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Title:
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Date:
2015-04-03

Citation:
Yoshioka, K., Reavley, N. J., Hart, L. M. & Jorm, A. F. (2015). Recognition of mental disorders and beliefs about treatment: results from a mental health literacy survey of Japanese high school students. International Journal of Culture and Mental Health, 8 (2), pp.207-222. https://doi.org/10.1080/17542863.2014.931979.

Persistent Link:
https://hdl.handle.net/11343/59336

Recognition of mental disorders and beliefs about treatment: results from a mental health literacy survey of Japanese high school students

Abstract

The aim was to carry out a survey of Japanese high school students in order to assess recognition and beliefs about treatments for mental disorders. In 2011, 311 Japanese high school students aged 15-19 years filled out an anonymous self-report questionnaire containing a case vignette describing depression, schizophrenia or social phobia. Subsequent questions covered: what was wrong with the person, help-seeking intentions and the likely helpfulness of treatments. Only 14.3% of students correctly labelled depression. Rates of recognition for schizophrenia (or psychosis) and social phobia were 8.3% (or 23.1%) and 26.8% respectively. Friends nominated as the most likely source of help. The most commonly nominated barrier to help seeking was concern about what other people might think. Views about the helpfulness of treatments generally diverged from those of health professionals. Between 36.8% and 52.6% of students thought dealing with the problem alone would be helpful. Japanese high school students show low levels of mental health literacy relating to depression, social phobia and schizophrenia. Interventions to improve mental health literacy should be targeted towards young people and their parents and should address signs and symptoms of disorders, evidence-based treatments and barriers to help-seeking, particularly concern about what others might think.

Keywords: mental health literacy, depression, social phobia, schizophrenia, Japanese students

Introduction

Young people aged between 16 and 24 have the highest prevalence of mental health problems of any age group, with mental and substance use disorders having their first onset before age 24 in 75% of such cases (Gau, Chong, Chen, & Cheng, 2005; Kessler et al., 2007; Lin et al., 2008). However, the majority of young people who meet the criteria for a mental disorder either delay or fail to seek professional help for these problems (Christiana et al., 2000; Reavley, Cvetkovski, Jorm, & Lubman, 2010).

In order to prevent adverse social, educational and vocational outcomes, there is a need for young people to have early access to appropriate professional or self-help interventions (Kessler, Foster, Saunders, & Stang, 1995; Marshall et al., 2005). It may be argued that mental health literacy, which has been defined as "knowledge and beliefs about mental disorders which aid in their recognition, management or prevention" (Jorm et al., 1997), is particularly critical in young people due to the potential for lifelong consequences of untreated mental disorders. (McGorry, Purcell, Hickie, & Jorm, 2007) There are a number of components of mental health literacy which may affect whether an individual suffering from a mental disorder receives appropriate treatment. These include recognition of disorders and beliefs about treatments. Accurate recognition of disorders is of importance as it has been shown to be associated with rates of help-seeking and use of appropriate treatments (Thompson, Issakidis, & Hunt, 2008; Wright, Jorm, Harris, & McGorry, 2007).

A number of surveys have assessed mental health literacy in Japanese populations, including one in 2000 adults aged between 20 and 69 that assessed recognition of depression and schizophrenia and beliefs about treatments (Jorm et al., 2005), a survey of 500 adults examining views on causes and treatment for schizophrenia (Sawamura et al., 2011) and autism spectrum disorder (Koyama et al., 2009), a northern Japanese survey of over 7000 adults assessing attitudes to depression and suicide (Kaneko & Motohashi, 2007), a survey assessing recognition of depression and attitudes to

treatment in cancer patients (Okuyama et al., 2007), a survey of new students entering schools teaching welfare services (Nakane, 2006), and a study of teachers' attitudes to schizophrenia (Kurumatani et al., 2004). However, no studies have examined mental health literacy in young Japanese people.

Mental health literacy surveys in other countries show that, among young people, rates of recognition of disorders in vignettes are generally low, with between 50-70% of young people able to identify depression and 25-33% able to identify psychosis (Burns & Rapee, 2006; Reavley & Jorm, 2011; Wright et al., 2005; Wright & Jorm, 2009). Studies examining help-seeking intentions and beliefs about help-seeking show that young people vary in their preferences for coping with mental health issues. Rather than accessing professional services, they often prefer to seek help from family or friends, or to use lifestyle or complementary treatments (Burns & Rapee, 2006; Jorm & Wright, 2007; Jorm, Wright, & Morgan, 2007; Reavley & Jorm, 2011; Wright et al., 2005).

Given the lack of data on mental health literacy in Japanese youth, and the recent introduction of the term in Japan (Yoshioka, 2010), the aim of this study was to carry out a survey assessing high school students' recognition and beliefs about treatment for depression, schizophrenia and social phobia.

Methods

Participants

Initially, one author (KY) approached local high schools and met with principals and teachers to explain the purpose of the study and seek the support of the school. Schools that agreed to participate were provided with hardcopy surveys, which were handed out by homeroom teachers of senior high school Grades 1 to 2 during one homeroom period, of approximately 40-50 minutes. Individual student participants were provided with information regarding the study, and their

freedom to decline participation, on the survey paper. Consent to participate was implied by survey completion. Three hundred and eleven surveys were distributed among two schools, during December 2010. All distributed surveys were returned by students to their homeroom teachers, then to the research staff. The study was approved by the University of Fukuoka Ethics Committee. Parental approval was not specifically sought, although information for parents was prepared and parents were asked to contact the school if problems arose. The school agreed to contact the researcher (KY) in this case.

