ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES, DEPARTMENT OF EMERGENCY MEDICINE

ASSESSMENT OF INAPPROPRIATE EMERGENCY VISITS OF PATIENTS IN TIKUR ANBESSA SPECIALIZED HOSPITAL ADULT EMERGENCY; ADDIS ABABA; ETHIOPIA, 2019

BY: - ERMIYAS GUADIE (BSC, MSC CAND.)

ADVISERS:

D/R FINOT DEBEBE (MD, MSc, ASS. PROFESSOR, SENIOR EMEREGNCY PHYSICIAN)

Mss. HEYRIA HUSSIEN (BSC, EMCCN, LECTURER OF ED)

THE RESEARCH THESIS SUBMITTED TO ADDIS ABEBA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, DEPARTEMENT OF EMERGENCY MEDICINE IN PARTIAL FULFILLMENT FOR REQUIREMENTS OF MASTERS OF SCIENCE DEGREE IN EMERGENCY MEDICINE AND CRITICAL CARE NURSING

JUNE/ 2019

ADDIS ABEBA, ETHIOPIA

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIEN CES, DE PARTMENT OF EMERGENCY MEDI JUNE

ASSESSMENT OF IN APPROPRIATE EMERGENCY VISITS OF PATIENTS IN TIKUR ANBESSA SPECIALIZED HOSPITAL ADULT EMERGENCY; ADDIS ABABA; ETHIOPIA, 2019

BY: - ERMIYAS GUADIE (BSC, MSC CAND.)

ADVISERS:

D/R FINOT DEBEBE (MD, EMS, ASS. PROFESSOR, SENIOR EMEREGNCY PHYSICIAN)

Mss. HEYRIA HUS SIEN (BSC, EMCCN, LECTURER OF A.A.U)

Approval by the board of examination

This thesis by Ermiyas Guadie is accepted in its present form by the board of examiners as Satisfying thesis requirement for the degree of master in emergency medicine and critical care

External examiner:

_____ _____ _____

Name signature date

Internal examiner:_____ _____ _____ _____

Name signature da te

Research advisors:

Dr. Finot Debebe (Assistant Professor of Emergency Medicine)

_____ _____ _____

Name signature date

He yria Hussien (EMSc , lecturer of A .A.U) _____ _____ _____

Name signature date

Department head:

_____ _____ _____ _____

Name signature date

Statement of declaration

By my signature below, I hold and affirm that this thesis is my own original work in partial fulfil lment of the requirements for the degree of master in emergency medicine and critical nursing. I have abided by all ethical principles of scholarship in the prep, data aggregation, information analysis and completion of this thesis. All the sources of the materials used for this thesis and all people and institutions who gave support for this work are fully acknowledged. I confirm that I have mentioned and referenced all sources used in this text file.

Every attempt has been constituted to av oid plagiarism in the planning of this thesis. Brief quotations from this thesis may be used without special permission, provided that accurate and complete acknowledgement of the source is made. Petitions for license for extended quotations of this thesis in whole or in part may be accorded by the Head of the Department or all consultants of the thesis when in his or her opinion the proposed usage of the cloth is in the pursuit of scholarship and publication. In all other instances, however, permission mus t be obtained from the author of the thesis.

Student: - Name; Ermiyas Guadie Signature _____ date _____

Research advisors

Dr. Finot Debebe (assistance professor of Emergency Medicine) _____ _____

Signature date

Mss . Heyria Hussien (MSC) _____ _____ _____

Signature date

ACKNOWLEDGEMENT

First and foremost, I would like to thank Almighty God for unending lov e, care and blessing through out entire life. My heartfelt thank goes to Addis Ababa University College of Health Science, Department o f Emergency medicine for giving me the chance to do this research .

Next to th is I would like to acknowledge my advisors D/r Finot Debebe, (Ass. Professor)& Heyria Hussein (MSc, EMCCN and lecturer of emergency) for giving me their unreserved guidance, c onstructive comments and advisory supports throughout this study .

Next to them , I would like to thank the staffs of Tikur Anbessa Specialized Hospital for giving me valuable information . I especially thank the participants of this study, coordin ators, data collectors, patient chart workers of hospitals under study and administrative workers of TASH.

TABLE OF CONTENT

LIST OF TABLES&FIGURS

ABSTRACT :

Introduction: The ina ppropriate use of emergency department (ED) ser vice by patients with non-emergent cases is a worldwide problem that makes it difficult to guarantee access for real emergency cases, decreases willingness for care, produces depressing run over effects on the quality of emergency services, and raises overall costs.

Objective: The study was to assess inappropriate emergency visits of patients in Tikur Anbessa Specialized Hospital adult emergency from M arch 18/ 2019 –April 10 / 2019 G.C, in Addis Ababa, Ethiopia.

Methodology: Institutional based cross -sectional study was conducted from March to April/ 2019 G.C in Tikur Anbessa specialized hospital adult emergency unit. The data was collected through interviewing using a pretested & structured questionnaire & chart review of those patients was also done by using check lists.

Results: Out of 295 eligible participants, 63.8% were females, 51.6% were in the age group of 31 -60 years, 52.3% had low family income status, 56.4% had an educational level of diploma and above, 77.7% were with chief compliant of medical or surgical illness & the rest 22.3% sustained trauma / injury. Two hundred twenty seven (79.1%) participants had duration of illn ess >24 hours, 34.5% came from regular OPD and 9.1% came to ED with an ambulance. Majority of ED visits also occurred during working days (85.4%). Among total respondents, 117(40.8%) of them had inappropriate ED visits. Sex, family income, duration of illness and days of visits had significant associations with Inappropriate ED visits of patients.

Conclusion : In Tikur Anbessa Specialized hospi tal significant number of patients had inappropriate ED visits based on our in appropriateness criteria developed from ACEP & Afilalo's criteria of appropriateness of ED visit of patients; Participants with female sex, low family income , >24 hours duratio n of complaint and working days ED visits had more inappropriate ED visits of TASH.

Key Words : Appropriateness, Inappropriate ED visits, Emergency department & Tikur Anbessa Specialized Hospital

ACRONYMS

AAU:	Addis Ababa University
A&ER:	Accident and emergency room
ACEP:	American college of emergency physician.
CDC:	Communicable Disease Control.
CI:	Confidence Interval
E.C:	Ethiopian calendar
ED:	Emergency department
G.C:	Gregorian calendar
Pts	Patients
ROPD:	Regular outpatient department
SPSS:	Statistical Package for Social Science
TASH:	Tikur Anbessa Specialized Hospital.
TASTH:	Tikur Anbessa specialized & teaching Hospital.
US/USA:	United States/ United States of America
WHO:	World health organization.

CHAPTER 1

1.1 INTRODUCTION

The inappropriate use of emergency room (ER) service by patients with non-emergent health problems is a worldwide problem, both in countries with publicly funded health systems as well as in those with private security systems.(1)

Patients who present to the Emergency Department (ED) are typically unselected on arrival, although some may have already been seen by a clinician, or have been directed to the department following a pre-hospital assessment. A critical function of all EDs is to have reliable processes that can sort patients, in accordance with their clinical need. These processes are likely to vary between Urgent and Emergency Care systems because of the differences between such systems in different locations. There is not, therefore, a "one size fits all" approach. (2)

Emergency treatment aims to perform procedures to immediately relieve life or limb threatening situations, and is not intended to include on-going care. But, patients frequently seek the emergency department (ED) to gain immediate attention in order to carry out tests and administer medication to relieve symptoms immediately. This may appear appropriate from the patient's perspective. However this type of use creates a load on the health system and increases the demand on the ED for care that could be managed better at other levels and that in a sense competes with true emergency cases. (3)

The inappropriate use of emergency room (ER) service by patients with non-urgent health problems is a worldwide problem. Inappropriate ER use makes it difficult to guarantee access for real emergency cases, decreases readiness for care, produces negative effects on the quality of emergency services, and raises overall costs of health system. (4)

Inappropriate use of the Emergency Department for non urgent problems has been suggested as a probable contributor to ED overcrowding and to an increase in health care costs. (5)

As the American journal of emergency medicine shows that burden of inappropriate ED visits was 10% to 90% estimated at different settings according to distinct criteria for determining the appropriateness of an ED visits.(6)

However, a generalization of these estimates is restricted by the lack of a universally accepted measurement of what constitutes an inappropriate ED visit. (7)

Non published paper on ' Improving Attendants Flow and Reducing Emergency Unit Crow ding in Emergency Department of Black Lion Specialized Hospital, Addis Ababa Ethiopia ' by Lemlem Beza, & Finot Yayie hyerad shows that Emergency department overcrowding is a condition in which need for service surpasses the capability to provide care within a realistic time, causing physicians and nurses to be incompetent to provide quality care. The Emergency Unit of Black Lion Hospital serves for more than 20,000 patients per year. (8)

It has well-known that emergency department crowding is one of the leading problems facing emergency physicians, nurses, and their patients. Multiple factors identified a s a cause for emergency unit crowding . (8) But this study didn't identified inappropriate visit as a p roblem of ED overcrowding even though it is major contributing factor. Among those inappropriate visit may contribute for the most hectic problem of Tikur Anbessa specialized hospital adult emergency department overcrowding.

