Evaluation of the Amharic version of the Diagnostic Interview for Children and Adolescents (DICA-R) in Addis Ababa.

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Evaluation of Amharic Revised Version of Diagnostic Interview for Children and Adolescent (DICA-A).

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List of abbreviation

DSM-III-R:	Revised Diagnostic and Statistical Manual of Mental Disorder (third edition).
W.H.O:	World Health Organization.
I.C.D:	International Classification of Diseases.
DICA-R:	Revised Diagnostic Interview for Children and Adolescents.
RQC :	Reporting Questionnaire for Children.
CBPQ :	Child Behaviour Problem Questionnaire.
CDI :	Child Depressive Inventor.
DISC :	Diagnostic Interview Scheduled for Children .
ADHD:	Attention Deficit Hyperactivity Disorder.
ODD :	Oppositional Defiant Disorder.
CD :	Conduct Disorder.

ABSTRACT

The acceptability, reliability and feasibility of Amharic version of the Revised Diagnostic Interview for Children and Adolescent (DICA-R) was evaluated in Addis Ababa city by clinician, lay interviewers and respondents from different setting.

A total of 265 respondents included in the age of 6-18 years from the community, Amanuel psychiatric Hospital (inpatient and outpatient) and schools (mentally disordered children) were interviewed between 25 June to 28 July,1997. Of the 255 respondents who completed an interview by a clinician and lay interviewers 189 respondents had one or more diagnoses, while 66 had no diagnoses.

The clinician and most of the lay interviewers and respondents judged the DICA-R as being acceptable and as feasible for use in different setting. The few concern expressed about the interview was the length of the interview and difficulties with few of the items.

The most frequent life time and six months diagnoses by all interviewers were phobia, separation anxiety, overanxious, major depressive episode, conduct disorders and enuresis. For any specific diagnoses made with the frequency of five or more time, percentage agreements were above 89% and the kappa values were ranged from 0.72 to 1.00. The lowest kappa value was for dysthymic disorder, while the highest kappa value was for manic disorder. It is concluded that the Amharic version of DICA-R is reliable, acceptable and feasible for use. Similar studies using DICA-R in rural communities are recommended.

I. Introduction

Over the past 50 years, the health and living conditions of people in developing nations have improved dramatically. Average life expectancy, Infant Mortality Rates (IMR) and access to safe water have shown remarkable improvement. Unfortunately, this remarkable progress in physical well-being has not been accompanied by improvement in mental health (1)

From the beginning of human history people have been challenged by their susceptibility to emotional instability and mental suffering and to relieve this agony, humans have resorted to many means and have involved the help of variety of powers both natural and supernatural. Across the wide range of cultures and irrespective of local beliefs and traditional practices, religion has enjoyed a central place in alleviation of mental disorder (2).

Mental health programmes are not given due attention in developing countries especially in Africa, because of (a) absence of scales appropriate for developing countries to measure and identify mental illness,

(b) poor training for health workers in the area of mental health, (c) indifference or negative attitude to mental health problems by general health personnel and policy maker, (d) preference for treatment by traditional healers. As a result, service and research infrastructures for mental health in developing countries are weak (5).

In the past the barriers to effective communication in mental health, both between and within countries, has been the lack of agreed methods of evaluating and differentiating between the varieties of mental health problems. This situation has made it difficult to compare findings obtained in different parts of the world (6). Despite limitations, the standardized nomenclatures have enabled clinical investigators and epidemiologists to develop instruments in different setting that are intended to be used by trained lay interviewers (7).

In the field of mental health, much emphasis has been placed on the treatment of mental disorders and insufficient attention given to the prevention of these problems. A report on this matter estimated that as much as 50% of mental problems can be prevented through appropriate public health action. This might include help to destitute mother with children and a general reduction of stress in people's lives (8). The development of methods for case detection, standardization of diagnosis and other components of mental health statistics also facilitated international comparative studies which made possible the reliable assessment of psychiatric variables (9).

The concept of mental illness existed in Ethiopian culture for many years. Traditionally mental illness has been attributed to supernatural forces, such as spirits which enter a person's body or shadow cast by an evil eye. Except for the extreme cases of pathology, most forms of psychopathology go unnoticed by professionals. This may be due to the poor training of health professionals in the field of mental health, the lack of

simple diagnostic tools, the common practice of families to care for mentally ill members at home and the preference for treatment by priests, magicians and traditional healers (3,4).