Mental Health Literacy Survey

The Japanese survey was based on the Mental Health Literacy Interview developed by Jorm and colleagues (Jorm et al., 1997) , which provides participants with a vignette of a young person with a mental disorder and asks a range of questions regarding problem recognition, help-seeking intentions, beliefs about treatment and stigmatising attitudes. Vignettes describing young people with depression, psychosis or social phobia have been used and validated in previous research on youth mental health literacy in Australia (Jorm, Morgan, & Wright, 2008; Jorm & Wright, 2007; Wright, Jorm, & Mackinnon, 2011). These vignettes were translated into Japanese by one of the authors (KY) with the assistance of a psychiatrist. All surveys were completed in Japanese.

In order to minimise respondent burden, students were randomly allocated one of three vignettes: depression, psychosis or social phobia. The gender of the character described in the vignette was also randomly allocated; the English language character 'John' was translated to 'Shōta-san' and the English language character 'Jenny' was translated to 'Ai-san'. The character in the vignette was described as being 15 years old.

After being presented with the vignette, students were asked demographic questions and what, if anything, they thought was wrong with the person described. Responses were forced choice and included the options: depression, schizophrenia/paranoid schizophrenia (using the newer Japanese

term tōgō shitchō shō), social phobia, psychosis/psychotic, mental illness, stress, nervous breakdown, psychological/mental/emotional problem, has a problem, cancer, nothing, other. Students were also asked to choose one 'most likely option'. Students were then asked if they would go for help if they had the problem described. Those who responded 'yes', were then asked if they would ask for help from various people/services, including both parents; mother; father; friend; teacher; counsellor; service; and psychiatrist.

Barriers to help seeking were assessed by asking students what might stop them from seeking help from the person/service indicated. Options were: too embarrassed/shy; the cost; concern that the person might feel negative towards you; concern that what the person might say is wrong; concern about what other people might think of you seeing the person; too far to travel; too hard to get an appointment; concern about side effects; not liking the type of treatment that is likely to be offered; thinking that nothing can help; having to wait for appointment; and other.

Students were asked if they had a problem right now like the one described, whether they would feel able to talk to their parents about it. If students answered 'yes', they were then asked whether they would feel able to talk to both parents or one parent in particular. This was followed by a series of questions about the likely helpfulness of a wide range of interventions (rated as likely to be helpful, harmful or neither for the person described in the vignette). The interventions were: general physician; lecturer/ teacher; counsellor (using the Japanese term 'kaunserā' which was not further defined); telephone counselling service; psychologist; psychiatrist; close family member; close friend ; deal with the problems alone; vitamins; St John's wort; antidepressants; tranquillizers; antipsychotics; sleeping pills; physical activity; getting relaxation training; practice meditation; regular massages; acupuncture; getting up early and out in sun; counselling; CBT; looking up info on website; read self-help book; support group; visit local mental health service; and admission to psychiatric ward.

Statistical analysis

The data from the survey were initially analysed using per cent frequencies. Chi square tests were used to assess whether differences in frequencies varied according to vignette. Due to the large number of comparisons, only those at the $p<0.01$ level were considered significant.

Results

The survey was carried out in high school students aged 15-18 years (*M* = 16.1, *SD* =0.69). Table 1 shows the sociodemographic characteristics of students. Males comprised 55.0% and females 44.7%. The majority of students were aged between 16 and 17 years and 85.2% lived with both parents. The numbers assigned to each vignette were: depression n=99, schizophrenia n=117, and social phobia n=95.

Table 1 about here

Recognition of disorders

Table 2 shows the percentage of students endorsing various categories as the best option to describe the problems shown in the vignettes. The term 'stress', selected by 31.9% (95% CI=22.1-41.6) of students, was most often used to label the depression vignette, followed by 'mental illness' (18.7% (95% CI=10.5-26.8)), then 'depression' (14.3% (95% CI=7.0-21.6)) and 'psychological/mental/emotional problems' (14.3% (95% CI=7.0-21.6)). The terms 'psychosis' (23.1% (95% CI=15.1-31.2)) and 'mental illness' (20.4% (95% CI=12.7-28.1)) were most commonly selected for the schizophrenia vignette. For the social phobia vignette, 26.8% (95% CI=17.0-36.6) of students selected the term 'social phobia', with another 26.8% (95% CI=17.0-36.6) selecting the term 'psychological/mental/emotional problems'.

Table 2 about here

Help-seeking intentions

When asked whether they would seek help if they had the problem described in the vignette, 73.5% (95% CI=64.6-82.4) said that they would do so for depression, 71.8% (95% CI=63.5-80.1) for schizophrenia and 66.3% (95% CI=56.6-76.0) for social phobia. There were no statistically significant differences according to vignette (χ^2 (2) = 1.31, p= 0.519). Table 3 outlines the responses to the question about whether or not students would seek help from the various sources mentioned.

Table 3 about here

Across all vignettes, students were most likely to tell their friends. When asked whether they would feel able to talk to their parents if they had problems similar to those described in the vignette, 50% (95% CI=40.0-60.1) of those given the depression vignette, 45.3% (95% CI=36.1-54.5) of those given the schizophrenia vignette and 40.0% (95% CI=30.0-50.0) of those given the social phobia vignette, said they would. There were no statistically significant differences according to vignette (χ^2 (2) = 3.10, p= 0.796). Table 4 outlines the percentages of students who would be willing to talk to their parents, or mothers or fathers in particular.