1.2 Statement of the problem

Hospital Emergency Department (ED) serves a s vital role in the health care system and as the interface between hospital services and the community. As Hospitals ED mostly provide 24 - hour services, it becomes easily accessible to the public. However , some patients attending ED have problems which can be treated in the primary care services in the community. These patients and their conditions have been described as inappropriate for ED services. (9)

ED overloading may be an e ffect of many causes, like the overburden of inpatients on existing services; the shortage of beds in the inpatient wards and intensive c are units; the disproportionate number of emergency physicians or nurses and pts ; insufficient ED space, staffing, or subsidiary services; tr ansfers from private hospitals; an increased entry of severely ill patients and trauma patients; and a rising demand for ambulatory care. However, the reason most commonly cited is an excessi ve number of patients with non urgent problems" inappropriate" ED users. (10)

As in other countries, factors for overcrowding in Ethiopia EDs are assumed to be a consequence of inappropriate ED overuse. No published studies in Ethiopia, even in Africa have been evidenced at this time to support this assumption still now .

When I was working in TAS H ED for the last 3 years, I observed that adult ED was always overcrowded by patients with chronic conditions & non urgent cases . Thi s was due to deferent reasons like social case, missing of appointment , worsening of symptoms before appointment unable to access the service in health center s…

The abov e all situations are the driving factors to conduct this study to support the observed suggestion with the research base & to identify real burden of inappr opriate emergency visi ts of TAS H ED.

1.3 Significance of the study

Inappropriate visit of emergency department is one of the most challenging problems facing Emergency department clinicians and the most frequent contributing factor for overloading of emergency department. So, Assessing inappropriate emergency visits & identifying basic associated factors that enhance inappropriate visits is mandatory for health policy makers and Hospital managers. This study will show the correct direction for decision making towards causes of inappropriate visits as well as overcrowding of emergency department at national and organizational levels of Tikur Anbessa hospital. On the other hand this study will inform that increasing no of inappropriate emergency users can decrease quality of emergency care. Finally as to researchers knowledge still now, no published study have been evidenced in Ethiopia even in Africa to address inappropriate emergency visits; So, this study will give better base line information on inappropriate emergency visits & associated factors for further researchers and policy makers.

And it will have effect on decreasing emergency overcrowding and indirectly improves health care quality of TASH and to the country at large. It will be a base line for other researchers to do further researches for resolving this problem.

CHAPTER 2

LITERATURE REVIEW

The study conducted on Inappropriate utilization of emergency department services in University Sains , Malaysia hospital in 2000G.C showed that from the total sample of 350 cases, the proportion of inappropriate cases were 55% . & the peak inappropriate visits were between 8 to 10 AM and 2 to 4 PM and 8 to 10 PM . However, appropriate cases peak around 8 PM with the day trend within week s. This indicates that inappropriate ED visits increase d during and near the weekend . (9)

Another study conducted on Appropriateness of Emergency Department Visits in a Portuguese University Hospital showed that the prevalence of an appropriate ED visit, by use of their criteria, was only 68.7% the remaining is inappropriate visits & Sex was an effect modifier. (10)

Inappropriate visits were more frequent in women than in men; however, sex modified some of the associations between other variables and the appropriateness of ED visits. Thus, they found that age below 60 years or younger was a determinant for an inappropriate visit in both sexes . Duration of complaint lasts 24 hours or less, which occurred in half of those visiting the ED, is the strongest de terminant for inappropriateness in both men and women. An ED visit for a minor illness may be acceptable for patients with no other sources for medical care; however, even people with other option may favor an ED in the case of an unanticipated illness. Th is may be expected because, in contrast to primary care clinics, private clinics, or physicians' offices, emergency physicians are required by law to administer patient care 24 hours a day and 7 days a week. (11)

In studies that measured inappropriate use of emergency departments, the percentage of inappropriate visits varied from 5% to 82% & the most important rationale for such a wide variation is the lack of standard criteria to determine appropriateness. Some studies used the physician's perception, whe reas others relied on the patient's perception of the appropriateness of the visit. (12)

Another study which was conducted on " Appropriateness of Emergency Department Visits in a Turkish University Hospital showed that among 1,155 (96.2%) of 1,201 patients visiting emergency department during the study period, there were 69% (n=795) appropriate visits & the rest were inappropriate visits. T he mean stay at emergency department of inappropriate users lasted 66 min. The major reasons of inappropriate users to choose emergency

department care were its proximity, satisfaction with care, worsening symptoms, and unavailability of care in a regular clinic. (13)

As the study on Demand for emergency health service: factors associated with inappropriate use in souther n Brazil showed that the prevalence of inappropriate ER us e was 24.2% and i nappropriate ER use was inversely associated with age , longer stay in the waiting room, longer duration of symptoms in the morning shift. However, the determinants of inappropriate ER use differed according to age groups (P value for interaction = 0.04). Within the younger age -group (15 –49 years), inappropriate ER use was higher among females, patients who reported visiting t he ER because there was no other place to go, patients reporting that the doctor at the regular place of care refused to attend to them without a prior appointment, and individuals who reported that the PHC clinic which they use is open for shorter periods throughout the day. (14)

The research conducted on inappropriate use of an accident and emergency department: magnitude, associated factors, and reasons —an approach with explicit criteria showed that of out of the total figure of visits to the A&ED, 29.6% were evaluated as inappropriate and the remaining 70.4% was as appropriate. (15)

In contrast the study conducted on Avoidable emergency department visits: a starting point, in US showed that only 3.3% of all ED visits were 'avoidable (inappropriate) & the top chief complaints included toothache, back pain, headache, and other symptoms/problems related to psychosis and throat soreness which is insignifican t relative to the previous figure . (16)

On the associated factors the study conducted on Emergency Depa rtment Visits for Non urgent Conditions: Systematic Literature Review indicated that among the 9 articles that examined age, 6 found that younger adults were more likely to have non urgent visits compared with older adults and on race among the 9 articles that examined race, 4 articles found that blacks were more likely than whites to have a non urgent visit but Sex Findings were inconsistent across the 10 articles that examined gender. Four articles found that women were more likely than men to have a non urgent visit and 2 articles concluded the opposite (i.e, men were more likely than women to have a non urgent visit) and other Four articles found no association; On Income. Among the 4 articles that assessed income reported that persons with low incomes w ere more likely to have non urgent ED visits. (17)

Another study in Henry Ford Macomb Hospital, Clinton Township, MI, USA on Emergency department visits: Why adults choose the emergency room over a primary care physician visit during regular office hours s howed that there were statistically significant differences in marital status and employment status between the two groups. It was found that 61.5% of the

non-emergent patients were single, while 58.3% of the emergent patients were married. In the non-emer gent group, 59.7% were unemployed, but in the emergent group 60.3% were employed (P <0.05). However, no other factors were significantly different. (18)

2.1. Conceptual frame work

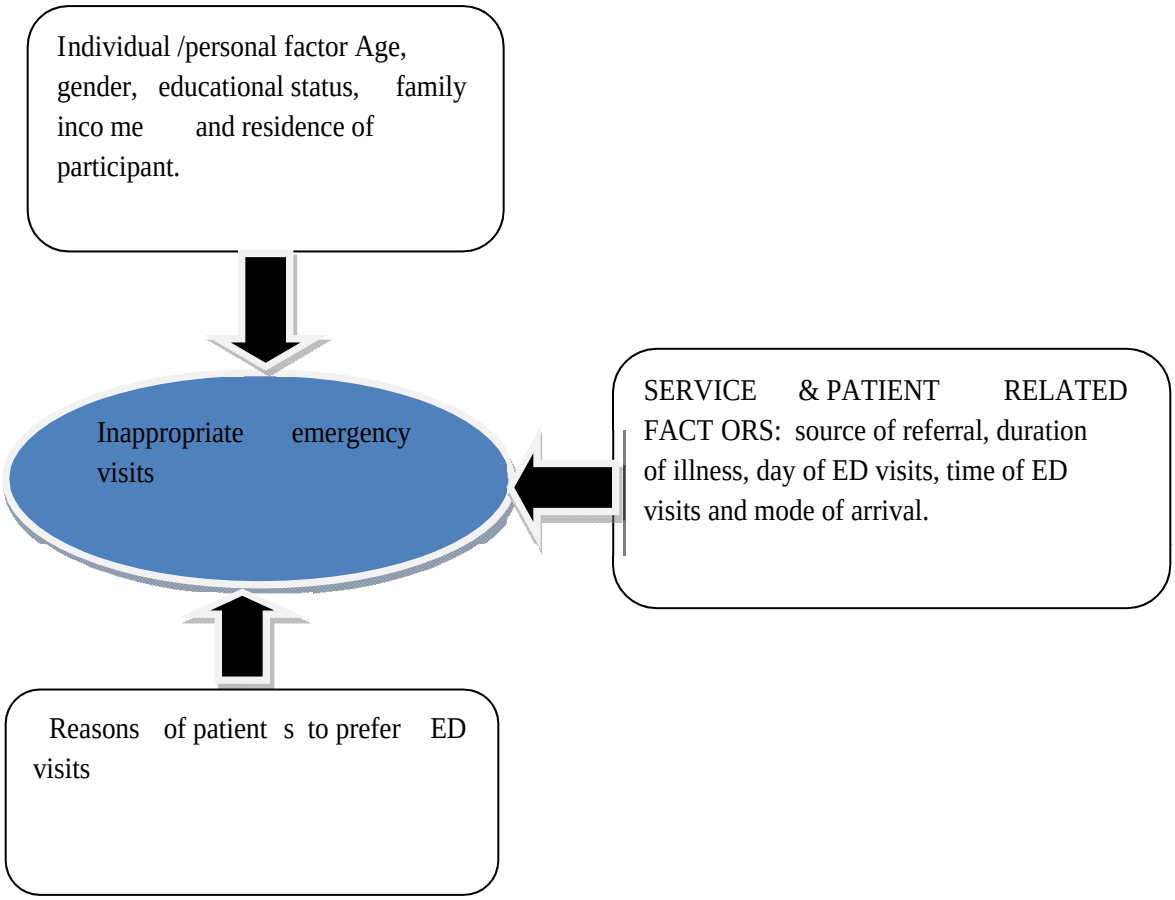


Figure1.The conceptual framework of factors affecting in appropriate emergency visits of patients developed by taking the variables from researches done in Malaysia & Brazil (9, 14 & 19) with some modifications to b e convenient for this study .