Very limited data are available on the magnitude of mental illness among children and adolescent in Ethiopia. Few attempts have been made in health institution and in the community to determine the prevalence of mental disorders among children and adolescent. One of the problems in determining the prevalence of specific disorders among children and adolescent has been the lack of instrument which is reliable, acceptable and feasible in community studies, and at the same time is capable of making diagnosis according to generally accepted diagnostic classification schemes such as Diagnostic and Statistical Manual (DSM) of mental disorders and International Classification of Diseases (ICD) and cause of death. For effective preventive and curative measure in mental and behavioral disorders among children and adolescents determination of the magnitude of the disorders using a reliable instrument could be important.

This study was conducted with the aim of assessing the feasibility, reliability and acceptability of the Amharic translated revised Diagnostic Interview for Children and Adolescent (DICA-R) Child and Parent version 7.2, 1991 in Addis Ababa.

II. Literature Review

The world health organization defined Health in broad terms as a presence of physical, mental and social well being, not merely the absence of disease or infirmity (10).

Mental disorder is defined as medically diagnosable and recognized illness resulting in the significant impairment of an individual's cognitive, emotional or social abilities (11).

a. The Magnitude of Mental Disorders

Mental health problems exist world-wide and are increasing both in the developed and developing countries (12). About 10% of the world's 1.4 billion children suffer from mental problems. Four fifth of these children live in developing countries and most of these lack access to any kind of effective mental care (13,14).

Studies conducted since 1950 have been using a single psychiatrist or a small team headed by a psychiatrist to estimate the prevalence of specific psychiatric disorder in the community (15). The first world-wide community based study after the second world war was done by Lundby in 1947 in Sweden by using psychiatrists to interview 2550 children and Adolescent of rural population. This study estimated the prevalence of definite psychopathology to be 8.4% and probable cases of 28.2% (15). Another study which was done by Rutter and colleagues (1970), in different countries on children and adolescent estimated the prevalence of psychopathology of 7% to 14% (16). A study conducted in four developing countries by WHO (1981) on the frequency and diagnosis of mental disorders at primary health care level on 925 children using Reporting Questionnaire for Children (RQC) and revealed prevalence of mental disorders of 10% in Sudan 13% in Philippine, 22% in India, and 29% in Colombia (17).

In Africa only few studies were done on the prevalence of mental disorder by applying RQC and other

methods. A survey done in Sudan by Basher and Cederblad (1968) in several villages of Sudan employing RQC among 1716 children age 3-15 years revealed that 8-20% had moderate to severe psychiatric symptoms (18). A study done by WHO in rural Senegal (1977) by using RQC among 545 children aged 5-15 years attending primary health care services found that 17% were suffering from some form of emotional, behavioral and neuropsychiatric disorders (5). In Kenya, Kangethe and Dhadphale (1991) screened 303 children aged 5-15 years applying RQC, found that 20% of children as having clinically significant and definable psychiatric disorders (7). In Nigeria, Abiodun (1993) studied children aged 5-15 years by using interviewing. He revealed that 15% suffer from some form of psychopathology (19).

Few community based studies of mental and behavioral disorder among children have been reported from Ethiopia and these studies were done mostly by foreigners. Most of these were done using clinical samples from attenders of outpatients.

In 1968 Geil and colleagues studied 381 children and adolescent of age 0-20 years in a rural towns of south west Ethiopia, by interviewing primary caretaker and adolescent as a measure and found a prevalence of psychological problems 5.2% (20). Again in 1969 Giel and colleagues studied 373 children and adolescent aged 4-20 years in Bonga town of Ethiopia using interview as a measure and found a prevalence of mental disorders about 11.3% (21).

In 1989, Mulatu using RQC and CBPQ studied on 864 children of age 3-12 years and found a prevalence rate of psychiatric disorders 24.8%,and 23.2% respectively in Jima (22). More recently Tadesse surveyed 3001 children of age 5-15 years applying RQC and found a prevalence of mental disorder 17.2% (23).

b. The Impact of Mental Disorder

Mental illness is a public health problem which involves tremendous, social and economic cost. The

personal and social consequences of mental illness are less obvious than the other physical diseases. Studies have shown that mental disorders not only create great distress in the affected, but also lead to economical and social problems for the family and the community (14).