Table 4 about here

Barriers to help seeking

Across all vignettes, the most commonly nominated barrier to help seeking was concern about what other people might think of the respondent seeking help , followed concern that the person might feel negatively towards them for schizophrenia and depression, and embarrassment for social phobia (see Table 5). The only statistically significant difference between vignettes was for embarrassment.

Table 5 about here

Beliefs about specific interventions

Table 6 shows students' ratings of the helpfulness and harmfulness of specific interventions. In terms of people who might help, for depression and schizophrenia, counsellors received the highest rating, while for social phobia, close friends did so. In terms of medications that might help, for depression and social phobia, vitamins were considered the most helpful, while for schizophrenia, tranquillizers received the highest ratings. Across all vignettes, the most highly rated options in the 'other interventions' category were relaxation training and counselling.

Table 6 about here

For depression and schizophrenia, teachers received the highest ratings of harmfulness, while psychiatrists received the highest ratings for social phobia. Across all vignettes, sleeping pills received the highest harmfulness ratings of all medications. Antidepressants for social phobia also received high harmfulness ratings. Among the 'other interventions' category, for all vignettes, admission to a psychiatric ward and looking up information on a website received the highest harmfulness ratings. The statistically significant differences ($P<0.01$) between vignettes were for, , antidepressants, tranquillizers and sleeping pills.

Discussion

This survey, the first to examine mental health literacy in young Japanese people, shows poor recognition of depression, schizophrenia and social phobia as described in vignettes. Rates of recognition for social phobia were the highest, with 26.8% selecting the correct label, while only 14.3% of students were able to correctly label depression. It is possible that the term social phobia in Japanese is more comprehensible to students than that for depression, thus making it more likely that students would select the correct answer.

These results may be compared to those of other studies of mental health literacy in Japanese populations, including a survey of Japanese adults which found that 23% recognised depression in a vignette and 14% recognised early schizophrenia/psychosis (Jorm et al., 2005). Other studies have shown similarly low rates of recognition of schizophrenia in Japanese teachers (Kurumatani et al., 2004) and other adults (Sawamura et al., 2011) and low rates of depression recognition in Japanese cancer patients (Okuyama et al., 2007). As in Australia, comparison with rates of recognition in a survey of Japanese adults indicated that rates of recognition are lower in young people (Jorm et al., 2005; Okuyama et al., 2007). It is notable that in the current study, 'stress' was the most common response to the depression vignette, nominated by 31.9% of students, possibly due to discussion in the Japanese media, as well as in health education textbooks, that link stress with depression but not other mental disorders. This may have led students to view stress as a disease, similar to depression. Use of this term was only nominated by 6.5% of those given the schizophrenia vignette and 2.4% of those given the social phobia vignette. Given these results, young Japanese people are likely to benefit from education about specific signs and symptoms of mental disorders, particularly the differences between depression and stress.

Help-seeking intentions

Overall help-seeking intentions were similar across vignettes, with around 70% of students saying they would seek help. These rates are somewhat lower than those in a similar Australian survey of young people (82% for depression, 79% for schizophrenia and 72% for social phobia), and also did not vary as much by disorder, perhaps suggesting a less educated view of mental disorders (Reavley & Jorm, 2011).

When young people were asked whether they would seek help from various people or services, results showed that they were most likely to seek help from friends. Such findings are similar to those from Australian surveys (Burns & Rapee, 2006; Jorm et al., 2007) and may be of concern as friends may not be in the best position to provide help to the person (also known as first-aid

behaviours) due to their own lack of understanding of mental health problems and knowledge of appropriate sources of help. While seeking help from friends is typical in adolescence, those described in the vignettes meet the criteria for disorders as outlined in DSM-IV and are therefore very likely to be in need of professional help. Talking to friends carries the risk that young people may not then seek professional help. The proportions nominating both parents and mothers as sources of help were higher than in a recent Australian survey of mental health literacy in young people (around 25% for most vignettes) (Reavley & Jorm, 2011). Very few students mentioned their fathers as sources of help, perhaps reflecting the traditional family roles of Japanese men. When asked directly, almost 50% of students said that they would feel able to talk to their parents if they had problems similar to those described in the vignettes. Given the importance of parents' roles, it is likely that interventions to improve mental health literacy and knowledge of first-aid behaviours would need to target both parents and young people themselves.

As in similar Australian studies, the perceived barriers to receiving care do not relate to the organisation or financing of the health system, but to personal factors (Jorm et al., 2007). For young Japanese people, concern about what other people think about them was the most commonly nominated barrier, whereas for young Australians embarrassment is typically the most commonly nominated (Jorm et al., 2007). In the current study, nominating embarrassment as a barrier was significantly more likely for social phobia, perhaps because the vignette described the person's embarrassment in social situations. Concern about what others think of the young person is most likely to relate seeking help from services rather than informal sources and it is likely that efforts to improve help seeking for mental health problems in Japanese people should focus on this issue. In addition, a relatively high proportion of students nominated 'thinking that nothing can help' as a barrier, pointing to the need for education about effective treatments for mental disorders.

Beliefs about the helpfulness of interventions

When asked about the helpfulness and harmfulness of various people, Japanese youth gave the highest ratings to counsellors and close friends. Comparison with a survey of Japanese adults suggests that young people were less likely to rate health professionals highly, and were less likely to rate 'dealing with the problem alone' as harmful (Jorm et al., 2005; Okuyama et al., 2007). Higher helpfulness ratings were given to friends and family than to psychologists and psychiatrists, again pointing to the need for education to improve knowledge of effective treatments in these groups. However, counsellors received relatively high ratings of helpfulness, comparable to results from research with adults, possibly due to the increases in numbers of school counsellors in Japan in recent years.