CHAPTER: 3

OBJECTIVES:

3.1. General Objective:

- Assessing inappropriate emergency visits of patients in Tikur Anbessa Specialized Hospital adult emergency, in Addis Ababa, Ethiopia, 2019 G.C

3.2. Specific Objective:

- To determine the socio demographic factors of patients visiting the emergency department inappropriately
- To identify the severity of illnesses/ injuries of patients receiving emergency care
- To determine prevalence of inappropriate visits of patients in adult emergency unit at Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia
- To identify the associated factors of inappropriate emergency visits in Tikur - Anbessa Specialized Hospital adult emergency in Addis Ababa, Ethiopia

CHAPTER : 4

METHODOLOGY :

4.1. Study area

The study was conducted at adult Emergency Department of Tikur -Anbessa Specialized Hospital which found in Addis Ababa capital city of Ethiopia.

Addis Ababa is a capital city of Ethiopia and capital of AU which has a population of 3,475,952 according to 2007 censuses and annual growth rate of 2.7% . It has also 41 hospitals (13 public, 28 NGO & private), 29 health centers, 122 health stations, 37 h ealth posts and 382 modern private clinics. Among them the s tudy was conducted in Tikur - Anbessa Specialized Hospital.

Tikur -Anbessa Specialized Hospital was launched in 1972 G.C. It is the largest Federal specialized hospital in the country and it has sinc e become a University teaching hospital for both clinical and preclinical training of most disciplines. It is also an institution where specialized clinical services that are not available in other public or private institutions are rendered to the whole n ation with various departments and faculties under specialty training in the School of Medicine and health science& provide patient care in the hospital.

As monthly report indicates t hat adult emergency unit of TAS H deliver services approximately for more than 60 newly admitted cases per day & most of them require critical care or emergent resuscitative care. It has emergency triage, front area, resuscitation area (red), orange area, procedure area, isolation area, yellow green area, observation (waiting) area, lab oratory room, and pharmacy and 5 2 emergency beds including stretchers.

On human resource adult ED run with 7 senior emergency consultants, 26 RI -RIII emergency residents, 6 non emergency RI residents, 12 Interns, 58 BS c nurses, 10 emergency masters ,7 coordinators, 11 pt assistants (porters), 11cleaners, 3 guards, 3 card officers, 4 pharmacists and 2 lab technologists.

4.2. Study design

Institutional based cross -sectional study was conducted .

4.3. Study period

The study was conducted from March 18, 2019 to April 10 , 2019G.C in Tikur Anbessa specialized Hospital adult emergency department

4.4. Source population and study population

4.4.1 Source population

All adult patients who visit Tikur Anbessa specialized Hospital was the source population.

4.4.2. Study population

All adult patients who visit ed Tikur Anbessa speci alized Hospital adult emergency department within the study period.

4.5. Inclusion and exclusion criteria

4.5.1. Inclusion criteria :

All adult patients who visited TA TH during t he study period, whose age was 13 years and above were included in the study.

4.5.2. Exclusion criteria :

Pts with loss of consciousness and had no attendant were excluded in the study.

4.5. Sample Size determination and Sampling Tech nique :

The sample size of the study was determined by using single population Proportion formula. Population size within the study period was around 900 by estimated from the previous month ly report of adult ED.

Hypothesized percent frequency of outcome factor in the population (p) = 50% . B/c there is no researches done previously in the local area or comparable country .

Confidence limits or standard error (d) is 5%

Confidence interval (Z) = 95 % which has a value of 1.96

Then by using single population proportion formula Sample size was calculated as :

$$n = \frac{Z^2_{\frac{\alpha}{2}} p(1-P)}{d^2}$$

$$n = \frac{(1.96)^2(0.5\times 0.5)}{(0.05)^2} = 384$$

Since the study population is <10,000 we can use correction al formula

$$NF = \frac{n}{1+\frac{n}{N}} = \frac{384}{1+\frac{384}{900}} = 269$$

Where n=sample size before correctional formula used

N=population size & NF = final sample size after correctional formula.

Therefo re the final sample size was **269**

Considering 10% non response rate which is 269x10%= 26.9 ~27 then the total sample size was 269+27= **296**

All patients who visit TASTH adult emergency department for seeking of emergency treatment during study period had equal probability to participate in the study.

Systematic random sampling was applied to select study samples (units) from all patients visited adult ED within the study period.

The sampling procedure was through calculating sampling interval by the formula

Sampling interval = $\frac{\text{total number of basic sampling populations}}{\text{Number of sampling units}}$

Then $\frac{900}{296}$ ~ 3. Then sample was selected through systematic random sampling among the first 3 ED visitors and then adding 3 from that number was given the next participant who came after every 2 pts to the ED was the study unit.

So, the sampling technique was systematic random sampling technique.

4.6. Variables

4.6.1. Dependent Variables:

Inappropriate emergency visits of patients

4.6.2. Independent variables

- Age, Sex, Educational status, Occupation, residence, family income, duration of illness, day of visit, time of visit .

4.7. Data Collection instrument and mechanisms

The instrument for data collection was semi structured pre tested questionnaire which was adapted from references (1, 9, 10&12) with some modifications based interview was applied as soon as the patient inter to the gate of TASH adult emergency(at triage area). The questionnaire contained items of socio demographic data of pts & questions to assess inappropriate ED visits like severity and types of illness or injury, duration, date and time of arrival , mode of arrival, and source of referral…

Data collection procedure was: for the first three weeks prospectively information was collected from patients who visited TASH adult emergency department. Then based on the information collected from the patients and their case severity , they were categorized in to three groups according to references (1, 10, and 12) category I, II & III .

Then for the next one week those pts' charts of category II &III was reviewed to decide their inappropriateness of ED visits based on physician diagnosis, laboratory tests, patient

disposition, le ngth of stay in the ED, procedures done, IV emergency drugs given and presence of c hronic conditions . By definition category 'I' patients were appropriate for emergency visits. So, no need of further information to decide their ED visits.

Definition of categories of appropriateness of emergency department use was according to the refere nces (9, 10& 12)

Category I – any of the following :

Triage Code 1 or 2 /red or orange patients based on our hospital protocol .

Code 1: patients require immediate attention. The illness or injury threatens life o r limb in the immediate future.

Code 2: patients require attention within 20 minutes. The illness or injury is acute and severe and may t hreaten patients' life or limb.

2. Referral to the emergency department. T his indicates that patients who was refer re d to the emergency department by an outsid e physician, nurse or by the pre hospital emergency care system with an ambulance.

3. Emergency treatment in the emergency department , Patient required treatments not available at other outpatient facil ities, such as intravenous emergency drug administrati on

4. Emergency consultations and admissions for emergency procedures which may threaten for life or limb of the patient

Category II – any one of the following:

1. W ho have Acute and severe discomfort but not life or limb threatening.

2. Who have Acute an d severe psychosocial distress.

3. Potential emergency in the differential diagnosis

4. Patients who have chronic conditions with pain complaining.

Category III – none of the above criteria and

Decision making mechanism of inappropriate ED visits for category II & III

Participants based on references (9, 10 and 12) :

Patie nt visits designate d as inappropriate if the patient met any one of the following criteria:

1) P resent with a non acute medical or surgical condition; which can be treated in the outpatient department .

2) R ecurrent visit for a stable, known condition; with no vital sign derangement

3) C learly for a nonmedical social or financial issue;

4) I f the complaint can be adequately treated at a primary care facility (in ROPD or in heal th center s) and the service is available at the time of visit;

5) P atient does not require emergency procedures

6) If patient come to ED for further investigation from regular OPD

7) If the patient sent to ED for ward admission with cold / non emergent cases;

8. If patient co me to ED for prolonged IV medications of cold / non emergent cases;

9. If patient co me to ED for follow up missing with no emergency conditions;

10. Patient with no emergency conditions co mes to ED for legal issue s;

11. If patient do not have death in ED or no ICU admission, do not take any emergency medication after admission, do not have emergency cases on physician diagnosis & no worsening of symptoms after admission were assessed as inappropriate ED visits.

4.8. Data Quality Co ntrol:

One supervisor and two data collectors was trained by principal investigator for one day. The qualifications of d ata collectors were BSc Nurses and they recruit ed based upon their previous data collection experiences and comp etencies. The questioner was translated to Amharic language to minimize informat ion gaps. Pretest was done prior to data collection in the same Hospital and possible corrections to the questioners were done based on the pre test analysis . Pts who involved in the pretest were not included in the study. Collected data was first checked for completeness and edited every day after data collection by the princi pal investigator and supervisor . Then, it was entered t o EPI -data software version 3.1 with data clerk independently to minimize data entry errors and the n transferred to SPSS version 20 for analysis .