In rural areas the mentally ill are remote from any psychiatric facilities, and due to their illness these people may not be able to farm and care for their children or discharge their other important functions. Consequently children of mentally ill patients in rural and urban areas are frequently malnourished and these children may never reach their full potential even after full recovery. Mental disorder in children frequently lead to poor school performance, to dropping out of school, and this wastes educational resources and seriously impairs the economic and social potential of such children (14).

A study done in Laos in 27 villages by Westermeyer (1984) found that the loss of productivity plus costs associated with sustenance and treatment amounted to the loss of per capita income equivalent to 35 person per

year which was constantly high (24). Abas and colleagues (25) citing World Bank report of (1993) noted that within the non-communicable group, the psychiatric and neurological illnesses such as depression, epilepsy and dementia came second only to cardiovascular diseases as the major causes of disability across both developed and developing countries (25).

Appropriate health service program, with reasonable policies is thus needed to tackle such a deleterious effect to individuals, the family, the community and to the country at large. However, for the enforcement of such policies and programs, the significance of the impact of mental disorders in the local context should be clearly shown. To do this a well structured, reliable, acceptable instrument is needed to estimate the prevalence of mental disorder in children and adolescents in the community.

c. Research Instruments:-

Three generations have passed since psychiatric epidemiology emerged as a scientific field in classifying and diagnosing mental disorder(12). During the first generation (before world war II), the way of finding prevalence rate of mental disorders was based on information from key informants, agency records and mothers. Later on during the second generation (world war II-1970), the approach of finding prevalence rate of mental disorders was based on direct psychiatric interviews with representative samples. Finally, after the third generation (1970's present), prevalence rate commenced to be reported using semi-structured and structured diagnostic interview (26).

Several techniques have been developed to determine the prevalence of mental disorders. Many sociologists have contributed by developing instruments that helped to detect psychopathology in the community, to identify the explanatory and predictive factors such as social class, to assess the development of mental symptoms and to examine how social resources can be mobilized to alleviate mental symptoms (27).

The Reporting Question for Children (RQC) is a good screening instrument (28) but it's low specificity limits its use in estimating prevalence in the community by primary health workers and also it covers a limited number of problem (i.e. cognitive, social and emotional problems) (29). Additionally, symptom rating instrument such as Child Behaviour Problem Questionnaire (CBPQ) (30), Child Depression Inventor (CDI) (31) and Parent/Teacher rating scales (32) are widely used in research and clinical practices, but they do not provide sufficient information to generate a comprehensive spectrum of specific diagnosis (33) and they demonstrate high sensitivity and low specificity (34).

Clinicians rely upon interviews with children and their parents and on direct method assessment such as doll play or observation to determine child problems and to formulate treatment. These concerns have been the bases for the development of structured Diagnostic Interview for Children and Adolescents (DICA), which permit diagnostic assessment in accordance with

systematic specific criteria for psychiatric disorders, and they standardize methods for eliciting information concerning a range of symptoms and behaviours (33).

Great advances have been made during the last 20 years in the development of structured and semi-structured interviews for use with psychiatric adult patients. However, in the field of child and adolescent psychiatry there have been weaknesses in the specification and definition of both symptoms and the psychosocial impairments resulting from psychiatric disorder (34-36). To overcome these, several structured interviews are now available which provide available means of obtaining and quantifying information about the mental status of children and adolescents.

For studies in general population, particularly when large samples are involved, instruments to classify childhood disorders should be simple to apply, acceptable to respondent, relatively brief to administer and should

have the ability of broad coverage of disorders, the ability to obtain assessment from different respondents (eg parent, child) and should have high level of structure to facilitate standardization and reduce costs (35). Two of the most widely used structured diagnostic interview instruments for children and adolescent developed and utilized in USA are Diagnostic Interview for Children and Adolescent (DICA) (33,37,40) and Diagnostic Interview Schedule for Children (DISC) (9), both instrument can generate DSM-III-R diagnosis for children from 6 to 18 years.

The Diagnostic Interview for Children and Adolescent (DICA) was the first instrument designed for children, developed by Herjanic and colleagues at Washington university in St. Louis in 1977 (41),to classify childhood psychiatric disorders. The classification of disorder in DICA was based originally on the international classification of psychiatric disorders in combination with the Feighner criteria (43). In 1981 a revised version of DICA was developed, patterned after the national institute of mental health diagnostic interview schedule (44) based upon DSM-III-criteria. A further revision in 1988 produced the DICA-R , developed

to classify DSM-III-R categories of disorders. The instruments have undergone extensive testing to evaluate their validity and inter-class and test-retest reliability (35, 39, 40, 45).