In the current study, vitamins were much more highly rated for helpfulness than medications, such as antidepressants for depression, or antipsychotics for schizophrenia. Moreover, tranquillisers received higher ratings than antidepressants for depression and antipsychotics for schizophrenia. Such views are particularly at odds with the recommendations of health professionals (Jorm et al., 2008). These results suggest that young Japanese people do not have a good understanding of medication treatments for mental disorders and their differences. These results may be compared to those of a study of Japanese adults that asked participants to label the disorder described in a schizophrenia vignette and then asked about the benefits of various coping strategies and treatments (Sawamura et al., 2011). Those that labelled the disorder as 'stress' rather than a mental disorder gave ratings most similar to those in the current study. A study of Japanese teachers also showed low helpfulness ratings for medications for schizophrenia (Kurumatani et al., 2004).

As in Australian studies, physical activity and relaxation received relatively high ratings of helpfulness, which is encouraging as there is some evidence of effectiveness for exercise in the treatment of depression and relaxation in the treatment of social phobia (Morgan & Jorm, 2008, 2009). It is interesting to note that looking up information on a website received the highest ratings

of harmfulness, much higher than ratings from adults in previous surveys (Jorm et al., 2005). This may be due to warnings from teachers about the harmfulness of the internet and may represent a barrier to improvements in mental health literacy as interventions to increase population mental health literacy increasingly rely on the internet (e.g. www.beyondblue.com) (Reavley & Jorm, 2010).

Study limitations include the relatively small sample size and the fact that the students were all from two schools. It is possible that health education or other factors unique to those students (e.g. experience of a classmate with mental health problems) may have impacted on results, limiting the generalizability of findings. Comparison with other countries is limited by the relatively recent change in the Japanese term for schizophrenia.

Conclusions

Young Japanese people show low levels of mental health literacy relating to depression, social phobia and schizophrenia when compared to Japanese adults and young people in other countries. They are less likely to recognise mental disorders, particularly depression, which is more likely than other disorders to be labelled as 'stress'. They are more likely to believe in the helpfulness of friends than in health professionals and have negative views about medications. Interventions to improve mental health literacy should be targeted towards young people and their parents and should address knowledge of the signs and symptoms of disorders, evidence-based treatments, and decrease barriers to help-seeking, particularly concern about what others might think about the person who seeks help.

Acknowledgements

Funding for the study was provided by the Japanese Society for the Promotion of Science.

Conflict of interest: None declared

References

Burns, J. R., & Rapee, R. M. (2006). Adolescent mental health literacy: young people's knowledge of depression and help seeking. *J Adolesc, 29*(2), 225-239. doi: S0140-1971(05)00059-X [pii]

10.1016/j.adolescence.2005.05.004

Christiana, J. M., Gilman, S. E., Guardino, M., Mickelson, K., Morselli, P. L., Olfson, M., & Kessler, R. C. (2000). Duration between onset and time of obtaining initial treatment among people with anxiety and mood disorders: an international survey of members of mental health patient advocate groups. *Psychol Med, 30*(3), 693-703

Gau, S. S., Chong, M. Y., Chen, T. H., & Cheng, A. T. (2005). A 3-year panel study of mental disorders among adolescents in Taiwan. *Am J Psychiatry, 162*(7), 1344-1350. doi: 162/7/1344 [pii] 10.1176/appi.ajp.162.7.1344

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997). "Mental health literacy": a survey of the public's ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *Med J Aust, 166*(4), 182-186

Jorm, A. F., Morgan, A. J., & Wright, A. (2008). A comparison of clinician, youth, and parent beliefs about helpfulness of interventions for early psychosis. *Psychiatr Serv, 59*(10), 1115-1120

Jorm, A. F., Nakane, Y., Christensen, H., Yoshioka, K., Griffiths, K. M., & Wata, Y. (2005). Public beliefs about treatment and outcome of mental disorders: a comparison of Australia and Japan. *BMC Med, 3*, 12. doi: 1741-7015-3-12 [pii] 10.1186/1741-7015-3-12

Jorm, A. F., & Wright, A. (2007). Beliefs of young people and their parents about the effectiveness of interventions for mental disorders. *Aust N Z J Psychiatry, 41*(8), 656-666. doi: 780537169 [pii] 10.1080/00048670701449179

Jorm, A. F., Wright, A., & Morgan, A. J. (2007). Where to seek help for a mental disorder? National survey of the beliefs of Australian youth and their parents. *Med J Aust, 187*(10), 556-560

Kaneko, Y., & Motohashi, Y. (2007). Male gender and low education with poor mental health literacy: a population-based study. *J Epidemiol, 17*(4), 114-119. doi: JST.JSTAGE/jea/17.114 [pii]

Kessler, R. C., Angermeyer, M., Anthony, J. C., De Graaf, R., Demyttenaere, K., Gasquet, I., . . . Ustun, T. B. (2007). Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative. *World Psychiatry, 6*(3), 168-176

Kessler, R. C., Foster, C. L., Saunders, W. B., & Stang, P. E. (1995). Social consequences of psychiatric disorders, I: Educational attainment. *Am J Psychiatry, 152*(7), 1026-1032

Koyama, T., Tachimori, H., Sawamura, K., Koyama, A., Naganuma, Y., Makino, H., & Takeshima, T. (2009). Mental health literacy of autism spectrum disorders in the Japanese general population. *Soc Psychiatry Psychiatr Epidemiol, 44*(8), 651-657. doi: 10.1007/s00127-008-0485-z