4.9. Data processing and Analysis

Data was entered into EPI -data version 3.1 Computer programs to minim ize data entry error and was exported for analysis to SPSS version 2 0, and then cleaning& analyzing was done. To explain the study population in relation to relevant variables, descriptive statistics such as frequencies and percentages was calculated. Chi square or cross tabulation analysis was also done to identify signif icance of independent variables on dependent variable and Logistic regression analysis was also done to identify the strength of association between dependent and independent variables. To control confounder variables all predictors that have been associated with the outcome variable on bivariate logistic regression with a p -value of less than 0.2 was included in the logistic regression model of multivariate analysis & p -value <0.05 considered as statistically signific ant in all cases.

4.10. Ethical considerations

Ethical clearance was obtained from the ethical review committee of Addis Ababa University, Department of **Emergency Medicine** . An informed written consent was seen from patients or relatives and protection o f the right s of the study participants was insure d by giving them due freedom to participate in the study or not to participate.

Pri vacy and confidentiality was maintained during & af ter the study (data collection) .

4.11. Data disse mination :

The finding of the study was presented during final thesis defense at Addis Ababa University health and medical science college department of emergency medicine. Co pies of the final thesis sent to libraries of Addis Ababa University School of Graduate Study office. It will also be disseminated to; Federa l ministry of health and to TAS H included in the study either in form of hard copy or as public presentation. It will be presented in national and international research symposiums if possible . Lastly possible effort wi ll be made to publish the finding on national and international journals to make it accessible for the next researchers to be used.

4.12. Operational definition:

Inappropriate (Non urgent) ED visit : defined as visits for conditions for which a delay of several hours would not increase the likelihood of an adverse outcome (WHO). P t who visits ED without emergency indexes (who do not fulfill emergency criteria of this study)

Appropriate visit : pt who visit ED rightly with real emergency case with real time or who fulfills em ergency criteria of this study.

Adult patient : a patient aged 13 years and above based on Tikur Anbessa specialized hospital protocol .

Emergency: A sudden and usually unforeseen event that calls for immediate measures to mitigate impact. (WHO)

Emergency department: Also known as casualty ward is a medical treatment specializing in Emergency medicine, the acute care of pts who present with acute ill ness or injury without prior appointment by their own or urgent referrals .

CHAPTER FIVE

RESULTS :

A total of 914 patients were evaluated in the adult ED of TASH in the study period. Among these patients, 296 were selected using syst ematic random sampling to participate in the study. One patient refused to give the information. Then a total of 295 patients were involved in the study. Eight charts were also lost. As a result, 287(97%) patients' data were analyzed for the final decision of emergency visits (Figure 1).

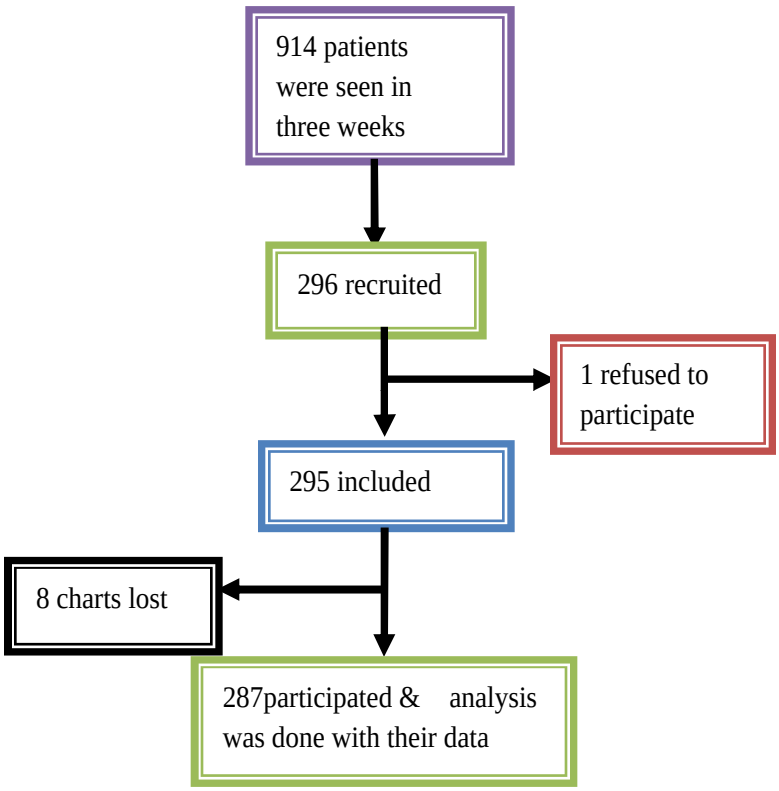


Figure 2: study population and sample selection flow diagram of study conducted in adult ED of TASH from march18/2019G.C to April 10/2019G.C, Addis Ababa, Ethiopia.

Socio Demographic data:

Sex distribution : the sex distribution of patients was 104(36.2 %) males and 183(63.8 %) females, giving a sex ratio of (M: F) of 1:1.7 6.

The age of patients ranges from 13 to 86 years with the mean age of 42.40 years and standard deviation of 17.636. Ninety three (32.4%) patients were in the age group of 13 -30 years and 148(51.6%) of them in the age group of 31 to 60 years old (table 1). R egarding to the residence of participants, above half 144(50.2%) of them came from out of Addis.

Among the study population, 162(56.4%) were with educational level of diploma and above and the r est 30(10.5%) were illiterates.

On occupational status 87(30. 3%) participants was private workers or merchants and 39(13.6%) were farmer s.

On the family income status, most of participants (150/52.3%) of the study participants who visited adult ED of TASH were under the low income family groups, 137(47.7%) middle income levels and no respondents in the high income groups (Table 1).

Table 1 : D emographic c haracteristics of participants who were involved in the study conducted in the adult ED of TASH from March 18 /2019 to April 10/2019G.C, Addis Ababa, Ethiopia.

Variables		Frequency	Percentage
Age	13 - 30years	93	32.4%
	31 - 60years	148	51.6%
	>60years	46	16.0%
	Total	287	100%
Sex	Male	154	53.7%
	Female	133	46.3%
	Total	287	100%
Marital Status	Married	157	54.7%
	Single/ unmarried	93	32.4%
	Divorced	28	9.8%
	Widowed	9	3.1%
	Total	287	100%
Educational status	Illiterate	30	10.5 %
	primary school	33	11.5 %
	Secondary & prep	62	21.6 %
	diploma and above	162	56.4 %
	Total	287	100.0%
Occupational status	un employed/ retired	60	20.9%
	government employed	73	25.4%
	private employed/merchant	87	30.3%
	Farmer/ house wife	39	13.6%
	Others (student & street men...)	28	9.8%
	Total	287	100.0%
Residence	Addis Ababa	143	49.8
	Out of Addis Ababa	144	50.2
	Total	287	100.0
Family income status	High income level	0	0%
	middle income level	137	47.7 %
	low income level	150	52.3 %
	Total	287	100.0%

A ppro priateness measuring variables:

Most of the participants, 223 (77.7%) had medical /surgical complaints and the rest 64(22.3%) sustained trauma. Out of the total respondents, 227(79.1%) had duration of compliant greater than twenty four hours and 60(20.9%) participants came to ED withi n 24 hours of their illness/injury.

Regarding the disease severity, 152(53%) had life or limb threatening conditions.

Most participants referred either from home by self referral or regular OPD (n=111(38.75) & n=99(34.5%) respectively). Only 26(9.1%) came with an ambulance / carried. The rest were on foot/ walking 95(33.1%) , used public /private cars 166(57.8%). One hundred sixty six (57.8%) respondents had no vital sign derangement on arrival .

Majority of participants visited adult ED in the working day s (from Monday -Friday with no holyday) and at working hours (from 8Am -5 Pm) which accounts about 245(85.4%) and 206 (71.8%) respectively.

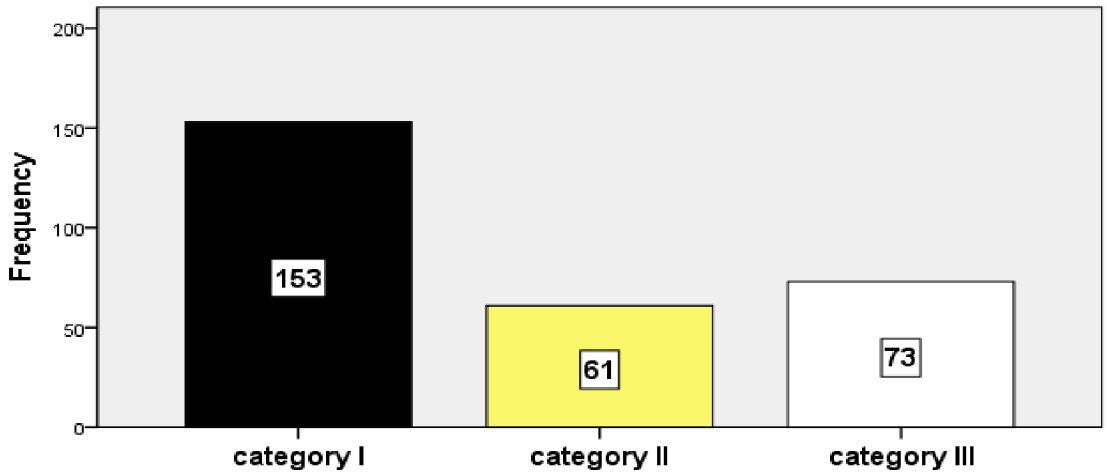
When we see the patients' perception about their own illness/injury, almost all participants 246(85.7%) perceived thei r illness/injury as emergent, 34(11.8%) perceived as urgent and the remaining 7(2.4%) participants perceived their illness as non urgent.

