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Original article

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

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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 by clinicians, lay interviewers and respondents from different settings. A total of 265 respondents 6-18 years of age from the community, Amanuel Psychiatric Hospital (inpatient and outpatient) and schools for mentally disabled children were interviewed between 25 June and 28 July, 1997. Of the 255 respondents who completed the interview by clinicians and lay interviewers 189 respondents had one or more diagnoses, while 66 had no diagnoses. The clinicians, most of the lay interviewers, and respondents judged the DICA-R as being acceptable and feasible for use in different settings. Some concern expressed about the interview was on its length and difficulties with few of the items. The most frequent lifetime and six months diagnoses by all interviewers were phobia, separation anxiety, overanxiousness, major depressive episode, conduct disorders and enuresis. For any specific diagnoses made with the frequency of five or more times, percentage agreements were above 89% and the kappa values ranged from 0.74 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. [Ethiop. J. Health Dev. 2000;14(1):13-21]

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Over the past 50 years, the health and living conditions of people in developing nations have improved dramatically. Average life expectancy, infant mortality rates and access to safe water has shown remarkable improvement, although 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 a variety of powers both natural and supernatural (2). The concept of mental illness has existed in Ethiopian culture for many centuries. 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. Trained mental health workers are scarce, and, except for the extreme cases of pathology, most forms of psychopathology go unnoticed by other professionals (3,4). Mental health programmes are not given due attention in Ethiopia and other developing countries 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 makers, and (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 barrier to effective communication in mental health, both among and within countries, has been the lack of agreed-on 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). However, recent advances in the development of standardized nomenclatures have enabled clinical investigators and epidemiologists to develop structured diagnostic instruments that could be used in a variety of settings and by various kinds of interviewers, including lay interviewers (7). 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 (8).

Very limited data are available on the magnitude of mental illness among children and adolescents in Ethiopia. Few attempts have been made in health institutions and in the community to determine the

prevalence of mental disorders among these age groups. One of the problems in determining the prevalence of specific disorders among children and adolescents has been the lack of an instrument which is reliable, acceptable and feasible in community studies, and which, at the same time, enables diagnosis according to generally accepted diagnostic classification schemes, such as the Diagnostic and Statistical Manual (DSM) of mental disorders and the International Classification of Diseases and cause of death (ICD). For the institution of appropriate and adequate preventive and curative measures for mental and behavioural disorders of children and adolescents, determination of the magnitude of the various disorders using a reliable instrument is important.

Different structured interviews have been developed to assess the occurrence of behaviour and mental disorders in children and adolescents. One such instrument with established validity is the revised Diagnostic Interview for Children and Adolescents (DICA-R) (9). This study was conducted in Addis Ababa with the aim of assessing the feasibility, reliability and acceptability of the Amharic translation of DICA-R.

Methods

The study was conducted between January 1997 and December 1998 in Addis Ababa. The English version of DICA-R for parent and child, version 7.2, was translated into Amharic by three psychologists and a medical doctor. Then it was revised and checked by a psychiatrist whose first language is Amharic. Interactive back translation or multiple independent translation could not be applied due to time and logistic limitations.

DICA was the first structured diagnostic interview for children and adolescents (10). It gives current and past diagnoses. It was first developed by Herjanic and Campbell in 1977 (11). It consists of parent and child versions which are identical in content and structures and can be administered by lay interviewers after going through a training program. The DICA-R is a revised version that follows the DSM-III-R classification (12). It consists of symptom questions of 405 items, of which not all were given to all respondents because of skip rules (13).

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 the DICA interview. A

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clinician interviewer was defined as a medical doctor who studied the DSM-III-R criteria for the specific diagnosis made by DICA-R (child and parent version), and who is able to make specific diagnoses in the absence of the DICA interview.