However no study to date has been reported from Ethiopia which has estimated the prevalence of specific mental and behavioral disorders among children and adolescents in rural and urban community using structured instrument such as DICA-R.

III. Objectives of the Study

The General objective of the study was to evaluate the reliability, acceptability and feasibility of Amharic version of Revised Diagnostic Interview for Children and Adolescent (DICA-R) in Addis Ababa.

The specific objectives of the study were:

(a) to measure the reliability of the DICA-R by comparing interviews completed by clinicians and lay interviewers.

(b) to assess the degree of acceptability of the instrument by clinicians and lay interviewers and as well as patients (affected children and adolescent) and in urban community.

(c) to assess whether it is feasible to employ the instrument as a data collection tool for future research.

IV. Methods:

The study was conducted between January 1997 and July 1997 in Addis Ababa (in Amanuel Psychiatric Hospital, two sub-district and in two schools). The revised parent and child version 7.2 of DICA-R (37) was translated into Amharic from the English by psychologists and a medical doctor. Then it was revised and checked by a psychiatrist whose first language was Amharic. Interactive back translation or multiple independent translation could not be applied due to time and logistic problems. The DICA-R interview consisted of symptom questions of 405 items
not all of which were asked to all respondents because of skip rule.

In this study a lay interviewer was defined as a person who completed a high school, with no clinical background, and who is unable to make diagnosis in the absence of DICA interview. A clinician interviewer was defined as a medical doctor who studied DSM-III-R criteria (38) for the specific diagnosis made by DICA-R (child and parent version), and who is able to make specific diagnoses in the absence of DICA interview.

Adolescence was defined as the period between childhood and adulthood, characterised by profound biological, psychological and social developmental changes.

Diagnostic Interview for Children and Adolescent (DICA) is the first highly structured diagnostic interview, designed for clinical and epidemiological use and gives current and past diagnoses, and consists parent and child version which are identical in content and structures and can be administered by lay interviewers after going through a training program.

Recruitment and intensive on site training of clinician and lay interviewers was conducted in Amharic for 12 days. Training includes: (1) home study of DICA-R interview, (2) a large group interview (with interviewer taking turns asking questions),
(3) practicing interviews between the interviewers,
(4) observation and coding of clinicians interview with parent's and adolescents, (5) practicing interviews with parents and adolescents by each of the interviewers.

Discussion and necessary correction were made following the training steps.

To pretest the Amharic version of DICA-R (child and parent version) seven primary care-taker and eight adolescents were interviewed. The Amharic version of the parent and child DICA-R was used for interview. After the responses were edited by physicians who studied DSM-III-R, some problems such as length of the question, editorial and translation problems were identified and rectified. Also useful information were gathered for use in conducting the reliability study. The average duration of time required to complete one interview was 130 minutes.

To assess the reliability and acceptability of the Amharic version of DICA-R to clinician and lay interviewers, psychiatric children (outpatient and inpatient) urban communities and schools (mentally disordered children) and to get information on possible modification of translated version, the following procedure was followed. The procedure was expected to: (a) assess the ability of the lay interviewers to give the interview approximately the same way that the

clinician interviewer would, (b) assess the ability of the respondents to understand the translated DICA-R version as put to them with-out modification by the interviewers, (c) to detect questions that have a problem that may need revision in the interview.

Respondents for the reliability study were children and adolescents between the age of 6-18 years. For children age between 6 and 11 the parent or primary caretaker was interviewed. Adolescent aged between 12 and 18 were interviewed directly. The sampling frame was inpatient, outpatient attendants of Amanuel Pschiatric Hospital, mentally disordered children in two schools and general population in two sub-districts of Addis Ababa. Those respondents who were unable to communicate in Amharic, unable to communicate because of illness, or whose parents refuse to give consent were excluded from the study.

All consecutive children and adolescents inpatient and outpatient getting services in Amanuel Psychiatric Hospital during the study period (25 june to 10 July 1997) were interviewed until a total of 145 interviews were obtained. Depending on the diagnoses made by the

psychiatrist to include the commonest disorder and accommodated by DICA diagnostic range. Also all 16 parents and 4 adolescents from two schools which have special class for mentally disordered children were interviewed between 14 july to 19 july. Additionally another group of primary care-taker's and adolescents were interviewed from the community, from randomly selected districts of zone 1 in Addis Ababa. Households from the two sub-district were selected by systematic random sampling from selected houses and continuing with every interval of 3 houses. When refusal or households with no child aged 6-18 was encountered the alternate house number next was chosen inorder of +1,-1,+2,-2 of the original house number.