But when asked about the reason why patients prefer red ED, the majority of participants 149(51.9 %) respond as simply they were referred elsewhere and the rest 31(10.8 %) came to ED due to seriousness of their illness. Four (1.4 %) participants reported that th ey came to ED due to their relatives working in this ED/ in this hospital .(Figure 3)

Variables	Frequency	percentage
Proximity	1	0.3
Worsening of symptoms before appointment	82	28.6
Pre Hospital care un availability	5	1.7
Needs quick care & laboratory results	1	0.3
Always gets care in this Hospital / ED	11	3.8
Perception of serious illness or injury	31	10.8
B/c of referral else where	149	51.9
Due to follow up missing	3	1
Relatives working in this ED or Hospital	4	1.4
Total	287	100

Table 3: Reasons of patients for preferring the emergency department visits of Tikur Anbessa Specialized Hospital from March 18/2019G.C to April 10/2019G.C, Addis Ababa, Ethiopia.

Based on the patients' case severity the principal investigator and the two data collectors' categorized 153 (53.3%) participants under category I, 61(21.3%) participants under category II and 73(25.4%) participants under category III (Figure 2). By definition category I participants were appropriate for ED visit; so no need of further information for decision of their ED visits. So, further information from their charts was taken for only category II&III participants to decide their inappropriateness of ED visits (Figure 4).



Category I = patients who needs immediate intervention/had life or limb threatening conditions

Category II = patients with potential emergency diagnosis

Category III = patients with no emergency conditions at the time of triage

Figure 4: Category of participants based on their case severity in adulate ED of TASH from march18/2019G.C to April 10/2019G.C, Addis Ababa, Ethiopia .

Chart review findings:

Based on the chart review majority of participants among category II& III, 103 (76.9%) were with chronic cases and no sign of any emergency conditions and symptoms, the remaining 31(23.1%) were with acute case but only 17 (12.7%) participants were real emergency cases. One hundred eleven (82.8%) had <3 lab & imaging results, 77(57.5%) had <24hours length

of stay in the ED and 4(3%) of participants had emergency procedures. Out of 134 participants involved in the chart review, only 12(9%) of participants had taken intra venous emergency drugs & the rest 122 (91%) of them didn' t take any emergency drug. Regarding patient disposition, among 134 participants 102(76.1%) had been discharged to home, 16(11.9%) were transferred to other hospitals, 7(5.2%) got admitted, 2(1.5%) died and the rest 7(5.2%) were self discharged or the disp osition were unknown.

After chart review of category II&III participants based on chart review check lists, 17 participants were decided as appropriate ED visits due to their physician diagnosis, procedures done, investigations performed, length of s tay in the ED and other criteria listed in the check list. Among those 6 participants were from category II and 11 participants were from category III.

According to both the category assignment and their chart review 117 (40.8%) had inappropriate ED visit s. Of thes e participants, 34 were male (29.06%) & 83 females (70.94%). (Figure 3)

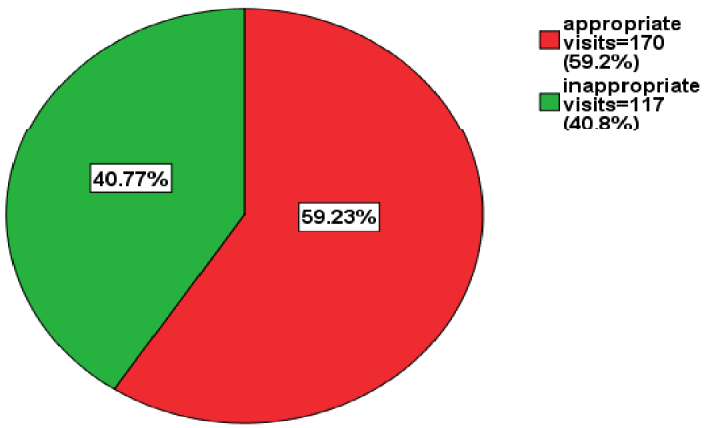


Figure 5: Distributions of appropriate and inappropriate emergency visits of Tikur Anbessa Specialized Hospital from march18/2019G.C to April 10 /2019G.C, Addis Ababa, Eth iopia

Socio demographic characteristics of inappropriate ED visitors

Among the total participants who declared as inappropriate ED visitors 33(28.2%) were males and the rest 84(71.8%) females. The age distribution was from 13 to 8 6 Years with the dominan t age group of 31 - 60 yrs 62(53%). Majority of inappropriate ED visitors came from out of Addis Ababa 63(53.8%) and most of them also with educational level of diploma and

above 63(53 .8%). On ma rital status large proportion of them was married 61(52.1%), b ut when we come to family income status almost all participants with inappropriate ED visits 113(96.6%) were in the low family income groups. When we see the complaints of them 98(83.8%) had medical or surgical illness and only 19(16.2%) were came with tra uma/ injury and almost all 107(91.5%) had duration of complaint > 24 hours, hundred two (87.2%) had no any vital sign derangement during arrival at adult ED.

Majority of inappropriate ED visitors referred from regular OPD 47(40.2%) and self referrals 47(40.2%) and almost all of them came either by walking 52(44.4%) or private car/ public transports 64(54.7%).

Fifty five (47%) of inappropriate ED visitors were categorized under category II & 62(53%) were also und er category III in the first interview part of the questioner.

On their chart review, large n o of inappropriate visitors 93(79.5%) were discharged to home within 7 days of admission and most of them had chronic medical or surgical disease.

For all inappro priate visitors no emergency procedures were done and no emergency drugs were given , ninety nine (84.6%) of them were diagnosed as chronic cases by the emergency physician, majority of them 103(88%) had < 3 lab and imaging results.

Factors associated with inappropriate ED visits of TASH adult ED:

The variables with 'p'< 0.2 in bivariate regression were included in the multivariate logistic regression analyses according to reference (13). This helps as to determine factors associated with inappropriate ED visits of participants and strength of association as well as to minimize confounding factors effect.

Majority of inappropriate visits were females (n= 84(71.8 %)) . This was statistically significant with a chi square value of 5.515 and AOR=1.826 (C.I =1.102 -3.025) and (p=0.02).

When we divided into three income classes, there was no respondent at all in the highest income groups totally. So, 150 (52.3%) participants grouped under the low family income group and 137(47.7%) participants also in the midd le family income groups. And also the lowest family income groups made significantly associated with inappropriate ED visits with AOR=113.041 (C.I=37.781 -338.217) and (p<0.001) (Table 2).

The parameters that significan tly influenced inappropriate emergency department visits of TASH were , gender of female sex with AOR =1.826 (95%C.I= 1.102 -3.025) and p= 0.02, low family income status with AOR= 113.041 (95% C.I= 37.781 -338.217) and p<0.001 , greater than 24 hours duration of complaints associated with A OR= 4.458 (95%C.I= 2.154 -9.226)

and p<0.001and working days of ED visits had strong association with AOR=3.391 (95%C.I= 1.231 -9.342) and p=0.018 . (Table 2). Age did not have significant effect on the outcome variable i nappropriate ED visits (AOR= 1.521(0.6953. 327) and (p= 0.294)) .

On mode of arrival participants came with private car or with public transport had strong association with AOR= 15.667(95%C.I= 1.985 -123.652) P=0.009 and walking patients with OAR= 31.399(95%C.I= 3.713 -265.551) and P=0.002.

Reasons of patients preferring ED visits did not associated with inappropriate ED visits of TASH ED COR=0.667(95%C.I=0.025 -18.059) and P -value of 0.810.

Similarly except Sex and family income status, other socio demographic variables had no statistically significant associations with the outcome variable inappropriate ED visits of TASH (p >0.05) (Table. 2). But other than socio demographic variables, duration of illness/injury (p<0.001), days of ED visits (p=0.018) and mode of arrival (p=0.002) had signif icant association with the outcome variable. To control confounder factors all predictors that have been associated with the outcome variable on bivariate logistic regression with a p -value of less than 0.2 was included in the logistic regression model of multivariate analysis & p -value of <0.05 considered as statistically significant in all cases (Table 2) .

Table 2 : Associated factors of Inappropriate ED visits, COR (95%C.I), AOR (95% C.I) and P-value s of each factors in TASH / 2019 G.C , Addis Ababa, Ethiopia

