12 months ago)[4] .....

Hahusiki (Not concerned)[5]

69.m. Je unapata usingizi vizuri (Do you sleep well). Yes (Ndiyo)[1] No (Hapana)[2] .....

70.m. Kwa nini ulikuwa unakunywa pombe (Why were you drinking alcohol).

- Ili kukaa na watu wengine (Social)[1]
- Kunipotezea mawazo (to enable me forget problems)[2] - Nyingine - elezea (Others - specify) .....

71.m. Je una matatizo yoyote kwa sasa hivi au chochote kile kinachokufanya uwe na mawazo - elezea (Do you have any problem or anything which makes you worried) .....

.....

PHYSICAL EXAMINATION

1. Nutritional status:
   Good[1] Wasted[2] Obese[3]
2. Height .....
3. Weight .....
4. Tenderness: Upper abdomen[1] Umbilical[2] diffuse[3] None[4]
5. Other physical/mental examination findings

.....

INVESTIGATIONS

1. Type of ulcer .....

2. Endoscopic description .....

.....

3. Other endoscopic findings .....

.....

4. Barium meal .....

.....

5. Blood groups: - A Rh +ve[1], B Rh +ve, AB Rh +ve[3]
O Rh +ve[4], A Rh -ve[5], B Rh -ve[6], AB Rh -ve[7], O Rh -ve[8]
Not done[9]

TREATMENT AND DISPOSAL

1. Treatment at present .....

.....

2. Since when on above treatment .....

.....

3. Previous treatments and duration (after definite diagnosis of P.U.) .....

.....

4. Disposal: - Follow up at gastroenterology clinic[1] .....

- Discharged from the clinic[2] .....

- Referred for surgical intervention[3]

- Others - specify .....

5. Indication for referral to surgical department ...

....

FOLLOW UPS:

1. First follow up:-

(a) Date .....

(b) Subjective feeling: Same[1] Some relief[2]

Definite relief[3] Cured[4] Condition worse[5] .....

(c) Others: specify (include objective opinions)

....

2. Second follow up:-

(a) Date .....

(b) Subjective feeling: Same[1] Some relief[2]

Definite relief[3] Cured[4] Condition worse[5] .....

(c) Any other comments (includes objective opinions)

....

3. Third follow up:-

(a) Date .....

(b) Subject feelings: Same[1] Some relief[2]

Condition worse[3] Cured[4]

(c) Any other comments (includes objective feelings)

.....

.....

KEY TO PSYCHO-SOCIAL FACTORS (FOR QUESTIONAIRE 1)

(a) Education (b) Socio-economic status (c) Occupation (d) Early childhood (e) Conflict between independency and dependency (f) Marriage (g) Rural/Urban life (h) Social economic cultural change (i) Social ties (j) Ability to predict and control environment (k) Alcohol (l) Smoking (m) Any other stress.