Primary care-takers and adolescents were interviewed from the selected households for 11 days (between 21 july to 1 august) until 100 interview were obtained.

Three clinicians and fifteen lay interviewers (8 females and 7 males) participated in the interview. Each clinician was first randomly paired with one of the lay

interviewers. One of the pairs formed was assigned to interview primary care-takers while two of the pairs formed were assigned to interview adolescent respondents.

For study of inter-rater reliability each respondent was interviewed by an interviewer/observer pairs at the same time. The activities of an interviewer were:(a) to administer the DICA-R interview and code the response independently, (b) note questions which he/she thought were not understood by the respondents and leave them to the observer at the end,

(c) write down the questions not understood by the respondent after interview in his own way in a format prepared for this purpose with out changing the meaning (Annex I) (d) administer the questions he/she wrote in the format and record the response found in the format prepared for this purpose (Annex I). The activities of the observer were: (a) to listen to the responses of the questions administered by the interviewer and code the response independently, (b) note question incorrectly administered by the interviewer and circling respective items without coding, (c) administer (ask) again the question that he/she circled due to incorrect questioning

by interviewers and code the new response in his/her interview, (d) write down the questions not understood by the respondents after interview in his/her own way in a format prepared for this purpose with out changing the meaning, (e) administer the questions he/she wrote in the format and record the response found in the format prepared for this purpose (Annex II).

The data from the results of two DICA-R interview was used to calculate the inter-rater agreement. After collecting interview sheets, editing was performed by clinicians trained in DICA-R. Problems and mistakes found were discussed with the concerned interviewer or observer, and re-interviewing of particular part was done as required.

The results of both clinician and lay interviewers were manually recorded and analyzed independently. In addition from the additional formats, the questions which interviewers and observers believed were not understood, were readministered after modification and the response to these were analyzed and used for modifying the Amharic DICA-R.

In assessing the agreement between clinician and lay interviewers, kappa and percent agreement for presence or absence of diagnosis and specific diagnoses were calculated.

Informed consent was obtained from Amanuel Psychiatric hospital officials, district and school leaders and willingness of all the respondents was asked. During the interview privacy was maintained. Ethical clearances for the study were obtained from the Department of Community Health and the Faculty of Medicine.

V. RESULT

Of the two hundred sixty five volunteers rated by clinician and lay interviewers using DICA-R, only 255 respondents had completed interviews and were included in the analysis (response rate of 96%). Ten interviews could not be analyzed because of incompleteness of the interview; six (2.3%) refused to complete the interview and four (1.5%) were not included because it was not possible to trace respondents at their home for reinterview.

Among the DICA-R interview respondents: 43% were Female, 31% were between the age 6 and 11 years and 8% were learning in special class for mentally disordered children. Sixty one percent were from Amhara ethnic group (table 1). Ninety Five (37%) of the responders had an average family size of 2-4, while 41%,and 21% had an average family of 1-4, and more than six respectively.

The respondents were predominantly from the outpatient department (36%) and from the community samples (38%) due to the infrequent admission of

children to Amanuel Psychiatric Hospital and the small number of mentally disordered children attending schools.

In evaluating DICA-R, the degree of acceptability of the instrument was also assessed during the reliability study. All the three clinician interviewers judged the DICA-R interview as being acceptable, and the lay interviewers also judged it as being acceptable (53% rated it as very good , 27% as moderately good and 20% as poor). The DICA-R was rated as feasible for outpatient, for urban setting and school for mentally disordered children use by clinician and lay interviewers but not feasible for inpatient use by lay interviewers.

The majority of respondents judged the DICA-R as being acceptable during the reliability study. thus 36% of respondents from the urban setting 4% from the school, 31% from the outpatient and 6% from the inpatients judged the DICA-R as being acceptable, while 23% did not give suggestions. Concerns expressed about the interview by clinician, lay interviewers and respondents were: (a) the length of the interview, especially in the behavioral

disorder section III(A) and III(D); (b) difficulty in administering section III of item C particularly question 71 A, B and C of parent version of DICA, because of parents refusal to respond on sexual activities and the use of alcohol and substance by their children; (c) difficulty in administering section V, questions 213, 217, 219 and section VI question 252 A,254,257,because of the complex sentence construction.