* = weak to moderate association **= strong association

Variables		frequency /percentage of inappropriate visits		COR. (95% C.I)	P-value	AOR(95%C.I)	P-value
		Appropriate	Inappropriate				
Age	a13-30	61(21.3%)	32(11.1%)	0.525(0.256 -1.077)	0.079 *	1.521(0.6953.327)	0.294
	31-60	86(30%)	62(21.6%)	0.721(0.371 -1.400)	0.339	1.038(0.576 - 1.873)	0.900
	>60yrs	23(8.0%)	23(8.0%)	-	-	-	-
Gender	Male	71(24.7%)	33(11.5%)	0.875(0.543 -1.086)	0.141 *	0.548 (0.331 - 0.908)	
	Female	99(34.5%)	84(29.3%)	1.805(0.823 -3.956	0.141 *	1.826 (1.102 - 3.025)	0.02 *
Residence of participants	Addis Ababa	89(31%)	54(18.8%)	0.780(0.487 -1.251)	0.302	--	--
	Out of Addis	81(28.2%)	63(22%)	1.282(0.8 -2.055)	0.302	--	--
Educational status	Illiterate	17(5.9%)	13(4.5%)	1.202(0.546 -2.643)	0.648	-	-
	Primary	18(6.3%)	15(5.2%)	1.310(0.616 -2.785)	0.484	-	-
	secondary	36(12.5%)	26(9.1%)	1.135(626 -2.058)	0.677	-	-
	> Diploma	99(34.5%)	63(22.0%)	0.832(0.378 -1.830)	0.648	-	-
Family income status	middle income	133(46.3%)	4(1.4%)	0.010(0.003 - 0.028)	<0.001 **	0.009 (0.003 - 0.026)	-
	Low income	37(12.9%)	113(39.4%)	101.547(35.124 - 293.582)	<0.001 **	113.041 (37.781 - 338.217)	<0.001 **
Duration of illness or injury	<or=24hrs	50(174%)	10(3.5%)	-	-	0.224 (0.108 - 0.464)	
	>24 hours	120(41.8%)	107(37.3%)	4.458(2.154 - 9.226)	<0.001 **	4.458 (2.154 - 9.226)	<0.001 **
Place of referral	R.H	48(16.7%)	18(6.3%)	-	-	-	-
	Health center	3(1.0%)	1(0.3%)	889(0.087 -9.106)	0.921	0.704(0.056 - 8.819)	0.786
	ROPD	52(18.1%)	47(16.4%)	2.410(1.233 -4.711)	0.010 *	1.018(0.447 - 2.319)	0.967
	Private clinic	3(1.0%)	4(1.4%)	3.556(0.724 - 17.470)	0.118 *	2.236(0.444 - 11.261)	0.329
	Self referral	64(22.3%)	47(16.4%)	1.958(1.012 -3.788)	0.046 *	0.955(0.455 - 2.004)	0.902
Day of ED visits	Working/ week days	138(48.1%)	107(37.3%)	2.481(1.168 -5.272)	0.018 *	3.391 (1.231 - 9.342)	0.018 *
	Weekend day/ holly days	32(11.1%)	10(3.5%)	0.403(0.190 -0.856)	0.018 *	0.295(0.107 - 0.812)	0.018 *
Time of ED visits	In working hours	119(41.5%)	87(30.3%)	1.243(0.732 -2.109)	0.420	--	--
	Duty hours	51(17.8%)	30(10.5%)	-	-	--	--
Mode of arrival	Ambulance /carried	25(8.7%)	1(0.3%)	-	-	--	--
	Private car /public tra	102(35.5%)	64(22.3%)	15.686(2.074 - 118.611)	0.008 *	15.667(1.985 - 123.652)	0.009 *
	Walking	43(15%)	52(18.1%)	30.233(3.934 - 232.320)	0.001 **	31.399(3.713 - 265.551)	0.002 *

CHAPTRE SIX

DISCUSSION

Inappropriate ED visits are very common in the Emergency department of Tikur Anbessa Specialized Hospital. This is an important finding because it has a significant effect on resource utilization and overcrowding. Being one of the few centers with properly staffed emergency professionals, the result can be alarming and impactful. The finding of this study showed that above one-third of ED visits (40.8%) were inappropriate by using the modified criteria of ACEP, explicit and Afilalo's (9, 10 and 12) with some modifications. Although there may be differences in classifying appropriate and inappropriate cases, the present study finding was considerably comparable with other study finding 55% of inappropriate ED visits in Malaysia (9). The result was significant number to contribute for overcrowding of adult ED of TASH. In contrast to this study finding, the study conducted in southern Brazil by using explicit criteria showed that the prevalence of inappropriate ED visits was 24.2% (14). Our finding was almost double of their finding. The difference may be due to the criteria used and study population difference. It may also be due to the difference of socio economic status of study population. On the research conducted in Malaysia hospital with total of 350 patients, the peak inappropriate visits were occurred during and near the weekend (9). But in our study the peak inappropriate ED visits were in the working days and working hours of the day might be due to lack of information or due to lack of clearly demarcated criteria for emergency admission in our hospital even in Ethiopia.

When participants asked the reason why they came to ED without emergency conditions, they respond that 28.6% of them due to worsening of symptoms before appointment which was the largest number next to referrals (51.9%). All participants with Hospital follow ups said that, they were told to come to emergency department when any symptom appear before appointment and this reason may contribute to inappropriate ED visits of TASH as well as for overcrowding of adult ED of TASH.

In different studies that measured inappropriate ED visits, the percentage of inappropriate visits varied from 3.3% to 55% (16, 9). The most important cause for such a wide variation is the lack of internationally accepted standardized criteria to measure appropriateness of ED visits & difference in the study population. Some studies used the physician's perception, whereas others relied on the patient's perception of the appropriateness of ED visits (12). In this study assessment of patients' perception showed that almost all participants perceived their illness as emergency. This showed that taking patients' perception as measuring criteria of appropriateness may decrease the number of inappropriate ED visits inappropriately.

Inappropriate visits were 1.826 times more frequent in women than in men. Thus, the study found that participants with low family income had 113 times more inappropriate ED visit than middle level family income in both sexes but more significant in women than in men. The research conducted on inappropriate use of emergency services: a systematic review of prevalence and associated factors showed that there was direct association between socio economic status and inappropriate ED use (3). But this study showed that higher -income individuals occupy the ED with inappropriate complaints, thereby limiting access by the lower -income population that not only has greater health needs but also comes to the ED more often for truly urgent problems. In contrast in our study we found that participants with lower income status had more exaggerated inappropriate ED visits than higher income ones. This difference might be due to the difference of the countries health policy and health care standards or socio economic difference of the population. That means in European countries getting ED services is very expensive than getting services in regular OPD, opposite to in our country's ED services delivered for all patients with low payment almost free compared to theirs. It may also be due to differences awareness levels of study population or due to the difference ED service quality of the countries which means, in our country peoples with high income levels go to private hospitals rather than coming to public hospitals due to low quality of service. Another study conducted on literature review of inappropriate ED visits showed that Among the 4 articles that assessed income 2 reported that persons with low incomes were more likely to have inappropriate ED visits (16). This was almost similar with the present study finding.

Patients with duration of complaint lasting >24 hours also had 4.458 times more inappropriate ED visits compared to patients with less than or equal to 24 hours duration of complaint. Even though, it was significant effect on both sexes, it was also more significant in females than in males, among 84 inappropriate ED visitors of females, 77 had duration of illness/ injury >24 hours.

Patients came to ED in the working days had 3.391 times more in appropriate ED visits than patients in the weekend/holy days. This may be due the regular OPD and follow up outpatient clinics were the source of Inappropriate ED visits of TASH.

Obviously patients came with private cars or public transports had 15.667 times more inappropriate ED visits of TASH than patients came with an ambulance. And patients came by walking also had 31.399 times more inappropriate ED visits of TASH which indicates that coming with an ambulance was one indication of severity of cases or appropriate ED visits of patients.

Strengths of the study :

- High response rate of the study which was 97%
- The study used primary data directly from the patient or their attendant that increases its reliability.
- Since there is no similar study conducted in Ethiopia in this specific topic ; it can contribute a lot as base line information for further studies on inappropriate ED visits for the next researchers.

Limitation of the study:

- The major one is the methodology used to determine inappropriate emergency department visits. ACEP's, explicit criteria and Afi lalo's classification (9, 10, 12) were not been extensively validated, but no such validated methodology exists and the definition of appropriateness varies from source to source.
- Shortage of literatures i n our country even in Africa particularly with this specific topic
- The research was conducted in a single Hospital and being cross -sectional study due to Time and financial constraint . S o, it is difficult to generalize the result of the study for the natio nal level of Ethiopian ED visits.

CHAPTER SEVEN:

CONCLUSION

Total inappropriate emergency department visits of Tikur Anbessa Specialized hospital were high. This large number of inappropriate ED visits also occurred in the working day and working hours of the day.

Females tend to have more inappropriate visits than males.

There was large number of inappropriate ED visits occurred in the Patients came from low family income status and low family income highly associated with inappropriate ED visits.

The associated factors that influence inappropriate ED visits of TASH were ; female sex, low family income status, duration of illness/ injury >24 hours, working days of ED visits , patients came to ED with private car or public transport and patients came by walking .

ROPD referrals were also most contributing factor of inappropriate ED visits of TASH and overcrowding of TASH adult ED .

CHAPTER EIGHT:

RECOMENDAATIONS :

Based on the research findings, the following recommendation can be made.

1. Tikur Anbessa Specialized Hospital should develop clear and d emarcated protocol on emergency services deliver y and ED admissions .

2. TASH s hould give enough inform ation for service providers about which type s of case s should pass through emergency department.

3. It is better to have another route through which non emergency cases pass for medical or surgical admission s. Because patients ca me from ROPD for admission to wards could contribute for large number of inappropriate ED visits &overcrowding of TASH.

4. Ministry of health also better to give health education , promotion & awareness creation to the community on inappropriate ED visi ts and its effect on service delivery and patient out come.

5. Policy makers and stake holders need to develop and organize functional primary care centers and strengthen them to provide high quality care with efficient triage skills so as to treat cases quickly when they cannot wait. This primary care team establishes a bond and takes responsibility for the population in its coverage areas and may contribute for minimization of inappropriate ED visits.

6. M inistry of health needs to develop nationally accepted appropriateness criteria for ED visits based on ACEP and the country 's health policy. That helps to select real eme rgency cases and deliver emergency services timely.