Kurumatani, T., Ukawa, K., Kawaguchi, Y., Miyata, S., Suzuki, M., Ide, H., . . . Uemoto, M. (2004). Teachers' knowledge, beliefs and attitudes concerning schizophrenia- a cross-cultural approach in Japan and Taiwan. *Soc Psychiatry Psychiatr Epidemiol, 39*(5), 402-409. doi: 10.1007/s00127-004-0758-0

Lin, H. C., Tang, T. C., Yen, J. Y., Ko, C. H., Huang, C. F., Liu, S. C., & Yen, C. F. (2008). Depression and its association with self-esteem, family, peer and school factors in a population of 9586 adolescents in southern Taiwan. *Psychiatry Clin Neurosci, 62*(4), 412-420. doi: PCN1820 [pii] 10.1111/j.1440-1819.2008.01820.x

Marshall, M., Lewis, S., Lockwood, A., Drake, R., Jones, P., & Croudace, T. (2005). Association between duration of untreated psychosis and outcome in cohorts of first-episode patients: a systematic review. *Arch Gen Psychiatry, 62*(9), 975-983. doi: 62/9/975 [pii] 10.1001/archpsyc.62.9.975

McGorry, P. D., Purcell, R., Hickie, I. B., & Jorm, A. F. (2007). Investing in youth mental health is a best buy. *Med J Aust, 187*(7), S5-7

Morgan, A. J., & Jorm, A. F. (2008). Self-help interventions for depressive disorders and depressive symptoms: a systematic review. *Ann Gen Psychiatry, 7*, 13

Morgan, A. J., & Jorm, A. F. (2009). Outcomes of self-help efforts in anxiety disorders. *Expert Rev Pharmacoecon Outcomes Res, 9*(5), 445-459. doi: 10.1586/erp.09.47

Nakane, Y. (2006). [Mental health literacy of new students entering schools teaching welfare services]. *Seishin Shinkeigaku Zasshi, 108*(8), 821-824

Okuyama, T., Nakane, Y., Endo, C., Seto, T., Kato, M., Seki, N., . . . Hosaka, T. (2007). Mental health literacy in Japanese cancer patients: ability to recognize depression and preferences of treatments-comparison with Japanese lay public. *Psychooncology, 16*(9), 834-842. doi: 10.1002/pon.1119

Reavley, N. J., Cvetkovski, S., Jorm, A. F., & Lubman, D. I. (2010). Help seeking for substance use, anxiety and affective disorders among young people: results from the 2007 Australian National Survey of Mental Health and Wellbeing. *Aust N Z J Psychiatry, 44*(8), 729-735

Reavley, N. J., & Jorm, A. F. (2010). The quality of mental disorder information websites: A review. *Patient Educ Couns, 85*(2), e16-25. doi: S0738-3991(10)00623-3 [pii] 10.1016/j.pec.2010.10.015

Reavley, N. J., & Jorm, A. F. (2011). Young people's recognition of mental disorders and beliefs about treatment and outcome: findings from an Australian national survey. *Aust N Z J Psychiatry, 45*(10), 890-898. doi: 10.3109/00048674.2011.614215

Sawamura, K., Tachimori, H., Koyama, T., Koyama, A., Naganuma, Y., Kim, Y., & Takeshima, T. (2011). Lay Diagnoses and Views on Causes, Coping Strategies, and Treatment for Schizophrenia. *Community Ment Health J*. doi: 10.1007/s10597-011-9454-1

Thompson, A., Issakidis, C., & Hunt, C. (2008). Delay to seek treatment for anxiety and mood disorders in an Australian clinical sample. *Behav Change, 25*, 71-84

Wright, A., Harris, M. G., Wiggers, J. H., Jorm, A. F., Cotton, S. M., Harrigan, S. M., . . . McGorry, P. D. (2005). Recognition of depression and psychosis by young Australians and their beliefs about treatment. *Med J Aust, 183*(1), 18-23

Wright, A., & Jorm, A. F. (2009). Labels used by young people to describe mental disorders: factors associated with their development. *Aust N Z J Psychiatry, 43*(10), 946-955

Wright, A., Jorm, A. F., Harris, M. G., & McGorry, P. D. (2007). What's in a name? Is accurate recognition and labelling of mental disorders by young people associated with better help-seeking and treatment preferences? *Soc Psychiatry Psychiatr Epidemiol, 42*(3), 244-250

Wright, A., Jorm, A. F., & Mackinnon, A. J. (2011). Labeling of mental disorders and stigma in young people. *Soc Sci Med, 73*(4), 498-506. doi: S0277-9536(11)00371-6 [pii] 10.1016/j.socscimed.2011.06.015

Yoshioka, K. (2010). Nihonjin no mental health literacy. In Y. Y. Nakane, K. Nanake, H. (Ed.), *Kokoro no baria furi wo mezashite* (pp. 15-43). Tokyo, Japan: Keiso Shobo Publishing.

