

MENTAL HEALTH OF 3476 HIGH SCHOOL STUDENTS IN KUMAMOTO

Hiroaki Harai, Hidehiko Yamaguchi, Nobuhiko Shimohara,
Aki Maeda, Motonori Deshimaru

Kikuchi National Hospital, Division of Clinical Research

Address correspondence; Hiroaki Harai MD. Kikuchi National Hospital, Fukuhara 208 Koushi-Machi Kikuchi-Gun Kumamoto JAPAN 861-1116

Phone +81-96-248-2111 Fax +81-96-248-4559 E-mail hharai@cup.com

Abstract

Objective

To estimate prevalence of common mental disorders in high school students in Kumamoto, Japan.

Subjects and Methods

A test battery, "Kikuchi Mental Health Questionnaire for High School" was developed. This consists of 1) Fear Questionnaire for phobias, 2) Our original question about obsession and compulsion, 3) Depression Self-Rating Scale for Children for current depression, 4) Eating Attitudes Test 26 for eating disorders, and 5) CRAFFT, 9 Item Screening Test for Substance Use. 3476 students from 5 high schools responded.

Result

1) Obsession or Compulsion: 22% answered they had obsession or compulsion, 2) 30% were considered depressive by DSRSC, 3) 6% had Eating Disorder by EAT-26, 4) 18% were considered as having substance use problems by CRAFFT. Alcohol is major problem. Life time experience of illicit drug was 3%.

Conclusion: Depression was most common. Obsessive Compulsive Disorder took the second. Illicit drug use was lower than other advanced countries.

INTRODUCTION

The necessity of the epidemiological data is well acknowledged. The prevention, diagnosis, and treatment for mental disorders should be based on clinical epidemiology. The health care policy must reflect not lay people's interest but prevalence of the targeted problem in the community. There is an increasing concern about the mental health of the adolescents in Japan. Several anecdotal reports and the media in general assert that the prevalence of depressive disorders, anxiety disorders, eating disorders and substance related disorders are increasing in this age group. These disorders are generally classified as "internalizing disorders." In contrast to the developmental disorders, psychotic disorders, and conduct disorders, these internalizing disorders are considered to be under-recognized. They are hard to detect by the external observers like parents and teachers, and they often manifest under disguise of other externalizing disorders like conduct disorders. We need an epidemiological research targeted community samples. Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) Study is one of the examples (Shaffer 1996). As to our knowledge, there is no similar study to figure out the prevalence of these disorders in adolescence in Japan.

To produce more reliable data to figure out the prevalence of these internalizing disorders in Japanese adolescence, we launched a project named "Kikuchi High School Mental Health Survey" in 1999. This study administers a test battery of screening tests of targeted disorders to general adolescents in the community. Five public and private high schools in Kumamoto area participated in this project. Kumamoto prefecture, a part of North Kyushu Area, has 1.8 million of population. This project is a three year project. The same test battery has been administered at the same high school in 1999, 2000, and 2001 consecutively. This presentation reports the results obtained from the survey in 1999.

METHOD

Participants

The participants were the students in five senior high schools in Kumamoto Prefecture. Their grades are 10th to 12th grade. All students who attended the examination day participated. The area represents rural and suburb areas of Kumamoto city. Main industries are agriculture, car industry and electric devices.

Among the 3876 students who attended the classes, 3476 answered to the test battery. After removal of irrelevant and invalid answers, 2754 subjects answered to the test battery fully. 79.2% of total subjects, Male 1252, female 1502. For following data analysis, the 2754 subjects are used.

Table 1 The characteristics of the 2754 participants

	<i>Characteristics</i>		<i>10th</i>	<i>11th</i>	<i>12th</i>	<i>Total</i>
<i>School A</i>	Public Common school	Male	115	103	83	301
		Female	117	138	157	412
<i>School B</i>	Public Common school	Male	111	123	115	349

		Female	172	148	154	474
<i>School C</i>	Private Girl School	Female	85	62	93	240
<i>School D</i>	Public Agricultural school	Male	85	71	75	231
		Female	50	34	25	109
<i>School E</i>	Public Occupational school	Male	144	117	110	371
		Female	106	84	77	267
<i>Total</i>		Male	455	414	383	1252
		Female	530	466	506	1502

Procedures

Test battery

We developed a test battery, "Kikuchi Mental Health Questionnaire for High School." This is six pages of paper and pencil questionnaire. The targeted disorders are separation anxiety, phobic disorders, depression, obsessive compulsive disorder, eating disorder, and substance use disorders. We tried to find screening tests which are brief, simple, validated, and translated into Japanese already, through an extensive literature search of "Igaku Chuo Zasshi" 1994 - 1999, Medline 1984 ~ 1999, ERIC(Educational Resource Information Center). We chose the following screening instruments.