7. Emergency service providers especially triage officers should have full information and knowledge about the ca ses and skill of triaging cases and selecting non emergent patients

8. Further study

ANN REFERENCES

1) Afilalo J, Marinovich A, Afilalo M, Colacone A, Leger R, Unger B, Giguere C. Nonurgent emergency department patient characteristics and barriers to primary care. AcadEmerg Med. 2004;11:1302 –1310 .
2) Ed Smith, Ian Higginson, Barbara Cleaver, Martin Smith, Anne Marie Morris. Inappropriate" Emergency Department Use:A Comparison of three Methodologies for Identification. 1996. The Royal College of Emergency Medicine ,7-9 Bream's Buildings London EC4A 1DT .
3) Maria Laura Vidal Carret ,AnaclaudiaGastalFassa, Marlos Rodrigues Domingues. Inappropriate use of emergency services: a systematic review of prevalence and associated factors. Carret MLV et al. Rio de Janeiro, 2009: 25(1):7 -28.
4) Demand for emergency h ealth service: factors associated with inappropriate use | BMC Health Services Research | 2007 https://bmchealthservres.biomedcentral.com/articles/10.1186/1472 -6963-7-131 2/22 https://doi.org/10.1186/1472 -6963-7-131
5) .Lowe RA, Bindman AB, Ulrich SK, et al. Refusing care to emergency department patients: evaluation of published triage guidelines. Ann Emerg Med. 1994;23:286 -293.
6) ROBERT A. Lowe, MD, MPH, ANDREW B.Bindman , MD. Judging who needs emergency department care: a prerequisite forpolicy -making. Am J Emerg Med. 1997;15:133 -136.
7) Cairns CB, Garrison HG, Hedges JR, et al. Development of new methods to assess the outcomes of emergency care. AnnEmerg Med. 1998;31:166 -171
8) LemlemBeza, FinotYayieyerad. Improving Attendants Flow and Reducing Emergency Unit Crowding in Emergency Departm ent of Black Lion Specialized Hospital, Addis Ababa Ethiopia; April 2017, available at https://www.cambridge.org/core/terms
9) H G Selasawati, MD*, L Naing, MMedStat**, W A Wan Aasim, MMed (Anest)***, T Winn , DrPH*, B N, Rusli, PhD.Inappropriate Utilization of Emergency Department Services in UniversitiSains Malaysia Hospital. Med J Malaysia Vol 59 No 1 March 2004.
10) Pereira S, Oliveira e Silva A, Quintas M, Almeida J, Marujo C, Pizarro M, et al. Appropriatenes s of emergency department visits in a Portuguese university hospital. Ann Emerg Med 2001;37:580 -6.

11) Buesching DP, Jablonowski A, Vesta E, Dilts W, Runge C, Lund J, et al. Inappropriate emergency departmentvisits. Ann Emerg Med 1985;14:672 -6.17

12) CemOktay, Y ildirayCete, OktayEray, Murat Pekdemir, Ali Gunerli. Appropriateness of Emergency Department Visits in a Turkish University Hospital. C M G;44(5):585 - 591,2003.

13) Maria LV Carret, Anaclaudia G Fassa, and Ichiro Kawachi . Demand for emergency health service: f actors associated with inappropriate use. BMC Heq4dedfredalth Serv Res. 2007; 7: 131

14) Sempere -Selva, T, Peiró, S, Sendra -Pina, P et al. Inappropriate use of an accident and emergency department: magnitude, associated factors, and reasons — an approach with explicit criteria. Ann Emerg Med . 2001; 37: 568 –579.

15) Renee Y Hsia, Matthew Niedzwiecki. Avoidable emergency department visits: a starting point. I nternational Journal for Quality in Health Care. 2017: 29: 5: 642 –645

16) Lori Uscher -Pines, PhD, MSc; Jesse Pin es, MD, MBA; Arthur Kellermann, MD, MPH; EmilyGillen, MA; and AteevMehrotra, MD, MS. Emergency Department Visits for NonurgentConditions: Systematic Literature Review.The American Journal of Managed Care > January 2013. Am J Manag Care. 2013;19(1):47 -59

17) C ourtney Rocovich and Trushnaa Patel.Emergency department visits: Why adults choose the emergency room over a primary care physician visit during regular office hours?. World J Emerg Med. 2012; 3(2): 91 –97.

18) Afilalo M, Guttman A, Colacone A, Dankoff J, T selios C, Beaudet M, et al. Emergency department use and misuse. J Emerg Med 1995;13:259 -64.

19) Connie Boh, MD, Huihua Li, PhD, Eric Finkelstein, PhD, MHA, Benjamin Haaland, PhD, XiaohuiXin, MA, Susan Yap, RN, YogeswaryPasupathi, and Marcus EH Ong, MBBS, MP H.Factors Contributing to Inappropriate Visits of Frequent Attenders and Their Economic Effects at an Emergency Department in Singapore. ACADEMIC EMERGENCY MEDICINE 2015;22:1025 –1033.

AN EXES

Annex I: Consent form

Patients Information Document Code No: _____

Dear Participants, My name is Ermiyas Guadie; I am Masters degree student in emergency medicine & critical care at Addis Ababa University school of medicine, department of emergency medicine. This letter serves to ask consent from you to take par t in this study& the purpose of this research is to assess inappropriate emergency visits of patients & to deter mine factors associated with inappropriate emergency visits of patients in Addis Ababa University Tikur Anbessa Specialized Hospital adult emerg ency unit . The result of the study will be critical input for policy makers and organizations to deliver emergency treatment for real emergency patients. Your participation in this research is voluntary. If you decide not to participate there will be no ne gative consequences for you& if you want to participate there will be no benefits for you. However your participation on this study is very important for achievement of the study and for emergency patients thereby increasing the quality of care for the pat ients. There is no any risk to you because of your participation in this study. All the responses given by you and results obtained will be kept confidential using coding system whereby no one will have access to your response. You are not expected to give your name or phone number. Without permission from you and legal body any part of this study will not be disclosed to third person. You have full right to refuse and withdrawal to participate in this study if you don't wish. The interview period will take only about 5 minutes. If you are willing to participate in this study, you need to understand and sign the agreement form, and then you will be asked to give your responses by data collectors.

Name of investigator: Ermiyas GuadieTel: 09 18151234

E-mail: ermiyasguadie12@gmail.com

Are you voluntary to participate in the interview? **Yes** ☐ **No** ☐

Informed consent form

I understand the contents of this document and the nature of the research project , and I consent to participate voluntarily in the research project. I understand that I have autonomy to withdraw from the project at any time.

Signature of participant ……. date ……..

Name and signature of supervisor_____ Date_____

Name and signature of data collector_____ Date_____

Annex II: English version questioners

Part one: Socio demographic characteristics

No	Variables/questions	Alternatives	Remark
1.1	Age in years	_____	
1.2	Sex	1/ Male 2/ female	
1.3	Residence	1/ Addis Ababa 2/ Out of Addis Ababa	
1.4	Educational status	1/ Illiterate 2/ Primary school 3/ Secondary school 4/ Diploma and above	
1.5	Occupation	1/ unemployed/retire from job 2/ Government employee 3/ private business 4/ student 5/ other	
1.6	Marital status	1/ married 2/ unmarried 3/ divorced 4/widowed	
1.7	Family Monthly income	1/ high 2/ middle 3/ low income	

Part II: Appropriateness assessment interview questions at triage area:

2.1/ chief compliant of respondent: 1/ Trauma/ injury 2/ medical /surgical illness/ disease

2.2/ Duration of illness/injury: 1/ ≤ 24 hours 2/ >24 hours

2.3/ Is there any sign of li fe/limb threaten ing condition? (on ABC): 1/ No 2/Yes, specify……

2.4/ place of referral: 1/ regional Hospital s/A.A Hospitals 2/ H. center 3/ROPD of TASH 4/private H 5/ self

2.5/ Mode of arrival: 1/ ambulance /carried 2/private car/ public transport 3/ on foot/ walking

2.6/ Is there any vital sign derangement? 1/yes 2/ No if yes specify……

2.7/ Day of visit: 1/ week days/working days 2/ weekend days /Holly days

2.8/ Time of visit: 1/working hours (from 8am -5pm) 2/ duty hours (from 5pm -8am)

2.9/ perceptions of urgency of their own conditions: 1/ Emergent 2/ Urgent 3/ Non urgent

2.10 Reasons of pts to prefer ED care rather than others; More than 1 choice is possible.

Tick on space provided for each patient 1 page for 15 patients

Variables/questions	P1	P 2	P 3	P 4	P 5	P6	P7	P8	P9	P 10	P11	P 12	P 13	P 14	P 15
1/ Proximity															
2/Satisfaction with care															
3/Pain and worsening symptoms before appointment															
4/Clinic care unavailable															
5/Quick care and laboratory results															
6/Always get care in this hospital															
7/Perception of serious illness															
8/Referred from else where															
9/Trust our ED care															
10/ F or follow up missing															
11/ Relatives work in this ED/Hospital															
12/Other reasons															
Category of patient case based on the above informatio n:1/ category I 2/ category II 3/category III															

Note: P1, P2… refers to patient one, two….

