

# Comparison of symptoms in Japanese and American depressed primary care patients

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**Background.** Depression is a highly prevalent, worldwide problem with multiple social and health consequences. It often presents in primary care with physical symptoms. Little research has been done on cross-cultural expression of depression in primary care. This paper examines the hypothesis that depressed Japanese patients present with more and with more distinct somatic complaints than depressed American patients.

**Methods.** Data were collected by chart audit for patients with a diagnosis of depression at two sites: Minamikawachi Tochigi, Japan and Cleveland, Ohio, USA. Patient demographics and type and number of presenting symptoms in the two populations were compared. Logistic regression was used to determine whether there were differences between countries in physical symptoms and to adjust for relevant demographic characteristics.

**Results.** Japanese family physicians charted more somatic complaints from patients diagnosed as depressed than did American family physicians. Specific physical symptoms differed by country: Japanese patients had more abdominal distress, headaches, and neck pain. These symptoms have strong cultural significance for Japanese patients.

**Conclusions.** This study clearly indicates the prominence and importance of physical symptoms in the presentation of depression in Japanese primary care patients. Their physicians must be alerted to the possibility of depression, especially when patient complaints include abdominal, neck or head pain.

**Keywords.** Cross-cultural, depression, family medicine, Japan.

## Introduction

Depression is a prevalent, worldwide problem with major social and health ramifications. Research indicates

that depression is increasing, especially in younger people,<sup>1</sup> and that it is strongly correlated with decreased functional status,<sup>2,3</sup> poor health,<sup>4,5</sup> suicide<sup>6,7</sup> and marital discord.<sup>8,9</sup> Although depressed patients frequently seek medical care, and treatment for depression is effective, primary care physicians often underdiagnose it. Studies in the United States (US) indicate a high prevalence of depression in primary care populations, and yet as many as 50% of depressed patients are not recognized by their primary care physicians.<sup>10,11</sup> In Japan, research has found the prevalence of depression in primary care populations to be similar to that in the US, when using the same screening instruments,<sup>12,13</sup> but the actual clinical diagnosis rate made by primary care physicians has been reported to be lower in Japan.<sup>14</sup>

Primary care physicians in the US are often alerted to the presence of depression by a patient's physical distress.<sup>15,16</sup> Fifty to seventy per cent of primary care patients with psychiatric illness, mainly mood disorders, present with somatic complaints.<sup>17</sup> In Japan, somatic

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complaints have also been found to be useful clinical markers for depression.<sup>18</sup> Studies reported in the literature on depression in Japanese and American primary care patients have used standardized questionnaires to identify patients with depression.<sup>5,12,13,15</sup> However, primary care physicians seldom use questionnaires to diagnosis depression. They rely on clinical judgement, including presenting symptoms. A literature review did not reveal any studies that compared differences in presenting complaints between Japanese and American primary care patients, which were subsequently diagnosed with depression by their primary care physician. The goals of this study were: (i) to examine patients' presenting complaints when Japanese and American family practice physicians made a diagnosis of depression; and (ii) to assess the influence of cultural factors by comparing the type and number of somatic symptoms presented by primary care patients in each country. It was hypothesized that depressed Japanese patients would have more somatic complaints and a greater tendency to mention abdominal and neck symptoms than depressed American patients. This hypothesis is based on the first author's clinical observation and his knowledge of the importance of the abdomen and neck in Japan as a site for focusing emotions.

## Methods

Data were collected from all medical charts of patients on whom a new diagnosis of depression was made by their family physician in the Family Practice Center at University Hospitals of Cleveland (UHC) in Cleveland, Ohio, USA between 1 January 1995 and 31 December 1995, and in the Department of Community and Family Medicine at the Jichi Medical School (JMS) in Minamikawachi, Tochigi, Japan between 20 June 1993 and 19 June 1996. The sample was obtained by examining all the billing and encounter forms during the study times at each institution. These data contain the physicians' diagnoses for each visit and from these data a list of patients with a new diagnosis of depression was compiled. Medical records of male and female patients between the ages of 18 and 65 years with a new diagnosis of depression were eligible for the study. The first author (KW) reviewed all the records at each site. He was assisted in the US by the second author and a fourth-year medical student. In the chart review, patients' demographic information and presenting symptoms were collected and physicians' final diagnoses were validated with the information obtained from billing and encounter forms. All diagnoses of depression were used for this study, including major depression, dysthymia, bipolar affective disorder and adjustment disorder with depression. Symptoms obtained from the chart were categorized as either physical or psychological.