Recruitment and intensive on site training of clinician and lay interviewers was conducted in Amharic for 12 days. Training included: (a) home study of the DICA-R interview, (b) large group interview (with study workers taking turns interviewing volunteer parents and patients), (c) practicing interviews between the interviewers, (d) observation and coding of clinicians' interview with parents and adolescents, (e) 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. After the responses were edited by physicians who studied DSM-III-R, some problems were identified and rectified until face validity was confirmed by assessing the clinicians' judgment. Useful information was thus gathered for use in conducting the reliability study. The average duration of time required to complete one interview was 130 minutes.

The study was expected to: (a) assess the ability of the lay interviewers to give the interview approximately the same way the clinician interviewer would, (b) assess the ability of the respondents to understand the translated DICA-R version as put to them by the interviewers, and (c) to detect problematic questions that may need revision in the interview.

Respondents for the study were children and adolescents aged 6-18 years. For children aged between 6 and 11 years, the parent or primary caretaker was interviewed. Adolescents aged between 12 and 18 were interviewed directly. The study population consisted of children with mental illness from Amanuel Psychiatric Hospital (outpatient and inpatient), and two schools for mentally disabled children. In addition, a community sample of children and adolescents was included from two sub-districts of the city close to Amanuel Hospital. All consecutive children and adolescents getting services in Amanuel Psychiatric Hospital were interviewed until a total of 145 interviews were carried out. All 16 parents and four adolescents from the two schools were interviewed. One hundred

interviews were completed from the community sample. After a random identification of a household in each sub-district, all children and adolescents in every third household were enrolled in the study until 50 interviews were completed from each of the sub-districts. When refusal or households with no child of age group 6-18 were encountered, the alternate house number next was chosen in the order of +1,-1,=2,-2 of the original house number. 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.

Three clinicians and fifteen lay interviewers (eight females and seven males) participated in the interview. Each clinician was first randomly paired with one lay interviewer. One of the pairs interviewed primary caretakers while the other two interviewed adolescent respondents.

For the study of inter-rater reliability, each respondent was interviewed by an interviewer observer pair. 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) rewrite the questions not understood by the respondent after the interview in her/his own way in a format prepared for this purpose without changing the meaning, and (d) administer the questions he/she rewrote. 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 any question incorrectly administered by the interviewer and circling the respective items without coding, (c) administer (ask) again the question that she/he circled due to incorrect questioning by interviewers and code the new response in his/her interview, (d) rewrite down the questions not understood by the respondents after interview in his/her own way in a format prepared for this purpose without changing the meaning, and (e) administer the questions he/she rewrote.

After collecting the 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 a particular part was done as required. Results of both clinician and lay interviewers were manually recorded and analysed independently. In addition, the question which interviewers

and observers believed were not understood were readministered after modification and the response to these were analysed 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 were asked. During the interview privacy was maintained. Ethical clearance for the study were obtained from the Department of Community Health and the Faculty of Medicine.

Reliability was measured by determining kappa values using the following formula:

	Clinical interviewe		
	+ve	-ve	
Lay +ve	a	b	B1=a+b
Interviewer -ve	c	d	B2=c+d
	A1=a+c	A2=b+d	n=a+b+c+d

Po = Proportion of agreement observed= $\frac{a+d}{n}$ Pc= Proportion of agreement by chance= $\frac{[(A1/n) (B1/n)]+[(A2/n)(B2/n)]}{n}$ Kappa = $\frac{(Po - Pc)}{(1 - Pc)}$

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Of the two hundred sixty five volunteers included in the study, 255 respondents completed the interviews and were included in the analysis (response rate of 96%). Ten interviews could not be analysed because of incompleteness of the interview: six (2.3%) refused to complete the interview and four (1.5%) were not available at home for interview at the appointed time.

Among the respondents: 43% were females, 31% were aged 6 - 11 years, and 8% were attending the special class for mentally disabled children. Sixty one percent were from the Amhara ethnic group (Table 1). The respondents were predominantly (36%) from the outpatient department (36%) and from the community samples (38%). This is due to the infrequent admission of children to

Amanuel Psychiatric Hospital and the small class size of the special schools. The degree of acceptability of the instrument was also measured during the reliability study. All the three clinician interviewers and 80% of the lay interviewers judged the DICA-R interview as 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 disabled children by clinician and lay interviewers but was rated as not feasible for inpatient use by lay interviewers. Thirty six percent of respondents from the urban setting, 4% from the school, 31% from the outpatient, department and 6% from the inpatients department judged the DICA-R as acceptable.