Part III: CHECK LISTS

Checklist s to collect data on retrospective chart review from March 2019 to January 2019 in TASH, Addis Ababa, Ethiopia (for category II&III only) :

s.no	The study variables	Response	Remark
4.1	Physician Diagnosis	1/ acute & life threatening 2/ chronic case/not urgent	
4.2	Laboratory & imaging	1/ ≥3investigations 2/ <3investigations	
1.3	Length of stay in the ED	1/ ≤ 24 hours 2/ 24hrs -7days 3/ 7 - 14days 4/ >14 days	
4.4	Emergency procedures done?	1/ yes 2/ No procedure was done	
4.5	Is there any emergency drugs given?	1/ yes 2/ No E. drug given	
4.6	Presence of chronic medical condition	1/ Yes 2/ NO	If no skip Q. No 4.7
4.7	Any of chronic medical condition	1/ Diabetes Mellitus 2/ Cardio vascular disease 3/ Asthma 4/ Others	
4.8	Patient disposition	1/ admit to Ward/ICU 2/ transfer to other hospitals 3/discharged to home 4/ death 5/ other	
4.9	Final decision of visits for category II & III	1/ Appropriate 2/ Inappropriate	

Annex II: የተሳትፎ ፈቃደኝነት ማረጋገጫ ቅጽ

የታካሚው መረጃ መዝገብ መለያ ቁጥር : _____

ውድ ተሳታፊዎች፡ - ስሜ ኤርምያስ ጓዴ እባላለሁ፡፡የአዲስ አበባዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የደንገተኛ ህክምናና ጽኑ ህሙማን እንክብካቤ ተመራቂ ተማሪነኝ፡፡ ይህደብዳቤ በዚህ ጥናት ውስጥ እንድትሳተፉ ፈቃዳችሁን ለመጠየቅ የተዘጋጀ ነው፡፡ የጥናቱ አላማ በአዲስ አበባ ዩኒቨርሲቲ በጥኩር አንበሳ ስፔሣላዝድ ሆስፒታል ወደ ድንገተኛ ክፍል የሚመጡ ታካሚዎች በትክክል ድንገተኛ መሆናቸውን ለመመዘንና ድንገተኛ ሳይሆኑ ወደ ድንገተኛ እንዲመጡ የሚያደርጓቸውን ተያያዥ ጉዳዮችን ለመለየት የተዘጋጀ ነው፡፡

የጥናቱ ውጤት ትክክለኛ ድንገተኛ ለሆኑ ታካሚዎች ትክክለኛውን ህክምና ለመስጠት መመሪያ ለሚያወጡ አካላትና ለተቋሙ እንደ ትልቅ ግብዓት የሚጠቅም ነው፡፡በጥናቱ እምትሳተፉት በፈቃዳችሁ ነው፡፡ ላለመሳተፍ ከወሰናችሁ ምንም አይነት ተጽኖ አይደርስባችሁም፡፡ ብትሳተፉም ለእናንተ የተለየ ጠቅም አታገኙም፡፡ ነገር ግን በጥናቱ መሳተፋችሁ ለጥናቱው ጤታማነትና ጥራት ያለው ህክምና ለታካሚዎች ለመስጠት በጣም አስፈላጊ ነው፡፡ በመሳተፋችሁ ምክኒያት ምንም አይነት ጉዳት አይደርስባችሁም፡፡ ከእናንተ የሚገኝ ማንኛውም መረጃ ሌላ ሰው በማያገኘው መልኩ በሚስጥር መለያ ነው እሚያዘው፡፡ ስምና ስልክ ቁጥር እንድትሰጡ አይጠበቅም፡፡ በህግና በናንተ ፈቃድ ካልሆነ በቀር መረጃው ለሶስተኛ ወገን አይሰጥም፡፡ ካልመሰላችሁ ጥናቱን ለማቋረጥ ሙሉ መብት አላችሁ፡፡ ቃለ-መጠይቁ ከ5 ደቂቃ በላይ አይወስድም ፡፡ በጠናቱ ለመሳተፍ ፈቃደኛ ከሆነክ/ሽ የስምምነት ውሉን መረዳትና መፈረም አለብህ/ሽ ከዛም በመረጃ ሰብሳቢው በኩል ጥያቄዎች የቀርቡልሃል / ሻል፡፡.

ጥናቱን የሚያካሂደው ስም፡- ኤርምያስ ጓዴ፡ ስልክ ቁጥር፡- 09 18151234

E-mail: ermiyasguadie12@gmail.com

በጥናቱ ለመሳተፍፈቃደኛ ነህ/ ሽ? አዎ ..... አይደለሁም .....

የስምምነትውልቅጽ፡ -

ከጥናቱ በፈለግሁት ጊዜ ራሴን የማግለል ስልጣን እንዳለኝ ተገንዝቤና የጥናቱን አላማና የጽሁፉን ይዘት ተረድቸ በጥናቱ ለመሳተፍ ሙሉ ፈቃደኛ ነኝ፡፡

የጥናቱ ተሳታፊ ፊርማ .... ቀን .....

የተቆጣጣሪው ስም ና ፊርማ ..... ቀን ....

የመረጃ ሰብሳቢው ስምና ፊርማ ..... ቀን .....

AnnexIV: የአማርኛ ትርጉም ጥያቄዎች

ክፍል 1፡- ማህበራዊና የግለሰቡን / ቧን ሁኔታ የሚገለጹ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	አማራጮች	ምርመራ
1.1	እድሜ በአመት	_____	
1.2	ፆታ	1/ ወንድ 2/ ሴት	
1.3	የመኖሪያ ቦታ	1/ አዲስአበባ 2/ ከአዲስአበባውጭ	
1.4	የትምህርት ደረጃ	1/ ማንበብና መጣፍ ማይችል /ማትችል 2/ የመጀመሪያያደረጃ 3/ ሁለተኛደረጃ 4 / ዲፕሎማናከዛበላይ	
1.5	ስራ	1/ ያልተቀጠረ / ጡረታየወጣ 2/ የመንግስትቅጥረኛ 3/ የግል ስራ / ነጋዴ 4/ ገበሬ 5/ ሌላ ...	
1.6	የጋብቻ ሁኔታ	1/ ያገባ /ች 2/ ያላገባ /ች 3/ የፈታ /ች 4/ የሞተችበት /የሞተባት	
1.7	የቤተሰብ የገቢ መጠን	1/ ከፍተኛ 2/ መካከለኛ 3/ ዝቅተኛ	

ክፍል II: ትክክለኛነትን ለመመዘን የሚረዱ ህመ.ማን መለያ (ትሪያጅ) ላይ የሚጠየቁ ጥያቄዎች፡ -

2.1/ የታካሚው /ዋ እንዲመጣ ያደረገው /ጋት ዋነኛ ስሜት :- 1/ አደጋ / ጉዳት 2/ ህመም

2.2/ ህመሙ /ጉዳቱ የቆበት / ባት የጊዜ ርዝማኔ : 1/ ≤ 24 ሰዓታት 2/ >24 ሰዓታት

2.3/ ለህይዎት አስጊ የሆኑ ምልክቶች አሉት / አሏት (ABC ላይ): 1/ የለም 2/ አለ ,የገለጸ .....

2.4/ የተላከበት ቦታ : 1/ የክልል ሆስፒታል 2/ ከጤና ጣቢያ 3/ ከተመላላሽ ክፍል 4/ ከግልክሊኒክ /ሆስፒታል 5/ በራሱ /ሷ ከቤተ /ዋ

2.5/ የትራንስፖርት ሁኔታ : 1/ በአንቡላንስ /በሸክም 2/ በግል መኪና / በህዝብማመላለሻ 3 / በእግር / እየሄደ /ች

2.6/ ማንኛውም አይነት ቫይታል ሳይን ለውጥ አለ ? 1/ የለም 2/ አለ ይገለጸ .....

2.7/ ታካሚው /ዋ የመጣበት /ችበት ቀን : 1/ በስራ ቀናት 2/ በእረፍት /በበዓላት ቀናት

2.8/ ተካሚው /ዋ የመጣበት /ችበት ሰዓት : 1/ በስራ ሰዓታት (ከጧቱ 2- ምሽት 1 1 ሰዓታት) 2/ በእረፍት ሰዓታት (ከምሥት 11 -ንጋቱ 1፡59 ሰዓታት)

2.9/ የታካሚው /ዋ አስተያየት አመለካከት ስለህመሙ /ሚ : 1/ አጣዳፊ 2/ በመጠኑአ ጣዳፊ 3/ ድንገተኛ /አጣዳፊ ያልሆነ

2.10 ፡- ለምን ወደ ድንገተኛ ክፍል መምጣትን መረጡ ? ከ 1 በላይ መምረጥ ይቻላል።አንድ ገጽ ለ 15 ታካሚዎች ያገለግላል። በክፍት ቦታው ላይ ምልክት ያድርጉ ።

አማራጮች	ታ 1	ታ 2	ታ 3	ታ 4	ታ 5	ታ 6	ታ 7	ታ 8	ታ 9	ታ 10	ታ 11	ታ 12	ታ 13	ታ 14	ታ 15
ቅርብ በመሆኑ															
በአገልግሎቱ በመረካቴ															
ከቀጠሮ በፊት ህመሙ ስለባሰብኝ															
በአካባቢየ አገልግሎቱን የሚሰጥ ተቋም ስለሌለ															
ምረመራዎችን ቶሎ ለማሰራትና ፈጣን እርዳታ ለማግኘት															
ሁሌም ከዚህ ስለምታከም															
አደገኛ ህመም እንደሆነ ስለማስብ															
በባለሙያ ከሌላ ቦታ ስለተላክሁ															
የድንገተኛ ህክምናን ስለምተማመንበት															
ቀጠሮየን ስላ ሳ ለፍኩ															
ቤተሰቤ / ዘመዴ እዚህ ስለሚሰራ															
ሌሎች ምክኒያቶች															
ከዚህ በላይ ባለው መረጃ መሰረት የታካሚው /ዋ ምድብ። 1/ ምድብ I 2/ ምደብ II 3/ ምድብ III															

ማስታዎሻ፡ - ታ 1 ,ታ 2... ማለት ታካሚ 1 ፣ 2 ፣ ..... ማለትነው ።