## Analysis

The statistical analysis of the data was carried out in three stages. In the initial stage, depressed patients from Japan and the US were compared in terms of selected demographic characteristics and the type and number of presenting symptoms. Continuous variables, such as age, were tested for association with country of origin by means of *t*-tests, while categorical variables, such as gender, were assessed by means of chi-square statistics. Test probabilities were further adjusted by means of Holm's procedure<sup>19</sup> to account for multiple statistical testing.

In the second stage of analysis, the number of physical symptoms reported by each patient was regressed on the following variables: age, gender, total number of presenting symptoms and country of origin. With all variables in the model, the regression coefficient representing the contribution of country differences, controlling for the measured confounders, was assessed by means of an *F*-statistic.

In the final stage of analysis, logistic regression analyses were used to assess whether differences between countries in specific physical symptoms were maintained after controlling for the total number of other presenting symptoms and for relevant demographic characteristics. These analyses provide the strongest evidence that country of origin is independently associated with presentation of specific physical symptoms after controlling for known differences in patient demographics and the total number of other symptoms reported.

## Results

In comparing the physicians' records of depressed patients in Japan with those in the US, a number of differences were observed. The results shown in Table 1 reveal that Japanese depressed patients were more likely to be male and to be slightly older. Japanese patients reported more total symptoms, and their physical symptoms, as compared with psychological symptoms, represented a higher percentage of their total number of symptoms. A three-fold difference was observed in Japanese patients presenting only with physical symptoms, i.e. 27% of the Japanese patients reported only physical symptoms, while 9% of the patients in the US presented in this manner. The reverse was true for the percentage of patients presenting solely with psychological symptoms. The presentation of patients with only psychological symptoms was much more characteristic of patients in the US.

Six categories accounted for the majority of presenting physical symptoms. Description of these six categories, along with tests of differences between countries, is presented in Table 2. The percentages in the table represent the proportion of depressed patients in each

TABLE 1 Description of sample demographics and reports of symptoms by country

Variable	USA ( <i>n</i> = 85), mean	Japan ( <i>n</i> = 104), mean	<i>t</i> /chi-square	<i>P</i>
Gender (% male)	11.8	34.6	13.26	0.001*
Age (years)	40.8	44.0	1.69	0.093
Total number of symptoms	4.4	5.4	2.90	0.004*
Physical symptoms, mean (%)	43.7	64.0	4.90	0.001*
Physical symptoms only (%)	9.4	26.9	9.30	0.002*
Psychological symptoms, only (%)	16.5	3.8	8.65	0.003*
Mixed symptoms (%)	74.1	69.3	0.55	0.459

\* Statistically significant at  $P < 0.05$  after adjusting for multiple testing.

TABLE 2 Percentage of selected physical symptoms by country<sup>a</sup>

Variable	USA ( <i>n</i> = 85)	Japan ( <i>n</i> = 104)	Chi-square	<i>P</i>
Abdominal symptoms (%)	13	35	12.68	0.001*
Headache (%)	7	34	21.86	0.001*
Neck pain (%)	3	16	8.59	0.004*
Fatigue (%)	16	29	4.90	0.028
Loss of appetite (%)	25	37	3.29	0.071
Sleep problems	52	61	1.25	0.266

<sup>a</sup> All percentages adjusted for total number of symptoms minus symptoms compared.

\* Statistically significant at  $P < 0.05$  after adjusting for multiple testing.

country reporting a specific symptom. Since Japanese patients reported more symptoms than American patients, logistic regression was used to adjust these percentages for the total number of symptoms reported minus the symptom being compared. Only symptoms with a  $P \leq 0.05$  after adjustment for multiple testing were considered significant. Depressed patients from both countries reported similar amounts of fatigue, loss of appetite and sleep problems after adjusting for multiple testing. However, abdominal distress, headache and neck pain were found to differ significantly between countries, with Japanese patients exhibiting more of each.

A multiple regression analysis was performed using number of physical symptoms as the outcome measure and country of origin, age, gender and number of non-physical symptoms as the predictor variables. The number of physical symptoms was subtracted from the total number of symptoms to create an adjusted variable of all non-physical symptoms. As shown in Table 3, only one variable demonstrated a statistically significant and independent association with the number of physical symptoms: the country of origin. Thus, the data are in support of the *a priori* hypothesis, i.e. Japanese patients present with more physical symptoms than patients in

the US independent of the patient's age, gender or the number of non-physical symptoms reported. Country of origin alone accounted for 17% of the variance in the number of physical symptoms.

Initial univariate analyses documented that Japanese patients present with significantly more abdominal symptoms than patients in the US. However, a more rigorous test of this hypothesis required the application of a logistic regression model in order to control for the total number of non-abdominal symptoms and relevant demographic variables. The results of this analysis are presented in Table 4. The findings reveal that, after adjusting for the potential confounding effects of the other variables in the model, country of origin remained the single best predictor of abdominal symptoms in this study.