The observation of the respondents by clinician and lay interviewers showed: 35(14%), 10(4%), and 20(8%) respondents have a change in motor behaviour (overactive, in or out of chair), in speech (excessive amount, constant) and in mood (inappropriately sad) respectively. The average duration of interview was 130 minutes, the longest 180 minutes and the shortest 60 minutes. The average number of interruption was 0.05. The most frequent interruption was among inpatients due to problems of the respondents.

A total number of 189(74%) respondents fulfilled the Diagnostic Criteria of DSM-III-R had more than one diagnoses while 66(26%) respondents were classified as having no DSM-III-R diagnosis by clinician and lay interviewers with no variation between interviewers.

The number and percentage of subjects fulfilling diagnostics criteria according to DICA-R, DSM-III-R for both clinician and lay interviewers is shown in Table 2. The most frequent diagnosis made by lay interviewers were:- Phobia 27.5%, separation anxiety 15.7%, conduct disorder 13%, major depressive episode 11%, enuresis 11.6% overanxious 9.4% and manic disorder 8.6% . The most frequent diagnosis made by clinician interviewers were Phobia 26.7%, separation anxiety 17.7%, major depressive episode 12.5%, conduct disorder 11.8%, overanxious 11.4%,enuresis 10.6% and manic disorder 8.6%. The least common disorder rated by all interviewers were marijuana use and abuse 1%,

street drug use and abuse 4%, somatization 2.4%, and encopreses 2.4%. The mean number of diagnoses was 2.5 for inpatient respondents, 1.5 for outpatients and mentally disordered children in school, and 0.02 for community respondents.

The kappa values and percent agreement for the presence of diagnosis and specific DSM-III-R diagnosis are shown in Table 3. Percent agreement for any diagnosis was 89% and Kappa value 0.77. The lowest Kappa value was for dysthymic disorder 0.72, while the highest Kappa value was for Manic disorder 1.00

Table 1. Socio-demographic characteristic of 255 respondents, Addis Ababa, 1997

Variable	Number	Percent
Sex		
Male	145	57
Female	110	43
Age*		
6-11	78	31
12-18	177	69
Educational status		
Special class**	20	8
Grade 1-6	52	21
Grade 7-8	97	38
No formal education	85	33
Ethnicity		
Amhara	155	61
Gurage	43	17
Oromo	21	8
Others	36	14

* In years.

** For mentally disordered children.

Table 2. Comparison of proportion of life time and six months DSM-III-R diagnosis by lay and clinician interviewers with Amharic version of the DICA-R, Addis Ababa 1997.

Diagnoses*	Clinicians	Lay interviewers
Total no of respondents	**255(100%)**	**255 (100%)**
Behavioral disorder	**91 (36.9%)**	**87 (34.0%)**
ADHD**	18 (7.1%)	15 (5.9%)
ODD***	21 (8.1%)	19 (7.5%)
CD****	30 (11.8%)	34 (13.0%)
Substance abuse & dependence	**22 (8.6%)**	**19 (7.5%)**
Alcohol abuse & dependence	13 (5.1%)	10 (3.9%)
Marijuana abuse & dependence	2 (0.8%)	2 (0.8%)
Street drug abuse & dependence	7 (2.7%)	7 (2.7%)
Mood disorders	**66(25.9%)**	**61(15.3%)**
Major depressive episode (current)	32 (12.5%)	28 (11%)
Major depressive episode (past)	12 (4.7%)	11 (4.3%)
Manic disorder	22 (8.6%)	22 (8.6%)
Dysthymic disorder	**18 (7.10%)**	**24 (9.4%)**
Anxiety disorder	**153(60%)**	**144 (56%)**
Separation	45 (17.7%)	40 (15.6%)
Avoidant	11 (4.3%)	9 (3.5%)
Overanxious	29 (11.4%)	25 (9.5%)
Phobia	68 (26.7%)	70 (27.5%)

Continued (next page)

Table 2. cont....

Diagnoses*	Clinicians	Lay interviewers
Total no of respondents	255(100%)	255 (100%)
Obsessive-Compulsive Disorder	16 (6.3%)	17 (6.7%)
Elimination disorder	31 (12.2%)	34 (13.3%)
Enuresis	25 (10.6%)	28 (11.0%)
Encopreses	6 (2.4%)	6 (2.4%)
Post- Traumatic	3 (1.2%)	3 (1.2%)
Somatization	5 (2%)	6 (2.4%)

*A subject can have more than one diagnoses. A total of 25.9% had no diagnoses both by clinician and lay interviewers.