Tables

Table 1 Sociodemographic characteristics of students

Socio-demographic characteristic	n	% (95% CI)
Gender		
Male	171	55.0
Female	139	44.7
Missing	1	0.3
Age category		
15	46	14.8
16	160	51.4
17	100	32.2
18	3	1.0
Missing	2	0.6
Living situation		
With both parents	265	85.2
With mother only	35	11.3
With father only	2	0.6
With neither parent	1	0.3
Refused/Missing	8	2.6

Table 2 Percentage of students choosing each category as the most likely option to describe the problem shown in the vignette

Category mentioned	Depression % (95% CI)	Schizophrenia % (95% CI)	Social phobia % (95% CI)	Difference between vignettes
Depression	14.3 (7.0 - 21.6)	5.6 (1.2 - 9.9)	1.2 (0 - 3.6)	χ^2 (2) = 31.42, p< 0.001
Schizophrenia/paranoid schizophrenia	0	8.3 (3.0 - 13.6)	2.4 (0 - 5.8)	χ^2 (2) = 14.38, p= 0.001
Psychosis/psychotic	7.7 (2.1 - 13.3)	23.1 (15.1 - 31.2)	2.4 (0 - 5.8)	χ^2 (2) = 37.04, p<0.001
Mental illness	18.7 (10.5 - 26.8)	20.4 (12.7 - 28.1)	14.6 (6.8 - 22.4)	χ^2 (2) = 23.54, p< 0.001
Social phobia	3.3 (0 - 7.0)	15.7 (8.8 - 22.7)	26.8 (17.0 - 36.6)	χ^2 (2) = 14.10, p<0.001
Stress	31.9 (22.1 - 41.6)	6.5 (1.8 - 11.2)	2.4 (0 - 5.8)	χ^2 (2) = 36.91, p <0.001
Nervous breakdown	0	1.9 (0 - 4.4)	2.4 (0 - 5.8)	χ^2 (2) = 6.24, p= 0.044
Psychological/mental/emotional problems	14.3 (7.0 - 21.6)	10.2 (4.4 - 16.0)	26.8 (17.0 - 36.6)	χ^2 (2) = 0.11, p= 0.942
Has a problem	5.5 (0.7 - 10.3)	5.6 (1.2 - 9.9)	4.9 (0.1 - 9.6)	χ^2 (2) = 4.14, p= 0.126
Cancer	2.2 (0- 5.3)	0	0	χ^2 (2) = 3.43, p=

Category mentioned	**Depression % (95% CI)**	**Schizophrenia % (95% CI)**	**Social phobia % (95% CI)**	**Difference between vignettes**
Other	1.1 (0- 3.3)	0.9 (0 - 2.8)	3.7 (0 - 7.8)	0.180 χ^2 (2) = 0.03, p= 0.986
Nothing	1.1 (0- 3.3)	1.9 (0 - 4.4)	12.2 (5.0 - 19.4)	χ^2 (2) = 15.10, p< 0.001

Note: Chi square tests were used to assess differences in the distribution between vignettes.

Table 3 Percentage of students who would seek help from people or services (among those who would ask for help)

	Depression % (95% CI) (n=72)	Schizophrenia % (95% CI) (n=84)	Social phobia (%) (n=63)	Difference between vignettes
Both parents	41.7 (30.0-53.3)	38.1 (27.5-48.7)	34.9 (22.8-47.0)	χ^2 (2) = 0.65, p= 0.722
Mother	27.8 (17.2-38.4)	19.0 (10.5-27.6)	22.2 (11.7-32.8)	χ^2 (2) = 1.70, p= 0.428
Father	4.2 (0-8.9)	6.0 (0-11.1)	4.8 (0-10.2)	χ^2 (2) = 0.27, p= 0.873
Friend	59.7 (48.1-71.3)	48.8 (37.9-59.7)	60.3 (47.9-72.7)	χ^2 (2) = 2.63, p= 0.268
Teacher	18.1 (9.0-27.2)	11.9 (4.8-19.0)	25.4 (14.3-36.4)	χ^2 (2) = 4.48, p= 0.106
Counsellor	27.8 (17.2-38.4)	39.3 (28.6-50.0)	41.3 (28.8-53.8)	χ^2 (2) = 3.26, p= 0.196
Service	11.1 (3.7-18.5)	20.2 (11.5-29.0)	9.5 (2.1-17.0)	χ^2 (2) = 4.22, p= 0.121
Psychiatrist	18.1 (9.0-27.2)	33.2 (23.0-43.6)	22.2 (11.7-32.8)	χ^2 (2) = 5.21, p= 0.074

Note: Chi square tests were used to assess differences in the distribution between vignettes.

Table 4 Percentage of students who would be willing to tell both parents, just mother or just father if they had a similar problem to that described in the vignette (among those who would tell their parents)

	Depression (%) (n=49)	**Schizophrenia (%) (n=53)**	**Social phobia (%) (n=38)**	**Difference between vignettes**
Both parents	38.8 (24.6-52.9)	66.0 (39.4-65.7)	44.7 (28.2-61.3)	χ^2 (2) = 8.32, p=0.016
Just mother	57.1 (42.8-71.5)	34.0 (19.9-44.5)	50.0 (33.3-66.7)	χ^2 (2) = 5.77, p= 0.056
Just father	4.1 (0-9.8)	0	5.3 (0-12.7)	χ^2 (2) = 2.62, p= 0.270

Table 5 Percentage of students who believed the following might stop them from seeking help from the person or service previously nominated (among those who would ask for help)