The results of the logistic regression analyses for the physical symptoms of headache and neck pain (results not shown) were similar to those for abdominal symptoms. For patients presenting with headache symptoms, country of origin was the only statistically significant predictor (adjusted odds ratio of 15.2,  $P \leq 0.001$ ). Patients presenting with neck pain also were best characterized by country of origin (adjusted odds ratio of 6.1,  $P \leq 0.014$ ). Since each variable in these analyses

TABLE 3 Multiple regression analysis of variables associated with number of physical symptoms

Variable	Regression coefficients	Standard error	<i>t</i>	<i>P</i>
Age (years)	-0.009	0.009	-1.04	0.301
Country (Japan) <sup>a</sup>	1.380	0.244	5.65	0.001
Gender (male)	0.115	0.279	0.41	0.682
Number of non-physical symptoms	-0.066	0.064	-1.02	0.307

<sup>a</sup> For one-variable equation:  $F = 36.85$ , d.f. = 1187,  $P < 0.001$ , multiple  $R = 0.41$ .

TABLE 4 Logistical regression analysis of variables associated with the presentation of abdominal symptoms

Variable	Regression coefficients	Standard error	Adjusted odds ratio <sup>a</sup>	Wald statistic	<i>P</i>
Age (years)	-0.025	0.013	0.97	3.8	0.051
Country (Japan)	1.384	0.404	3.99	11.72	0.001
Gender (male)	0.024	0.404	1.02	0.01	0.953
Number of non-abdominal symptoms	-0.053	0.078	0.95	0.46	0.500

<sup>a</sup> Each odds ratio is adjusted for the effects of all other variables in the model.

was evaluated adjusting for the remaining variables in the model, country of origin was found to be an independent predictor of both headache and neck pain symptoms after controlling for age, gender and the total number of other symptoms reported.

## Discussion

Multiple studies comparing the symptoms of depressed patients in various countries report that patients in Western nations tend to display more psychological symptoms and fewer physical symptoms than those in non-Western countries.<sup>20-23</sup> In primary care settings, however, research has found that depressed patients in both Japan and the US may present with an array of somatic symptoms.<sup>17,18</sup>

The findings of the present study indicate that in primary care, depressed Japanese patients report more physical symptoms than US patients and that these symptoms differ from those reported by US patients. An important aspect of this study is the use of chart audits rather than patient questionnaires to identify depressed patients. Previous Japanese studies have used questionnaires to identify depressed patients.<sup>13,14,24</sup> Although the two methods serve different purposes and obtain different data, they are usually regarded as complementary to each other. However, the use of standardized questionnaires to assess depression can present serious limitations, including translational difficulties, for cross-cultural

comparisons. Furthermore, Japanese patients are often hesitant to reveal mental health concerns via questionnaires, and there are strict cultural constraints against revealing emotional states like depression.<sup>25</sup> In the present study, charts were audited to obtain the patients' symptoms, and cases were identified from the diagnosis of depression made by the clinical judgement of primary care physicians. This method of case finding is more likely to include missed cases due to patient reluctance to respond to a written questionnaire. A strength of this study lies in its method for overcoming the problem of a Japanese cultural bias against the use of questionnaires to elicit mental health information.

A study of primary care patients in the US, Israel and Japan<sup>24</sup> found similarities in the symptoms of patients with both major and minor depression. The lack of significant differences between the symptoms exhibited by depressed patients in these three countries must be viewed with care, since the number of cases studied was small. This small sample provided limited power to establish statistically significant differences. The sample size in the present study provided sufficient power to detect moderate differences between countries.

In this study, primary care patients in Japan presented with more physical symptoms than those in the US. This indicates that physical symptoms are likely to be important clues in the detection of depression in Japanese patients. Research in the US points out that the main reason why primary care physicians misdiagnose depressed patients is because of the somatic nature of their

complaints.<sup>26</sup> In Japan, because of the greater presentation of somatic symptoms, the misdiagnosis of depression may be even higher than in the US. In fact, research has shown that recognition of depression in Japan by primary care physicians is not only sparse, but is diagnosed in primary care at a lower rate than in other countries.<sup>14</sup> Japanese physicians should be encouraged to consider the diagnosis of depression when they encounter patients who present with physical symptoms, which cannot be explained in terms of organic reasons.