** ADHD: Attention Deficit Hyperactivity Disorder.

*** ODD: Oppositional Defiant Disorder.

**** CD: Conduct Disorder.

Table 3. Inter-rater reliability for DSM-III-R diagnoses(with absolute frequency of five or more) using the Amharic version of DICA-R, Addis Ababa, 1997.

	Two by Two table clinician interviewers			Kappa	Percent agreement
		+ve	-ve		
Lay interviewers	+ve	a	b		
	-ve	c	d		
Any diagnosis		160	8		
		21	66	0.74	88.6
ADHD		15	0		
		3	237	0.88	99.0
ODD		19	0		
		2	234	0.93	99.0
CD		30	4		
		0	221	0.90	98.0
Alcohol use and dependence		10	0		
		3	242	0.89	99.0
Major depressive episode (present)		28	0		
		4	223	0.90	98.0

Continued (next page).

Table 3. cont....

	Two by Two table clinician interviewers			Kappa	Percent agreement
		+ve	-ve		
Lay interviewers	+ve	a	b		
	-ve	c	d		
Manic Disorder		22	0		
		0	233	1.00	100
Dysthymic disorder		19	10		
		0	226	0.72	96.0
Separation		40	0		
		5	210	0.93	98.0
Avoidant		9	0		
		2	244	0.88	99.0
Overanxious		35	0		
		4	216	0.92	98.0
Phobia		68	2		
		0	185	0.97	99.0
Enuresis		25	0		
		4	226	0.89	98.0

VI. DISCUSSION

Inter-rater reliability is commonly used as a measure for observer rated scales, measures the degree to which different raters will give the same score to the same volunteers of using the same diagnostic instrument (41). The result of this study indicates that the Amharic version of DICA-R has good acceptance and was judged as feasible for use by the interviewers (clinician and lay) and respondents from outpatient, inpatient, community and mentally disordered children. The major problem of the Amharic version of DICA-R was its inappropriateness for inpatients who had difficulty in staying long enough to complete the long interview of DICA-R. The average duration of interview was also long (130 minutes).

The most commonly used coefficient for indicating reliability in categorical data is kappa(k), which adjusts for a certain amount of agreement which occur by chance. It provides a true estimate of diagnostic reliability and has become the standard method for indexing diagnostic agreement in psychiatry. Kappa value above 0.75 are considered excellent and value below 0.40 poor (41). In this study, a high level of agreement (89-100) percent and high kappa value (0.74-1.00) are indicating the reliability of the instrument.

Also the use of a clinician as interviewer (who are more in numbers in this country than few psychiatrist) that made possible in the reliability of the study further enhanced the feasibility of the instrument. The use of clinician as interviewers results in rating of greater number of psychiatric symptoms than psychiatrist interviewers because it is believed that the increase in psychiatric experience of rater is associated with tendency to rate less abnormality (35).

Several characteristics of this study limit the comparison of its results with other reliability studies of DICA. These include:(a) sample size and composition of the sample from different settings, (b) the use of non-mental health clinicians unlike elsewhere, (c) difference in methodology of reliability study of DICA-R.

The test retest reliability study of DICA by Welner and his colleagues in 1987 on 27 psychiatric inpatient aged 7 to 17 years found the level of diagnostic agreement (80%-100%) and kappa value (0.76-1.00) for affective disorders, attention deficit disorders, oppositional disorders and anxiety disorders (39). These figures are comparable to results reported in this study. Although the level of diagnostic agreement between the

two studies are similar, Welner and his colleagues (1987) used small sample of psychiatric inpatient which have marked pathology with more complaint and they interviewed the youngest children directly which were the least reliable reports. These may have inflated the kappa value of their study. In this study in comparison to their study relatively large sample with the composition of respondents from different setting was used.

In study reported by Edelbrock and colleagues in 1985 the instrument was tested on 242 out-patients aged 6-18 years. The level of agreement was between 0.62 to 0.75 for depression, attention deficit disorders, conduct disorders, oppositional disorders and separation anxiety (45), The levels of agreement were not as high as those obtained in this study where percent agreement ranges from 89 to 100 and kappa values from 0.74 to 1.00 for manic disorders, separation anxiety, conduct disorders, dysthymic disorders and enuresis. The possible explanation for their lower kappa values could be the

source of their sample which was from outpatients only with less marked pathology and less complaints, the longer intervals between interviews that makes the change in patient status and recall problems.