Concerns expressed about the interview by clinician, lay interviewers, and respondents were: (a) the length of the interview, especially in the behavioural disorder section III (A) and III (D); (b) difficulty in administering section III item C, particularly question 71 A, B and C of the parent version of DICA. This is because of parents' refusal to comment on sexual activities and on the use of alcohol and substance by their children; (c) difficulty in administering section V, questions 213, 217, 219 and section VI questions 252A, 254, 257, because of the complex sentence construction.

According to the observation made by interviewers, 35(14%) respondents showed a change in motor behaviour (overactive, in or out of chair), 10(4%) in speech (excessive amount, constant), and 20 (80%) in mood (inappropriately sad). The average duration of interview was 130 minutes (range=60-180). The average number of interruption was 0.05. The most frequent interruption was among inpatients due to the mental state of the respondents.

A total number of 189(74%) respondents fulfilled the Diagnostic Criteria of DSM-III-R and had one or more diagnoses while 66(26%) respondents were classified as having no DSM-III-R diagnosis. The number and percentage of subjects meeting the diagnostic criteria of DSM-III-R for both clinician and lay interviewers is shown in Table 2. The most frequent diagnoses made by lay interviewers were:- Phobia (27.5%), separation anxiety (15.6%), overanxious (13.7), conduct disorder (13%), dysthymic disorder (11.4), major depressive disorder (11%), enuresis (9.8%), and manic disorder (8.6%). The most frequent diagnoses made by clinician interviewers were Phobia (26.7%), separation anxiety (17.7%), overanxious disorder (15.3%), major depressive disorder (12.5%), conduct disorder (11.8%),

enuresis (11.4%), 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 encopresis (2.4%). The mean number of diagnoses per interviewee was 2.5 for inpatient respondents, 1.5 for outpatients and mentally disabled 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 0.78. The lowest Kappa value was for dysthymic disorder (0.78), while the highest Kappa value was for Manic disorder (1.00).

Discussion

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 disabled children. The major problem of the Amharic version DICA-R was its inappropriateness for inpatients who had difficulty in staying long enough to complete the long interview of DICA-R (Average duration of interview was 130 minutes). However, given the lack of a more concise as well as reliable and valid instrument, DICA-R is still acceptable.

The most commonly used coefficient for indicating reliability in categorical data is kappa, which adjusts for a certain amount of agreement that can occur by chance alone. Kappa value above 0.75 indicates a very good reliability (14). In this study, a high level of agreement (89-100 percent) and high kappa value (0.78-1.00) are indicative of a reliable instrument. The use of general practitioners as interviewers instead of psychiatrists may have resulted in a rating of a higher number of psychiatric symptoms. It has been reported that an increase in the psychiatric experience of a rater is associated with a tendency to rate less abnormality (15). The test retest reliability study of DICA by Welner and his colleagues in 1987 on 27 psychiatric inpatients aged 7 - 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 (16). These figures are comparable to results reported in this study. The level of diagnostic agreement reported in our study is thus similar to that reported by Welner and colleagues. In the study reported by Edelbrock and colleagues in 1985 the instrument was tested on 242 outpatients aged 6-18 years. The level