Specifically, these data indicate that depressed Japanese patients are more likely to present with abdominal symptoms, neck/shoulder pain and headaches than their American counterparts. Culture may play an important role in the choice of these three areas of the body for the somatic expression of depression. First, according to medical anthropological references, there are many Japanese expressions using the word 'Hara', or abdomen, to verbalize emotion. These include: 'hara ga tatu' (provoking), 'hara guroi' (wicked), or 'hara gei' (depending on the heart for understanding). In Japanese, 'hara' (abdomen) is considered to be the place where ideas and feelings are located.<sup>27</sup> 'Kanpo', a traditional form of Japanese medicine of Chinese origin, is popular with many Japanese. A 'kanpo' doctor often uses the orthodox procedure, 'Sesshin' (touching diagnosis) to diagnose the nature of an imbalance in the patient's body. Touching the abdomen is the most important examination of the 'Sesshin'.<sup>28</sup> For the Japanese, 'hara' or abdomen has special meaning. According to the Ministry of Health and Welfare, digestive system complaints are the number one reason for out-patient's medical visits.<sup>29</sup> Because of the cultural association of the abdomen with emotions, and the high number of medical visits for digestive system problems, it is understandable that depressed Japanese patients would somatize their psychological 'pain' to their abdomen.

Secondly, in Japan neck/shoulder pain ('katakori') is also a common reason for out-patient visits.<sup>30</sup> 'Katakori' is an expression that is considered very unique to Japan and could be impossible to precisely translate into English.<sup>31</sup> However, there may be expressions in English for 'katakori', such as 'neck tension', 'neck stiffness' or 'pain in the neck'.<sup>32</sup> As with abdominal complaints, the frequency of medical visits for 'katakori' shows that Japanese patients use body sites to locate their psychological pain. Because of the stigma in Japan associated with mental disorders,<sup>14</sup> using common physical symptoms diverts attention from psychiatric problems.

Thirdly, according to medical anthropological studies, Japanese nationals often associate the word for depression, 'yu-utsu', with external phenomena, such as rain or clouds, or with somatic symptoms, such as headaches. However, Japanese Americans predominantly associate the same word with mood-state terms such as sad and lonely.<sup>33</sup> The change in conceptualization of depression supports a stronger association with somatic complaints

among Japanese nationals than those who move to the US. This concept indicates that culture influences the presentation of depression and supports the study results.

The data from this study of physician-diagnosed depression shows that depressed primary care patients in Japan present with more physical complaints, particularly abdominal symptoms, neck (shoulder) pains and headache than primary care patients in the US. An early, accurate diagnosis can save the cost of unnecessary medical interventions such as expensive diagnostic work-ups and can also provide appropriate treatment for patients. Misdiagnosed mental health problems in primary care can lead to increased morbidity and lost productivity that can exceed the consequences of many physical problems.<sup>34</sup> When depression is diagnosed by a physician, the findings from this study suggest that somatic symptoms are even more important clues for making a diagnosis of depression for Japanese than American primary care patients.

This study had several limitations. First, since it has been estimated that as many as 50% of depressed patients are not recognized by their primary care physicians, the inclusion of only depressed patients diagnosed by physicians could miss important presenting symptoms of depressed patients whose illness was not diagnosed by their primary care physicians. Thus, the results of this study may not generalize to such patients or to patients diagnosed by a psychiatrist. Secondly, it is based on a modest sample size and included only one site in Japan and one in the US. Each site is a residency teaching programme, so generalizations to other populations must be made with caution. Thirdly, the rates of depression in each sample are not compared in this study. However, other studies have found the rates to be similar in the US and Japanese populations.<sup>13, 14</sup> Fourthly, culture may also affect physicians' charting. Since physicians diagnosed the cases of depression, the data could be interpreted as showing that Japanese family doctors were better than US family physicians at diagnosing depression when patients presented with somatic symptoms. If US family physicians overlook the diagnosis of depression in somatizing patients, these patients would not be included in the US sample. For cultural reasons, US and Japanese physicians may record different symptoms. Therefore, the relationship of charted information to the symptoms that patients' actually reported to a physician is uncertain. As in any study using a medical record audit, the information was dependent upon physician documentation practices. Physicians in either country may have obtained more information about the patient's symptoms than they charted.

## Summary

Although depression is a treatable illness, it is greatly under-diagnosed in primary care. This study indicates

the prominence and importance of physical symptoms in the presentation of depression in Japanese primary care patients. More specifically, it documents the frequent occurrence of abdominal, headache and neck pain symptoms. When caring for Japanese primary care patients, culturally sensitive criteria need to be developed to diagnose depression. These criteria, including the importance of somatic symptoms, should be taught to residents and practicing physicians so that the detection and treatment of depression in Japanese primary care patients can be improved.

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