Barrier	Depression (%) (n=72)	Schizophrenia (%) (n=84)	Social phobia (%) (n=63)	Difference between vignettes
Too embarrassed/shy	29.2 (18.4-39.9)	23.8 (14.5-33.1)	50.8 (38.1-63.5)	χ^2 (2) = 12.63, p= 0.002
The cost	4.2 (0-8.9)	8.3 (2.3-14.4)	1.6 (0-4.8)	χ^2 (2) = 3.60, p= 0.165
Concern that the person might feel negative towards you	34.7 (23/5-46.0)	42.9 (32.1-53.7)	41.3 (28.8-53.8)	χ^2 (2) = 1.16, p= 0.560
Concern that what the person might say is wrong	27.8 (17.2-38.4)	25.0 (15.5-34.5)	25.4 (14.3-36.4)	χ^2 (2) = 0.17, p= 0.917
Concern about what other people might think of you seeing the person	40.3 (28.7-51.9)	47.6 (36.7-58.5)	57.1 (44.6-69.7)	χ^2 (2) = 3.83, p= 0.147
Too far to travel	2.8 (0-6.7)	6.0 (0.7-11.1)	1.6 (0-4.8)	χ^2 (2) = 2.18, p= 0.336
Too hard to get an appointment	0	1.2 (0-3.6)	3.2 (0-7.6)	χ^2 (2) = 2.54, p= 0.281
Concern about side effects	5.6 (0.1-11.0)	4.8 (0.1-9.4)	4.8 (0-10.2)	χ^2 (2) = 0.06, p= 0.969
Not liking the type of	2.8 (0-6.7)	10.7 (4.0-17.5)	6.3 (0.2-12.5)	χ^2 (2) = 3.86,

Barrier	Depression (%) (n=72)	Schizophrenia (%) (n=84)	Social phobia (%) (n=63)	Difference between vignettes
treatment that is likely to be offered				p= 0.145
Thinking that nothing can help	15.4 (7.5-23.4)	15.4 (7.6-23.4)	14.3 (5.4-23.2)	χ^2 (2) = 0.74, p= 0.690
Having to wait for appointment	0	1.2 (0-3.5)	0	χ^2 (2) = 1.61, p= 0.446
Other	2.8 (0-6.7)	4.8 (0.1-9.4)	1.6 (0-4.7)	χ^2 (2) = 1.23, p= 0.540

Note: Chi square tests were used to assess differences in the distribution between vignettes.

Table 6 Percentage of students rating each type of intervention as 'helpful' for the person described in the vignette

	Helpfulness			**Harmfulness**			**Difference between vignettes**
	Depression (%)	Schizophrenia (%)	Social phobia (%)	Depression (%)	Schizophrenia (%)	Social phobia (%)	
Person							
General physician	24.2 (15.7-32.8)	28.2 (19.9- 36.5)	24.2 (15.4-33.0)	9.1 (3.3-14.9)	13.7 (7.4-20.0)	13.7 (6.6-20.7)	χ^2 (2) = 2.83, p= 0.830
Lecturer/ Teacher	27.3 (18.3-36.2)	22.2 (14.6-29.9)	26.3 (17.3-35.3)	17.2 (9.6-24.7)	22.2 (14.6-29.9)	12.6 (5.8-19.4)	χ^2 (2) = 5.06, p= 0.536
Counsellor	61.2 (51.4-71.0)	54.7 (45.5-63.9)	53.7 (43.5-63.9)	5.1 (0.6-9.5)	6.0 (1.6-10.3)	5.3 (0.6-9.8)	χ^2 (2) = 2.44, p= 0.875
Telephone counselling service	33.3 (23.9-42.8)	28.2 (20.0-36.5)	30.5 (21.1-40.0)	10.1 (4.1-16.1)	9.4 (4.0-14.8)	16.8 (9.1-24.5)	χ^2 (2) = 5.88, p= 0.436

	Helpfulness			**Harmfulness**			**Difference between vignettes**
	Depression (%)	Schizophrenia (%)	Social phobia (%)	Depression (%)	Schizophrenia (%)	Social phobia (%)	
Psychologist	30.3 (21.1-39.5)	35.0 (36.3-43.8)	26.3 (17.3-35.3)	11.1 (4.8-17.4)	12.0 (6.0-17.9)	15.8 (8.3-23.3)	χ^2 (2) = 6.42, p= 0.378
Psychiatrist	36.4 (26.7-46.0)	51.3 (42.1-60.5)	29.5 (20.1-38.8)	12.1 (5.6-18.7)	10.3 (4.7-15.8)	17.9 (10.0-25.7)	χ^2 (2) = 13.25, p= 0.039
Close family member	54.5 (44.6-64.5)	43.6 (34.5-52.7)	56.8 (56.7-67.0)	6.1 (1.3-10.8)	15.4 (8.7-22.0)	8.4 (2.7-14.1)	χ^2 (2) = 12.55, p= 0.051
Close friend	58.6 (48.7-68.4)	47.0 (37.8-56.1)	70.5 (61.2-79.9)	5.1 (0.6-9.4)	6.8 (21.9-11.5)	2.1 (0-5.0)	χ^2 (2) = 13.70, p= 0.033
Deal with alone	42.4 (32.5-52.3)	36.8 (28.1-46.0)	52.6 (42.4-62.9)	12.1 (5.6-18.7)	17.2 (10.3-24.2)	8.4 (2.7-14.1)	χ^2 (2) = 7.01, p= 0.320
Medication							