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of agreement was between 0.62 and 0.75 for depression, attention deficit disorders, conduct disorders, oppositional disorders and separation anxiety (17). The levels of agreement were not as high as those obtained in the present study where percent agreement ranges from 89 to 100 and kappa values from 0.87 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 only outpatients with less marked pathology and less complaints, and, the longer intervals between re-interviews. The two studies reported by Welner and colleagues (16) and Carlson and colleagues (18) in 1987 obtained the kappa values of 0.03 to 0.50 and 0.05 and 0.07, respectively, on a sample of psychiatric inpatients in hospitals. These are much lower than those reported in the present study. The difference could probably be due to their use of sample from psychiatric inpatients alone who probably had marked pathology that could have resulted in poor communication capacity. Herjanic and colleagues (1982) 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 (19). The diagnostic agreement reported in the present study regarding conduct disorder, enuresis, and major depressive disorder are similar to their study. The assessment of diagnostic agreement between child-parent pairs is, however, different from the approach used in our study which assessed the agreement between lay and clinician interviewers. The study by Michael and colleagues in 1993 obtained the level of agreement between lay interviewers and child psychiatrists on a sample of 60 children and adolescents aged 6-17 years from schools. Regarding specific disorders they found kappa values ranging 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 interviews, and 0.58 to 0.84 on adolescent interviews. For anxiety disorders the kappa was 0.21 on adolescent interviews (15). Our finding of kappa value of 0.78 to 1.00 for all diagnoses are similar to those reported by Michael and colleagues, except for anxiety disorder. We reported a kappa of 0.94 for anxiety disorders. The possible explanation for this difference between the two studies could be the difference in the composition of the study populations. The reliability and consequently generalizability of the present study was enhanced by (a) the administration of DICA-R in one session by two rates may have decreased the source of variance which might

have otherwise occurred by the use of the rating at two different times. These problems could arise in such studies as a result of a change in interviewee's mental status and recall problems; (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). Generalizability is also enhanced by high face validity. The limitations of this study were: 1-the difficulty of exact age determination (as there was no birth registration); 2-the presence of culturally sensitive question such as question about sexual activities in parent version of DICA-R; 3-inability to do back translation of the Amharic DICA-R to English; 4-absence of gold standard or similar local studies for comparison. 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.

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Table 1: Socio-demographic characteristics of the 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 disabled children.

Table 2: Comparison of proportion of DSM-III-R diagnoses by lay and clinician interviewers with the Amharic version of the DICA-R, Addis Ababa, 1997.

Diagnoses*	Clinicians	Lay interviewers
Total no of respondents	255(100%)	255(100%)
Behavioural disorder	91(36.9%)	87(34.0%)

ADHD**	18(7.1%)	15(3.9%)
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	19(7.5%)	29(11.4%)
Anxiety disorder	153(60%)	144(56%)
Separation	45(17.7%)	40(15.6%)
Avoidant	11(4.3%)	9(3.5%)
Overanxious	39(15.3%)	35(13.7%)
Phobia	68(26.7%)	70(27.5%)
Obsessive-Compulsive Disorder	16(6.3%)	17(6.7%)
Elimination disorder	31(12.2%)	34(13.3%)
Enuresis	29(11.4%)	25(9.8%)
Encopresis	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 diagnosis. At total of 66 (26%) individuals had no diagnosis, both by clinician and lay interviewers.

** ADHD: Attention Deficit Hyperactivity Disorder.

*** ODD: Oppositional Defiant Disorder.

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

		Clinician interviewers		Percen kappa agreement	
		+ve	-ve		
Lay interviewers					
Any diagnosis	+ve	160	8		
	-ve	21	66	0.78	88.6
ADHD	+ve	15	0		
	+ve	3	237	0.88	99.0
ODD	+ve	19	0		
	-ve	2	234	0.93	99.0
CD	+ve	30	4		
	-ve	0	221	0.90	98.0
Alcohol use and dependence	+ve	10	0		
	-ve	3	242	0.89	99.0
Major depressive episode (present)	+ve	28	0		
	+ve	4	223	0.90	98.0
Manic Disorder	-ve	22	0		
	+ve	0	233	1.00	1.00
Dysthymic disorder	-ve	19	10		
	+ve	0	226	0.78	96.0
Separation	-ve	40	0		
	+ve	5	210	0.94	98.0
Avoidant	-ve	9	0		
	+ve	2	244	0.88	99.0
Overanxious	-ve	35	0		
	+ve	4	216	0.92	98.0
Phobia	-ve	68	2		
	+ve	0	185	0.98	99.0
Enuresis	-ve	25	0		
	+ve	4	226	0.89	98.0

**** CD: Conduct Disorder.

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