- 1) Separation Anxiety and Phobic disorders
Fear Questionnaire (FQ) for phobias by Marks IM(1986) was used. This is translated by Takeutchi (1988.) This test can detect Blood and Injury phobia, Agoraphobia, and Social Phobia. The score ranges from 0 to 40. We added one item for separation anxiety which uses the same anchor point with the original FQ ranging from 0 to 8. We could not find any information about cut off scores for making the diagnosis. We have administered FQ to clinical populations. We set the cut off score at 30 for each phobia, and 6 for separation anxiety.
- 2) Obsessive Compulsive Disorders
We could not find an appropriate questionnaire. We developed an original question about obsession and compulsion.
- 3) Depression
Depression Self-Rating Scale for Children for current depression (DSRSC) by Birlson (1987) was used. The score ranges from 0 to 36. This test was originally aimed at the age group of 8 to 13, but Ivarsson (1997) reported that this test was also valid for adolescents. We set the cut off score at 16, according to Murata (1999.)
- 4) Eating Disorders
Eating Attitudes Test 26 (EAT26) by Garner (1983) was used. The score ranges from 0 to 78. We set the cut off score at 20.
- 5) Substance abuse
CRAFFT, Nine items screening test for substance use developed by Knight (1999.) This test is consisted nine items of question. Six items are used for scoring, and the score ranges from 0 to 6. Two is recommended as cut off point by the author. As we could not find any Japanese translation for this test, we translated by ourselves by the permission of the author. Our original questionnaire for past and current use of psychoactive substance was incorporated.
- 6) Subjective complaints and the service use
We incorporated a question asking the subjective complaints and past or current use of professional mental / medical services.

Study date

This project is three year project. We administered the test three times, the first wave in December 1999, the second wave in September 2000, and the third wave in September 2001. This presentation reports the result of the first wave.

RESULTS

Table 2 The prevalence of the Targeted disorders / symptoms

		10th	11th	12th	Total
Separation	Male	2%	6%	3%	4%
	Female	4%	5%	4%	4%
Blood & Injury	Male	6%	7%	8%	7%
	Female	11%	14%	13%	12%
Agoraphobia	Male	11%	18%	16%	15%
	Female	21%	21%	20%	20%
Social phobia	Male	5%	6%	5%	5%
	Female	11%	10%	8%	10%
OCD	Male	16%	15%	20%	17%
	Female	24%	21%	26%	24%
Depression	Male	23%	25%	28%	25%
	Female	36%	36%	32%	35%
Any of phobia / OCD/ Depression	Male	45%	48%	48%	47%
	Female	61%	59%	59%	60%
Eating Disorder	Male	1%	3%	5%	3%
	Female	8%	10%	10%	9%
CRAFFT	Male	16%	24%	27%	22%
	Female	11%	18%	15%	14%
Subjective complaints	Male	16%	20%	22%	19%
	Female	27%	28%	29%	28%
Any Disorder	Male	60%	65%	65%	63%
	Female	70%	73%	73%	72%

Depression

Suicidal Ideation

The item 10 of DSRSC asks suicidal ideation. Six % of the subjects answered yes to the question.

Table 3 Percentage of the subjects who had suicidal ideation

Sex	10th	11th	12th	Total
Male	5%	5%	7%	6%
Female	4%	7%	3%	4%

Comorbid condition

We then examined the prevalence of other disorder among 844 depressed subjects. OCD and agoraphobia were common among the depressed subjects. Subjects with pure depression was 30% of the subjects.

Table 4 Comorbid disorders among depressive subjects

Sex	Separation	Blood & Injury	Agoraphobia	Social Phobia	OCD	Eating	CRAFFT	Depression Only	Total
Male	5%	11%	28%	11%	25%	5%	30%	33%	319
Female	4%	17%	32%	14%	35%	13%	21%	28%	525

Substance Use

Table 5 Experience of substance use

	Sex	10th	11th	12th	Total
Tobacco	Use more than 3 times a week	Male	38%	47%	46%
		Female	17%	29%	26%
	At least once a week	Male	4%	3%	4%
		Female	8%	6%	5%
Past experience, not using now	Male	57%	50%	50%	
	Female	74%	65%	68%	
Alcohol	Use more than 3 times a week	Male	5%	8%	8%
		Female	3%	3%	2%
	At least once a week	Male	22%	28%	25%
		Female	18%	23%	20%
	Past experience, not using now	Male	22%	20%	20%