	Helpfulness			**Harmfulness**			**Difference between vignettes**
	Depression (%)	Schizophrenia (%)	Social phobia (%)	Depression (%)	Schizophrenia (%)	Social phobia (%)	
Vitamins	43.3 (33.2-53.3)	33.3 (24.7-42.0)	28.7 (19.4-38.0)	5.1 (6.8-9.6)	3.4 (0-6.7)	7.4 (2.0-12.8)	χ^2 (2) = 6.42, p= 0.377
St John's Wort	6.1 (1.3-11.1)	6.8 (2.2-11.7)	5.3 (0.7-9.9)	11.3 (4.9-17.7)	7.8 (2.8-12.8)	8.5 (2.7-14.3)	χ^2 (2) = 2.19, p= 0.902
Antidepressants	15.4 (8.1-22.7)	23.3 (15.5-31.1)	8.5 (2.8-14.3)	21.6 (13.3-30.0)	12.1 (6.1-18.1)	28.7 (19.4-38.0)	χ^2 (2) = 17.17, p= 0.009
Tranquillizers	25.5 (16.7-34.3)	41.9 (32.8-51.0)	17.0 (9.3-24.8)	18.2 (10.6-26.2)	11.1 (5.3-16.9)	30.5 (21.3-40.4)	χ^2 (2) = 23.18, p= 0.001
Antipsychotics	12.2 (5.6-18.9)	27.4 (19.2-35.6)	10.6 (4.3-17.0)	20.2 (12.3-28.5)	15.4 (8.7-22.0)	26.3 (17.5-35.7)	χ^2 (2) = 15.47, p= 0.017
Sleeping pills	18.2 (10.5-25.9)	19.7 (12.3-27.0)	3.2 (0-6.8)	33.3 (23.9-	30.8 (22.3-39.2)	36.8 (27.2-47.2)	χ^2 (2) = 17.97,

	Helpfulness			**Harmfulness**			**Difference between vignettes**
	Depression (%)	Schizophrenia (%)	Social phobia (%)	Depression (%)	Schizophrenia (%)	Social phobia (%)	
				42.8)			p= 0.006
Other intervention							
Physical activity	43.4 (33.5-53.4)	35.0 (26.3-43.9)	51.6 (41.3-61.8)	10.1 (4.1-16.1)	6.8 (2.2-11.5)	3.2 (0.1-6.7)	χ^2 (2) = 9.26, p= 0.159
Getting relaxation training	61.6 (51.9-71.4)	59.8 (50.8-68.9)	70.5 (61.9-79.9)	4.0 (0.1-8.0)	4.3 (0.5-8.0)	4.2 (0.1-8.3)	χ^2 (2) = 3.22, p= 0.781
Practice meditation	28.3 (19.2-37.3)	30.8 (22.3-39.2)	30.5 (21.1-40.0)	8.1 (2.6-13.5)	11.1 (5.3-16.9)	5.3 (0.7-9.8)	χ^2 (2) = 5.21, p= 0.518
Regular massages	45.5 (35.4-55.4)	35.9 (27.0-44.7)	43.2 (33.0-53.3)	5.1 (0.6-9.4)	3.4 (0-6.7)	4.2 (0-8.3)	χ^2 (2) = 3.96, p= 0.682

	Helpfulness			**Harmfulness**			**Difference between vignettes**
	Depression (%)	Schizophrenia (%)	Social phobia (%)	Depression (%)	Schizophrenia (%)	Social phobia (%)	
Acupuncture	21.2 (13.0-29.1)	14.5 (8.0-21.0)	21.1 (12.9-29.7)	6.1 (12.8-10.8)	9.4 (4.0-14.7)	5.3 (0.7-9.9)	χ^2 (2) = 5.37, p= 0.497
Getting up early and out in sun	30.3 (21.1-39.5)	44.4 (35.3-53.4)	46.3 (36.1-56.5)	10.1 (4.1-16.1)	4.3 (0.5-7.9)	4.2 (0.1-8.3)	χ^2 (2) = 10.42, p= 0.108
Counselling	53.5 (43.6-63.5)	57.3 (48.1-66.3)	52.6 (42.4-62.9)	4.0 (0.1-8.0)	6.0 (1.6-10.3)	5.3 (0.6-9.8)	χ^2 (2) = 2.82, p= 0.830
CBT	9.1 (3.3-14.9)	15.4 (8.7-22.0)	6.3 (1.3-11.4)	18.2 (10.1-26.0)	17.9 (10.9-25.0)	18.0 (10.2-26.0)	χ^2 (2) = 6.14, p= 0.408
Looking up info on website	11.1 (4.8-17.4)	29.9 (21.5-38.3)	16.8 (9.2-24.5)	33.3 (23.9-42.8)	27.4 (19.2-35.5)	33.7 (24.0-43.4)	χ^2 (2) = 13.64, p= 0.034
Read self help book	36.4 (26.7-46.0)	37.6 (28.7-46.5)	28.4 (19.2-37.7)	13.1 (6.4-19.9)	7.7 (2.8-12.6)	14.7 (7.5-22.0)	χ^2 (2) = 11.23,

	Helpfulness			**Harmfulness**			**Difference between vignettes**
	Depression (%)	Schizophrenia (%)	Social phobia (%)	Depression (%)	Schizophrenia (%)	Social phobia (%)	
							p= 0.081
Support group (similar issue)	40.4 (30.6-50.2)	48.7 (39.5-57.9)	44.2 (34.0-54.4)	11.1 (4.8-17.4)	7.7 (2.8-12.6)	10.5 (4.2-16.8)	χ^2 (2) = 7.82, p= 0.251
Visit local mental health service	30.3 (21.1-39.5)	36.8 (28.1-46.0)	25.3 (16.6-34.5)	7.1 (1.9-12.2)	8.6 (3.4-13.8)	9.5 (3.5-15.6)	χ^2 (2) = 5.00, p= 0.544
Admission to psychiatric ward	11.1 (4.8-17.4)	17.9 (10.9-25.0)	8.4 (2.7-14.1)	33.3 (23.8-42.8)	33.3 (24.6-42.0)	51.6 (41.3-61.8)	χ^2 (2) = 12.15, p= 0.059

Note: Chi square tests were used to assess differences in the distribution between vignettes