The two studies reported by Welner and colleagues (39) and Carlson and colleagues (42) in 1987 obtained the kappa values of 0.3 to 0.50 and 0.5 to 0.75 respectively on a sample of psychiatric inpatient in hospitals. These are much lower than those reported in the present study. The difference could probably be accounted by their use of sample from psychiatric inpatient which have marked pathology and they reported agreement between DICA administered by clinicians and hospital diagnoses.

The other studies which employed DICA differently from the present study was the study of Herjanic and colleagues in 1982. They evaluated DICA on a sample of 307 mother-child pairs and reported good agreement on five commonly used DSM-III-R categories: conduct disorders, mixed behaviour-neurotic disorders, enuresis, antisocial personality and major depressive episodes (40). The diagnostic agreement in this study on conduct

disorder, enuresis, major depressive disorder are similar to their study. The use of diagnostic agreement between child and parent pairs is different from the approach used in the study which assessed the agreement between lay and clinician interviewers.

The first study done using DICA-R by Michael and colleagues in 1993 obtained a high level of agreement between lay interviewers and child psychiatrists on sample of 60 children and adolescent aged 6-17 years from schools. In the specific disorder they found the kappa values ranging between 0.52 to 0.84 for conduct disorder, oppositional defiant disorder, attention deficit hyperactivity disorder, anxiety disorders, major depressive disorder and dysthymic disorder on parent responder's, and 0.58 to 0.84 on adolescent responder's, except for the assessment of anxiety among adolescent responder's which generated a kappa value of 0.21 (35). This study is similar to our finding of kappa value 0.74 to 1.00, for all diagnoses while kappa value for anxiety disorder were found to be very lower (0.21) in their finding versus (0.94) in our case. The possible explanation for the difference between the two studies

could be the source of sample. Also differences in approachs and cultural setting could account for different results.

The validity and generalizability of the present study was enhanced by (a) the administration of DICA-R in one session by two raters, which may decrease source of variance which occurs as a result of change in patient status and recall problems as may occur in studies which use rates at two different time; (b) the intensive training of the interviewers and timely correction of the identified problems; (c) the inclusion of sample from different settings (inpatient, outpatient and community). However the difficulty of exact age determination (as there was no birth registration), the presence of culturally sensitive question such as question about sexual activities in parent version of DICA-R and absence of similar local studies for comparison were the limitation of this study. The finding of this study can be generalized to other psychiatric hospitals, urban setting and schools (which have special class for mentally disordered children), but the selection of respondents from urban setting may restrict its generalizability to the rural population.

VII. CONCLUSION

This study showed that the Amharic version of DICA-R core version 7.2 can be administered by both clinician and lay interviewers after a period of training. It also showed that the instrument has good reliability as confirmed by the statistical level of agreement of high kappa and percent agreement levels between clinician and lay interviewers for all diagnoses. The acceptability and the feasibility of the instrument for the urban community and outpatient and school is satisfactory. It is, therefore, concluded that the Amharic version of DICA-R can usefully be employed in population based epidemiological studies.

VIII. Recommendations

On the basis of the findings it is recommended that the DICA-R could be (a) used for estimating prevalence of mental and behavioral disorders among children in the community, (b) assessed for reliability, acceptability and feasibility in other local languages and cultures in rural communities.

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X. Annex I

Format for interviewer

Question which the interviewer believed not understood by respondent.

Question number	Modified question of the interviewer	Responses.
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---	---	---
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Respondents name ---

Interviewers name ---

Annex II

Format for observer

Questions which the observer believed not understood by the respondent

Question number	Modified question of the observer	Responses.
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---	---	---
---	---	---

Respondents name ----------

Observers name ----------

ANNEX III

1. DICA-R CHILD VERSION (ENGLISH)
2. DICA-R PARENT VERSION (ENGLISH)
3. DICA-R CHILD VERSION (AMHARIC)
4. DICA-R PARENT VERSION (AMHARIC)

XI. Declaration

I, the undersigned, declare that this is my work and that all sources of materials used for the thesis have been duly acknowledged.

Name Megersa Kebede (MA)

signature

Place A. A.

Date of submission 5-6-90.