Other substances	Use more than 3 times a week	Female	46%	47%	54%	49%
		Male	0%	1%	0%	0%
	At least once a week	Female	0%	0%	0%	1%
		Male	0%	2%	1%	1%
	Past experience, not using now	Female	0%	0%	0%	0%
		Male	7%	8%	8%	9%
		Female	3%	1%	2%	3%

*Other substances includes 1) organic solvents (8 current users), 2) Butane gas (10 current users), and 3) Meth-amphetamine (7 current users). Marijuana, cocaine, and opioid were not observed among our subjects. There are 25 current users of over the counter drug, such as anti-cough medication. As the use of OTC drug does not necessarily means substance abuse, OTC drug is not reported here.

Service Use

Eighty eight students (37 male, 51 female) have consulted with health care professionals. Thirteen of them, only their parents visited the professionals Seventy five of them visited by themselves. In comparison with the prevalence among the general subjects, separation in female, agoraphobia, social phobia in female, OCD, depression in female, eating disorder in female, and CRAFFT in female are over represented. Separation in male, blood & injury, social phobia in male, depression in male, and CRAFFT in male are almost the same between the general subjects and service users.

Table 6 The prevalence of targeted disorders among health care users

	Separation	Blood & Injury	Agoraphobia	Social phobia	OCD	Depression	EAT	CRAFFT
Male	3%	8%	27%	3%	22%	27%	5%	24%
Female	8%	12%	33%	14%	39%	57%	24%	27%
Total	6%	10%	31%	9%	32%	44%	16%	26%

DISCUSSION

Comparison with other studies

There are several studies with similar objectives with current study have been published. Table 6 shows the comparison table.

Table 7 The prevalence of targeted disorders among health care users

	This Kikuchi Study Japanese sample (Age 15-18)	Beals et al., 1997 American Indian Sample (Mean Age 15.6) 6-Months Prevalence	Shaffer et al., 1996 US sample (Mean Age Approx.13) 6-Months Prevalence	Ivarsson 1996 Sweden sample (Age13-18)
Specific Phobia			2.9%	2%
Blood and Injury phobia	10%			
Agoraphobia	17%			
Social Phobia	7.5%		2%	3.7%
Separation Anxiety	4.1%		1.9%	2.7%
OCD	22%			
Any Anxiety	41%		5.5%	12.3%
Depression	30%		4.7%	4.3%
Suicidal Ideation	5%			7%
Alcohol Dependence / Abuse	3%		11%	4%
Substance (other than tobacco or alcohol) Dependence / Abuse	0.9%		3.9%	
Any Substance Use Disorders	18%			
Eating Disorders	6%			
Any Disorder	68%		21.1%	19.6%

Beals et al. and Shaffer et al used the Diagnostic Interview Schedule for Children (DISC.) Ivarsson and our study used DSRS to detect depression.

The prevalence of anxiety disorders and depression in this Kikuchi study is much higher than other studies.

The implication of this study

Our study offers the normative data of internalizing disorders. Depression was most common. Obsessive Compulsive was the second. 53% of the subjects had phobic disorders, OCD or depression. Some disorders, like depression, OCD, and phobia are much more frequently seen in our study population than what is commonly believed. Whereas the prevalence of tobacco uses, alcohol abuse, illicit drug use, eating disorders, and suicidal ideation are almost the same as other reports. Anxiety disorders and depression are more often seen in girls than boys. This female preponderance corresponds with previous studies.

In terms of the service use, we observed the effects of interaction between sex and diagnosis. OCD increases service use in both sexes. Other anxiety, depression and substance use result in service use in female, but not in male.

This study implies that future researches on Japanese adolescent mental health should focus on anxiety disorders and depressive disorders more intensively than US or Sweden.

Limitations

We don't know the positive or negative predictive value of our test battery to our specific population. The threshold of phobic disorder in special is often a matter of dispute. For the use of FQ, we must wait for the validation study until we can reliably predict the true prevalence of phobic disorders. We employed 16 as the cut off score for DSRSC. Ivarsson (1996) recommended 15 through their study on the similar adolescents in Sweden. We might

underestimate the prevalence of depression due to the higher cut off score. We employed two as the cut off score for CRAFFT in compliance with Knight (2002). Considering lower prevalence of substance abuse in Japan than other developed countries, we might overestimate the prevalence of substance abuse. To speculate the true prevalence of each disorder, we need further studies to verify our battery.

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